

# Exploration history of northern East Greenland

This section comprises brief summaries of all activities in northern East Greenland from *c.* 2500 BC up to the present day. These activities range from large scientific expeditions with more than 100 participants to minor tourist visits by a few persons. Due to the remote and isolated situation of northern East Greenland, virtually all visiting groups need to be self-supporting and are therefore characterised as ‘expeditions’.

The various activities are presented chronologically, with brief information on the nature of the objectives and results of scientific investigations, and with particular emphasis on place names proposed by the participants. In general the name of the expedition is given in the original language, followed by the expedition name in English (where relevant) and the name of the leader.

In 1979, Greenland was granted Home Rule, and took over many of the responsibilities formerly carried out by Denmark on its behalf. From 1989 until 2009 the Danish Polar Center (DPC) undertook the issue of permits to visit northern East Greenland and the North-East Greenland National Park. One of the conditions of the permits was that a report should be submitted to DPC, but some expeditions have failed to submit reports and the expedition list that follows is therefore incomplete.

Many of the modern activities, from about 1961 onwards, are recorded only in unpublished expedition reports deposited with the organisations that supported the activity, or from 1989 with the Danish Polar Center. Where such reports have been located at the British Mountaineering Council in Manchester [BMC report archive], Royal Geographical Society in London [RGS report archive] or the Danish Polar Center in Copenhagen [DPC report archive], this is indicated at the end of the activity description.

In 2009 Greenland acquired a further degree of independence from Denmark, and from 2010 permission to visit northern East Greenland must be requested from the Ministry of Domestic Affairs, Nature and Environment of the Government of Greenland in Nuuk.

Note that in the following accounts of activities officially authorised place names are in normal type, whereas unofficial place names, or unapproved variations of names, are given in italics. The names of ships are given in capitals, e.g. the HOPEWELL.

Note that hunting trips made by the residents of Scoresbysund / Illoqqortoormiut (*Ittoqqortoormiit*) are not included in this volume, although such tours may extend northwards into the North-East Greenland National Park and southwards along the Blossville Kyst. Local excursions organised by the travel agents Nanu Travel Aps for groups visiting Scoresbysund / Illoqqortoormiut (*Ittoqqortoormiit*) are in general outside the scope of this volume. Similarly, excursions by personnel from Danmarks-havn weather station (or the former weather and/or radio stations at Daneborg and Kap Tobin) are not generally on public record. The numerous scientists that visit the Zackenberg Ecological Research Operation (ZERO) are mainly involved in projects in the vicinity of the research station, but a few projects range more widely afield (see Meltotte *et al.* 2008); a few ZERO projects merit mention below, but most projects are included in the general descriptions of activities – see: ‘1997–present Zackenberg Ecological Research Operations (ZERO)’. Cruise ships have occasionally visited East Greenland since the early 1970s, and many cruise organisations now include regular visits to East Greenland in their schedules; up to 17 ships annually have been recorded carrying a total of about 1000 passengers – see: ‘1998–present: Nuna Travel Aps’. With few exceptions these cruises are not individually listed here. The Sirius Sledge Patrol covers a total of 20 000 km on patrol with dog-sledge teams in northern East Greenland and North Greenland during the winter and spring every year. Details of these patrols are confidential, but P.S. Mikkelsen (1986, 2005) has provided an informative and well-illustrated account of his own experiences with the Sirius Sledge Patrol.

## Pioneer exploration and discovery: c. 2500 BC – AD 1912

### c. 2500 BC – c. 1823 Inuit (palaeoeskimo) immigrations

About 4500 years ago, long before European whalers and explorers set foot on the east coast of Greenland, the entire region had been settled by Inuit (palaeoeskimos). The Independence I culture, which is closely related to the Saqqaq culture of West Greenland and the early pre-Dorset culture of Canada, had spread from Ellesmere Island (Canada) across North Greenland and down the coast as far as Scoresby Sund (70°N). The Independence I people remained in East Greenland for up to 600 years (Bennike *et al.* 2008).

About 1100 years later a new wave of Inuit (palaeoeskimos), the Greenlandic Dorset, retraced their predecessors' footsteps. Both cultures depended for their existence on musk oxen, seals, hares, birds and fish. The tent rings of the Greenlandic Dorset are widely distributed along the coast of East Greenland, with a concentration in Dove Bugt and on *Île de France* (now Qeqertak Prins Henrik). The Greenlandic Dorset people lived in East Greenland from about 800 BC to 0.

About AD 1200 the ancestors of the present day Greenlanders, the Thule culture, reached Greenland, and via North Greenland soon populated the entire coast of East Greenland. They were whale-hunters and possessed skin boats (kayaks and umiaks), but also depended on musk oxen, seals, hares, birds and fish (Larsen 1970). The last remnants of this population north of 69°N latitude may have been the group of 12 encountered by Douglas Clavering at Clavering Ø (74°15'N) in 1823 (Clavering 1830). Ruins of their winter houses are common throughout East Greenland.

### c. 1000–1250 Norse (Viking) voyages

The Icelandic sagas include accounts of a number of voyages to Greenland, although most of the place names recorded have usually been identified with locations in South or West Greenland (Rafn 1845). Some names have appeared in a variety of positions on old charts which were based partly on interpretations of the sagas (Egede 1818; Steenstrup 1886, 1889; Bjørnbo 1911; Trap 1928; see Frontispiece). However, Tornøe (1935, 1944) has argued that places described in *Landnámabók*, Eirik Raudes saga, Torfinn Karlsevnes saga and other sources might have been situated

in East Greenland. North of latitude 69°N Tornøe suggests locations for *Bláserkr*, *Breidifjórdr*, *Finnsbúdir*, *Greipar*, *Krosseyjar* and *Öllumlengri*. Apart from *Bláserkr* (now Rigny Bjerg) their positions are debatable, and none of them have acquired the status of approved names.

*Öllumlengri* or *Ollum lengri Fiordr* is said to have been discovered by Norse voyagers from Iceland in 1194 or 1195, and here they for many years hunted seals, walruses, narwhales and bears. Gustav Holm (1925, 1926) considered their description of the 'fjord longer than all other fjords' admirably fitted the present day Scoresby Sund, a viewpoint supported by Tornøe (1944) and Einar Mikkelsen (1989). Scoresby Sund with its inner branch of Nordvestfjord is in fact the longest fjord in the World.

The Icelandic Annals also refer to the discovery in 1194 of *Svalbardr*, or *Svalbarda í Hafsbötn*, the 'country of the cold coasts', which some authorities identify with the Scoresby Sund region (70°–72°N) of East Greenland (Rafn 1845; Ryder 1892; Holm 1926), others with Jan Mayen (Wordie 1922) or Spitsbergen (Tornøe 1935, 1944). Svalbard is today the official name of the group of islands including Spitsbergen that were placed under the sovereignty of Norway by the Treaty of Paris in 1920.

Direct evidence of Norse visits to East Greenland north of latitude 69°N is limited to finds in Inuit graves at Scoresbysund of silver buttons and beads (Storgaard 1926) and of an ornamented bone comb (Thalbitzer 1909); these have been argued by Tornøe (1944) to indicate some contacts between the Norse inhabitants of Iceland and the former Inuit population.

### 1607 Henry Hudson's voyage

In 1607, Henry Hudson was sent out by the Muscovy Company with a crew of 11 on the HOPEWELL to seek a passage to Japan and China across the North Pole. He sighted the coast of East Greenland on several occasions between latitudes 68° and 74°N, and on 22 June 1607 lay off Hold with Hope (73°30'N). The only account of his observations is reproduced in Asher (1860) and Purchas (1906) – "*It was a mayne high land, nothing at all covered with snow: and the North part of that mayne high Land was very high Mountaynes .... wee thought good to name it, Hold with hope, lying in 73. degrees of latitude*" (Asher 1860, p. 3; Purchas 1906, p. 297–298).

Hold with Hope is the oldest place name currently in use in northern East Greenland. While Hudson failed in the main purpose of his voyage, his accounts of the abundant whales in the waters near Spitsbergen are said by many authors to have led to the development of the northern whale-fishery; other writers give the credit to Nicholas Woodcock's 1612 voyage (see below).

### c. 1614 – c. 1910 Northern whale-fishery

Until the pioneer charting of the coast of East Greenland by William Scoresby Jr. in 1822, the only information on the region north of latitude 69°N came from the chance sightings of whalers. British whalers began to sail to Spitsbergen waters after Nicholas Woodcock's successful voyage in 1612, and as a result of their success were soon joined by Dutch whalers, and subsequently by French, Spanish, Danish and others. Whales became scarce in the bays of Spitsbergen after 1630, leading to a temporary decline in British whaling. After 1720 whales were then sought along the edge of the East Greenland pack ice. Revival of British whaling about 1750 was linked to the introduction of a government bounty. Fluctuations in whaling returns, especially in the British trade, were influenced by variations in the bounty (which lasted until 1824), the attacks of hostile privateers, the weather conditions and whale migrations. In view of the numbers of whalers engaged in the fishery, there were probably numerous sightings of the Greenland coast, but records are few. No deliberate attempts were apparently made to penetrate the ice belt before 1822, the general opinion among whalers up to about 1818 being that the land was inaccessible (Scoresby 1823).

A note on an Italian map from 1690 by Coronelli records that the Dutch sighted the coast of East Greenland at about 79°N in 1614, and that Broer Ruys reached land and observed *Gael Hamkes Land* at c. 73°N in 1654 (Bobé 1928). A collection of Dutch charts, '*De groote nieuwe Zee-Atlas door Gerrit van Keulen*' from 1706, includes a chart recording the discovery of '*t'land v. Broer Ruys*' in 1655 at 73°30'N, '*t'bay v. Gale Hamkes*' in 1654 at 74°N, '*t'land v. Adam*' in 1655 at 77°N and '*t'land v. Lambert*' in 1670 at 78°30'N. Nearly all these names were preserved by subsequent explorers, and were later approved in danicised form.

In 1761, a Danish whaler, Volquaart Boon, aboard a Dutch or German ship, followed the East Greenland coast from 76°30' to 68°40'N, and at about latitude

70°20'N was dragged by a strong current into a wide and deep fjord, the present Scoresby Sund (Bobé 1928). Other whalers known to have sighted the coast, usually reported as *Gale Hamkes Land*, include DIE FRAU MARIA ELISABETH in 1769, DE SANKT PETER in 1773 and WILLEMINA in 1777 (Ryder 1892).

In 1798, British cruisers had captured the Dutch whaling fleet, and by the early 1800s the northern whale fishery was largely in British hands. A series of prosperous whaling years lasted until about 1826, although with a progressive shift in interest from the Greenland Sea to the Davis Strait (offshore West Greenland). William Scoresby Sr. and his son had notable success in East Greenland waters, and their search for the declining whales led to attempts to penetrate the pack ice. William Scoresby Jr. sighted land at 74°N in 1817, and in 1821 observed the coast from 74°30' to 73°30'N (Manby 1822); William Scoresby Sr. also followed the coast in 1821 from 74° to 70°N (Scoresby 1823). However, all these observations were from a great distance, and it was only in 1822 that William Scoresby Jr. came close enough to the coast to construct a chart (see below). Other whale fishers also approached the coast and good catches were often made.

From about the 1750s whalers had begun to take seals in increasing numbers, Hamburg and Altona ships taking 50 000–60 000 in the Greenland Sea in 1787. As whaling declined, sealing gained in importance, Scottish ships beginning intensive sealing in 1831, were joined in 1847 by Norwegian sealers who subsequently dominated the trade (see below).

Whaling in East Greenland waters was maintained largely due to the enterprise of a few notable whaling skippers. Following the retirement of the Scoresbys' after 1822, the Gray family of Peterhead were most celebrated, with their equally notable ships, ACTIVE, ECLIPSE and HOPE. They were amongst the few to make paying voyages to the Greenland Sea in the 1870s, and the Peterhead fishery ceased with the retirement of David Gray in 1891. Tom Robertson was among the last to seek whales off East Greenland, and made regular voyages from 1895 until 1907 with the ACTIVE and BALAENA with moderate success, and occasionally reached land. In 1899 he assisted A.G. Nathorst's expedition, and took home 10 musk oxen. The effective end of the Greenland whale fishery is placed at about 1910 (Lubbock 1937; Jackson 1978).

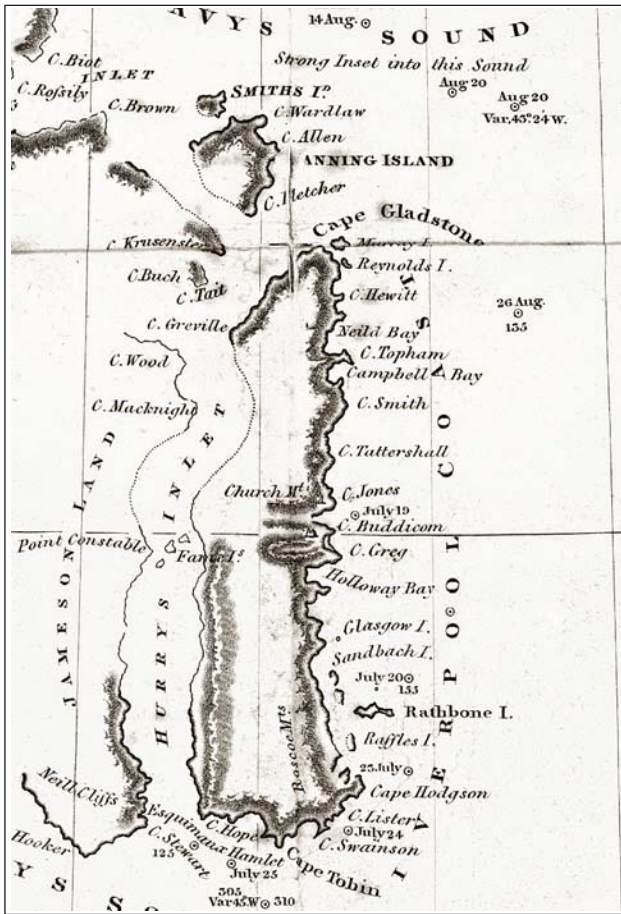


Fig. 3. Part of the chart of the East Greenland coast drawn up by William Scoresby Jr. in 1822, showing the numerous features that he named in Liverpool Land (*Liverpool Coast*) and adjacent areas. From: Scoresby (1823).

### 1822 William Scoresby Jr.'s whaling voyage

William Scoresby Jr. and his father were important figures in the history of Arctic whaling, but were also natural scientists, and even while engaged in the search for whales concerned themselves with scientific observations of all kinds (Stamp & Stamp 1975). William Scoresby Jr. became one of the leading authorities on magnetism, especially on marine compasses and their deviation, published many articles on a variety of subjects, and has been considered a founder of Arctic science and the beginnings of oceanography. One major result of Scoresby Jr.'s whaling career was his celebrated two volume *An account of the Arctic regions*' (Scoresby 1820), and the journal of his 1822 voyage which brought back for the first time anything approaching accurate information on the fjord region of East Greenland (Scoresby 1823).

Between June and August 1822, William Scoresby

Jr. on the *BAFFIN* was close to land on numerous occasions, sometimes in company with his father on the *FAME*, sometimes with other whalers – up to 20 or 30 whalers were at times reported in sight. William Scoresby Jr. succeeded in laying down a chart of the East Greenland coast between latitudes 69° and 75°N, the original of which is now in Whitby Museum (England). The most accurate portion is that from 70° to 72°30'N, where landings were made at Kap Lister, Neill Klintner, Kap Brewster and Kap Moorsom (Fig. 3), the first landings recorded by European visitors. Areas farther north were observed from a distance. Scoresby (1823) recorded geological, botanical and zoological observations. Scoresby Sund was given its name after William Scoresby Sr., described as the first to enter the sound, and Hurry Inlet was explored. One of the most important results of Scoresby's survey was a correction of the serious errors of longitudes, placed 7° to 14° too far to the east on earlier charts. Subsequent explorers have had little difficulty in recognising the features Scoresby laid down, and nearly all of Scoresby's 80 place names have survived. However, a few earlier Dutch names were misplaced by Scoresby, and some of his capes subsequently proved to be mountains standing well back from the coast (White 1927). The majority of Scoresby's place names were given after his friends, notably including a number of scientists from Edinburgh who had encouraged his scientific interests.

### 1823 Voyage of Douglas Clavering and Edward Sabine on the *GRIPER*

The British Board of Longitude decided that Edward Sabine's pendulum observations should be continued to the most northerly latitude possible, and appointed Douglas Clavering as captain of the *GRIPER* for a voyage to Spitsbergen and Greenland in 1823. Edward Sabine's pendulum experiments were aimed at determination of the Earth's magnetic field and the shape of the Earth, and for this purpose he had travelled widely in America and Africa. After completion of observations in Spitsbergen in 1823, course was set for Greenland. An attempt to penetrate the ice belt at 77°N failed, and the coast was eventually reached at about 74°N.

An observatory was set up on what was subsequently called Sabine Ø (74°35'N) on 13 August, and the pendulum experiments successfully completed (Sabine 1825). Meanwhile a boat journey was made by Douglas Clavering to the present Clavering Ø

(74°15' N), where the only recorded meeting with the last remnants of the Thule-culture Inuit was made on 16–19 and 23–24 August (Clavering 1830; Ryder 1892). Clavering also explored and named Loch Fyne (73°45' N).

In the course of the voyage Clavering, with his midshipman Henry Foster, surveyed the coast between 72°30' and 74°N, joining up with the 1822 observations of William Scoresby Jr. All of Clavering's 18 names have survived. Most were given for Scottish localities and friends, while the islands on which the pendulum experiments were carried out are commemorated as the Pendulum Øer.

### 1831 Albert Haake and the BREMEN

Albert Haake, sailing on the BREMEN, is reported to have made a landing in East Greenland at about 74°N in July 1831, and reported a broad strip of ice-free water along the coast (Ryder 1892).

### 1833 Jules de Blosseville and LA LILLOISE

Jules de Blosseville was a French naval officer who in 1833 had command of the brig LA LILLOISE, and the task of maintaining order among the whalers and fishing vessels around Iceland. On 29 July he sighted the coast of East Greenland between 68° and 69°30' N that now bears his name. He returned to Iceland to dispatch a report and sketch-map of his discoveries, and on 5 August set sail again to continue his observations, but vanished without trace with his crew of 80. His map included a number of names mostly given for ministerial officials (Fig. 4), and while exact identification of his named features was often not possible, Georg Carl Amdrup's 1898–1900 expedition preserved many of them (Blosseville 1834; Amdrup 1902a, 1902b). Only four were given for features north of latitude 69°N, of which two names survive on modern maps – Rigny Bjerg and D'Aunay Bugt (c. 69°N).

### 1847–1959 Norwegian fishing and hunting voyages

Norwegian sealers made their first appearance in the Greenland Sea in 1847, and within a few years attained a dominance of the trade. Sealing reached its height in the 1850s, and in one season 40 ships took 400 000 seals. Norwegian landings on the coast of East Greenland can be dated back to 1889, a poor sea-

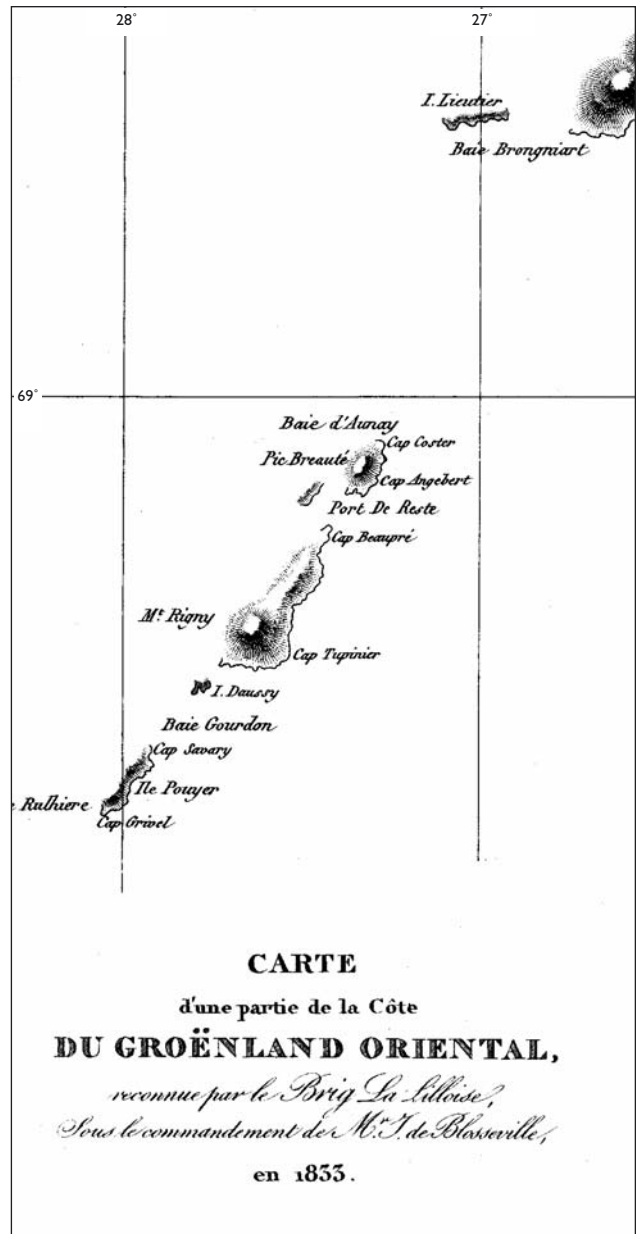


Fig. 4. This map shows Jules de Blosseville's observations in 1833 north and south of latitude 69°N, on what came to be known as Blosseville Kyst after he was lost in the ice with the crew of LA LILLOISE. This was the map sent home to France from Iceland, after which Blosseville returned to the East Greenland coast with the intention of continuing his observations (Blosseville 1834). Very few of Blosseville's place names have been preserved, except for Rigny Bjerg (*Mt. Rigny*) that later proved to lie just north of latitude 69°N.

ling season, when the HEKLA captained by Ragnvald Knudsen visited the coast between 73°30' and 75°30' N. The HEKLA returned home with a substantial catch of more than 2700 seals, 267 walrusses, 9 bears and 24 musk oxen (Knudsen 1890; Solberg 1929). In subse-



Fig. 5. The discovery of Petermann Bjerg (2970 m) by Karl Koldewey's 1869–70 expedition. The mountain is on the skyline at the centre of the drawing, and was observed by Julius Payer after climbing Sonklargletscher to a vantage point on the icecap north-east of Payer Tinde (the peak at left). The fjord visible is the inner part of Kejsler Franz Joseph Fjord, first completely explored by A.G. Nathorst's 1899 expedition. From: Verein für die Deutsche Nordpolarfahrt in Bremen (1873–74).

quent years Norwegian sealers periodically followed the HEKLA's example, visiting the coastal waters to supplement their catch of seals. Isachsen & Isachsen (1932) record 142 visits by Norwegian ships between 1889 and 1931, numbering usually one to four each year, but with eight in 1900 (Isachsen 1922). Catches were sometimes notably large, that of the ASPØ in 1898 including 66 bears, those of the SØSTRENE and the SPIDSBERGEN in 1899 including 79 and 69 musk oxen respectively, and the first two live musk-ox calves, while the SPIDSBERGEN in 1901 took 46 walrus. In 1908–09 the first Norwegian overwintering expedition was led by Severin Liavaag, followed in 1909–10 by Vebjørn Landmark's expedition. Norwegian ships made something of a speciality of bringing live musk oxen to Europe for sale to zoos, and Alendal (1980) records that 290 musk oxen were brought back between 1899 and 1969.

After the signing of the Danish–Norwegian treaty on East Greenland in 1924 (Østgrønlands Traktaten, see below), a succession of Norwegian and Danish fox-trapping expeditions wintered in East Greenland,

some state-supported while many others were private initiatives. Most are briefly described individually below. A general account of Norwegian hunting up to 1939 is given by Rogne (1981), and a detailed account of all Danish and Norwegian trapping activities by P.S. Mikkelsen (1994, 2008).

In 1946, after World War II, Norwegian hunting was resumed under the auspices of Arktisk Næringsdrift and Hermann Andresen (see also below). By 1959 hunting had virtually ceased following withdrawal of state subsidies and falling skin prices. As a consequence of reduced Norwegian activity, and other factors, Denmark availed itself of the termination clause in the Danish–Norwegian treaty, which expired on 9 July 1967.

### 1869–70 Die zweite deutsche Nordpolarfahrt (The Second German North Pole expedition): Karl Koldewey

This expedition was organised on the initiative of the noted German geographer August Petermann, who



Fig. 6. Segment of the map just north of  $74^{\circ}30'N$  produced by Karl Koldewey's 1869–70 expedition. From: Verein für die Deutsche Nordpolarfahrt in Bremen (1873–74). The expedition wintered at Germania Havn (*Germania Hafen*) on the south side of Sabine Ø (*Sabine I.*).

had suggested an attempt be made to reach the North Pole along the coast of Greenland or Spitsbergen. A reconnaissance expedition led by Karl Koldewey on the GRØNLAND was sent out in 1868, failed to penetrate the pack ice off East Greenland, but eventually reached Spitsbergen. Based on this experience a larger-scale expedition was organised, and in June 1869 the steamer GERMANIA, especially built for the voyage, together with the schooner HANSA, set out for East Greenland. The GERMANIA reached land at  $74^{\circ}N$ . However, the HANSA was crushed in the pack ice and sank off the coast of Liverpool Land ( $71^{\circ}N$ ), the crew drifting on an ice floe down the coast, rounding Kap Farvel ( $59^{\circ}46'N$ ) and eventually reaching land near the settlements in West Greenland.

The GERMANIA was captained by Karl Koldewey, and the ship's officers included the Austro-Hungarian Lieutenant Julius von Payer, Ralph Copeland as surveyor, Carl Børgen as meteorologist and Adolph Pansch as surgeon. After failed attempts to penetrate northwards along the coast with the ship, the GERMANIA anchored in Germania Havn on Sabine Ø ( $74^{\circ}32'N$ ) where it overwintered. In the autumn of 1869, sledge journeys were made to Fligely Fjord, Kuhn Ø, Clavering Ø and Tyrolerfjord ( $74^{\circ}$ – $75^{\circ}N$ ). In the spring of 1870, two sledges and 10 men were sent northwards along the unknown coast and reached Germania Land at  $77^{\circ}N$ . Further sledge journeys were made to Ardencaple Fjord, Shannon and Clavering Ø.

In the summer of 1870, attempts were made to press northwards with the GERMANIA, but without success, and the expedition turned southwards to discover and partially explore Keiser Franz Joseph Fjord ( $73^{\circ}15'N$ ). The local ice cap adjacent to Payer Tinde was climbed, from the top of which Petermann Bjerg was sighted far inland to the west (Fig. 5). Although the expedition failed to reach the North Pole or to demonstrate a practical route, it made important geographical discoveries and mapped large parts of the coastal region of East Greenland between  $73^{\circ}$  and  $77^{\circ}N$ . Important meteorological, geological, botanical and zoological observations were made. This expedition was the first to report musk ox in East Greenland.

The detailed maps of the expedition record about 125 new place names (Fig. 6; Verein für die Deutsche Nordpolarfahrt in Bremen 1873–74; Koldewey 1874; Payer 1876, 1877), nearly all of which survive on modern maps. The names proposed were evidently the work of a committee and incorporate many suggestions of August Petermann (see e.g. Verein für die Deutsche Nordpolarfahrt in Bremen 1870–76). Most were given for prominent German scientists, the officers and scientists of the ships, and colleagues who had assisted or promoted the expedition. Others were given during the expedition and commemorate incidents (e.g. Stormbugt), or the appearance of features (e.g. Eiger, Tyrolerfjord, Teufelkap).

### 1879 Orlogskonnerten Ingolf Ekspedition i Danmarksstrædet (The Ingolf expedition to Danmark Strait)

The Danish schooner *INGOLF* captained by A. Mourier was dispatched in 1879 to undertake hydrographical observations in Danmark Strait. It came sufficiently close to the East Greenland coast to sketch many features between 65° and 69°N (Mourier 1880). Only few are relevant to this account, and include a more accurate placing of Jules de Blosseville's *Mont Rigny* (Rigny Bjerg).

### 1891–92 Den østgrønlandske Expedition (The East Greenland expedition): Carl Ryder

Lieutenant Carl Ryder was appointed leader of an 11-man Danish government-sponsored expedition to East Greenland, which sailed from Copenhagen in early June 1891 aboard the Norwegian sealer *HEKLA*, captained by Ragnvald Knudsen. A direct route through the ice pack to Scoresby Sund proved impractical, and a detour was made to the north, the coast being reached in the vicinity of Hold with Hope (73°40'N) on 20 July, and the mouth of Scoresby Sund (70°20'N) on 31 July.

After entering Scoresby Sund, a visit was made to Kap Stewart, the site originally planned for the wintering station, but this proved not to be suitable. From a vantage point on Neill Klinten it was observed that Hurry Inlet was not a channel as depicted by William Scoresby Jr. in 1822, but a closed fjord. Sailing westwards into the unknown inner reaches of Scoresby Sund, a small enclosed harbour (Hekla Havn) was discovered on Danmark Ø, and became the winter harbour for the expedition and ship.

From Hekla Havn journeys were made by motor boat into Gåsefjord, Føhnfjord, Rødefjord and Nordvestfjord, the first explorations by Europeans, as well as along the coast of Jameson Land.

In spring 1892, several sledge journeys were made. The first revisited Føhnfjord and Rødefjord, and discovered Rypefjord and Harefjord. The second penetrated to the inner parts of Vestfjord. Subsequently journeys were also made to Sydbær and the inner parts of Gåsefjord. Details of the journeys are found in the official report of Ryder (1895), the diaries of Ragnvald Knudsen published in edited form by Giæver (1937), and the diaries of Lieutenant Helge Vedel (Gulløv 1991).

In August 1892, the *HEKLA* left Hekla Havn, with



Fig. 7. Part of the geological map of the inner Scoresby Sund region produced during Carl Ryder's 1891–92 expedition. The expedition wintered at Hekla Havn on the south side of Danmark Ø (*Danmarks Ø*). From: Bay (1896).

a stop being made at Kap Stewart where a depot house (*Ryders Depot*) was constructed. The *HEKLA* then sailed via Iceland to Ammassalik, and after a short visit returned to Copenhagen.

In addition to exploration and mapping of the inner ramifications of the Scoresby Sund fjord system, significant botanical, zoological and geological observations were made (Fig. 7). About 50 new place names are recorded, nearly all of which were given for natural features, incidents and the animal life of the region.



## 1898–1900 Carlsbergfondets Expedition til Øst-Grønland (The Carlsberg Foundation expedition to East Greenland – often called the 1898–1900 Amdrup expedition): Georg Carl Amdrup

This was a three-year Danish expedition, but the work of the first two years (1898–1899) was entirely in the Ammassalik region (65°–66°N), and it was only in 1900 that it turned its attention to surveying and exploration of the almost unknown coast extending northwards between Ammassalik and Scoresby Sund.

The ANTARCTIC left Copenhagen in mid-June 1900 with an 11-man expedition led by G.C. Amdrup that reached the coast of East Greenland at Lille Pendulum (74°40'N). Turning southwards the expedition reached Kap Dalton (69°25'N) on 18 July and there divided into two parties (Amdrup 1902a).

After building a depot house just to the north of Kap Dalton, Amdrup set off southwards with a crew of three in an 18-foot open boat along the virtually unknown Blossville Kyst. Ice conditions were more favourable than expected, and the expedition succeeded in making a rough chart of the coast between Kap Dalton (69°25'N) and Agga Ø (67°22'N). Ammassalik was reached on 2 September (Jacobsen 1900; Amdrup 1902b).

Meanwhile, the ANTARCTIC with the remainder of the expedition under the leadership of Nikolaj Hartz explored the islands and fjords north of Kap Dalton, finding hot springs, and running aground in Turner Sund (Hartz 1902). Entering Scoresby Sund, the ANTARCTIC sailed to the head of Hurry Inlet where zoological and geological excursions were made inland, and Carlsberg Fjord was discovered. Kap Brewster was visited before the ANTARCTIC sailed north along the outer coast of Liverpool Land making several landings and charting further new fjords and valleys. Entering Kong Oscar Fjord (72°10'N) an excursion was made into the inner part of Forsblad Fjord mapped the previous year by A.G. Nathorst (see above). The ship then left the coast for Iceland, before returning to Ammassalik to fetch Amdrup's party.

About 30 new names were given for features north of latitude 69°N. Some of these commemorate earlier explorers to the coast and Danish scientists, while others were given for geological or other characteristics of the localities. J.P. Koch (1902), who was responsible for the surveying from the ship, noted that he used all previous names that he could identify with certainty, except for those he considered misleading. Thus, eight of Scoresby's capes were omitted

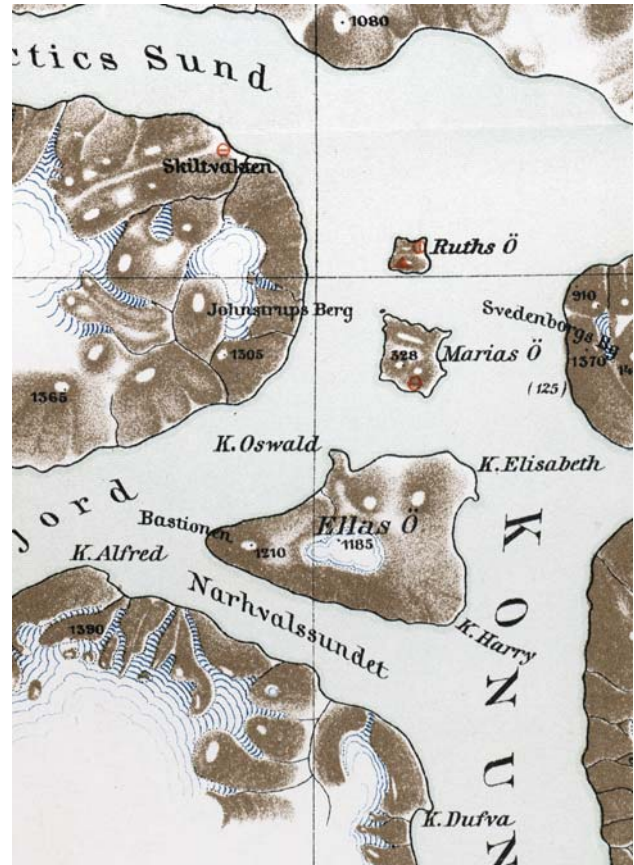


Fig. 8. Segment of A.G. Nathorst's map of his discoveries in the Kong Oscar Fjord region, showing Ella Ø (*Ellas Ö*), named after his wife, and Maria Ø (*Marias Ö*) and Ruth Ø (*Ruths Ö*), named after his two daughters. Many of the capes shown were named by Nathorst for other members of his family. From: Nathorst (1900).

as they appeared to be mountains; some of these names were later transferred to mountains following mapping by James Wordie's expeditions (White 1927).

## 1899 Swedish East Greenland expedition: Alfred Gabriel Nathorst

A.G. Nathorst led two Arctic expeditions in search of traces of Salomon Andrée's lost balloon expedition (Nathorst 1900). The first in 1898 was to Spitsbergen, and the second in 1899 to East Greenland.

The 1899 expedition left Stockholm in May aboard the ANTARCTIC, met difficult ice conditions, and reached land at Scoresby Sund (70°10'N) where the head of Hurry Inlet was visited. When ice conditions improved the ANTARCTIC sailed north to the mouth of Keiser Franz Joseph Fjord (73°10'N), and

followed the entire length of the fjord reaching the inner end for the first time and exploring Kjerulf Fjord. The connection with Kong Oscar Fjord via Antarctic Sund was discovered, and the network of interconnecting fjords and islands explored. Nathorst chose the mapping of these new territories as more important than other scientific investigations. Surveying was largely undertaken by Per Dusén with the assistance of F. Åkerblom. About 94 new names appeared on the published maps, many of them given for supporters of the expedition, for expedition members, and notably for members of Nathorst's own family (Fig. 8).

### 1900 Till Spetsbergen och Nordöstra Grönland (To Spitsbergen and North-East Greenland): Gustav Kolthoff

Gustav Kolthoff led a zoological expedition to Spitsbergen and East Greenland aboard the FRITHJOF in 1900 (Kolthoff 1901). The expedition reached land at Mackenzie Bugt ( $73^{\circ}25'N$ ) on 31 July, sailed north to the Pendulum Øer where mail by tradition was deposited on Hvalrosø, and then into Kejser Franz Joseph Fjord and Moskusoksefjord where two musk-ox calves were captured. A large collection of birds and animals was taken home, including two wolves. Only one new place name was used, *Tärnholmen* for a small island in Mackenzie Bugt.

### 1901 Baldwin-Ziegler depot-laying voyage by the BELGICA

To support the possible line of retreat of the American Baldwin-Ziegler expedition, which was to make an attempt on the North Pole from Franz Joseph Land, depots were laid out by the BELGICA in specially built huts on southern Shannon at Kap Phillip Broke and on Bass Rock. The ill-fated Baldwin-Ziegler expedition was led by Evelyn Baldwin and generously financed by William Ziegler, but achieved practically nothing. The depots were visited and checked by the MAGDALENA in 1905, in connection with the relief of the 1903–05 Fiala-Ziegler polar expedition. Subsequently the huts and the depots they contained were used by Norwegian and Danish hunters.

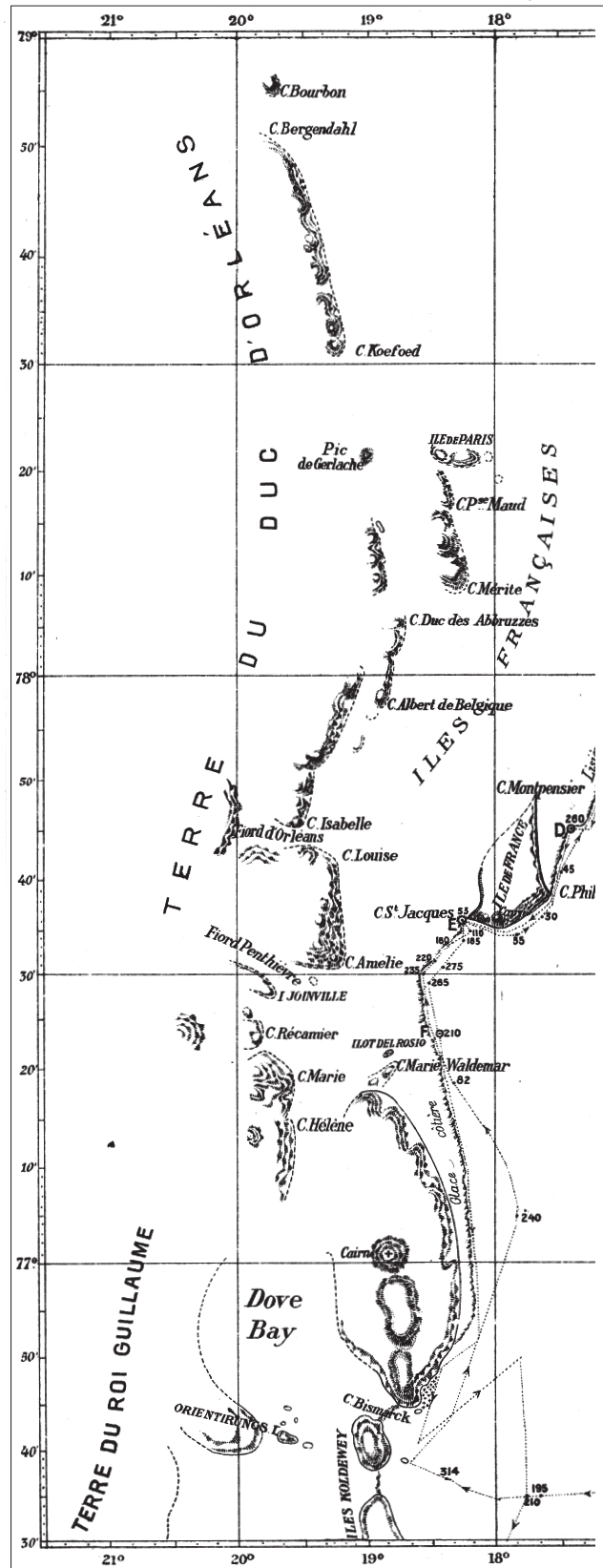


Fig. 9. Part of the map of the observations by the Duke of Orléans between latitudes  $79^{\circ}30'N$  and  $79^{\circ}N$ , made in 1905 aboard the BELGICA. The northernmost landing was on *Île de France* (from 2004 known as Qeqertaq Prins Henrik). From: Orléans (1907b).

### 1905 Expédition Arctique du Duc d'Orléans (Arctic expedition of the Duke of Orléans)

This expedition aboard the *BELGICA* was led by Louis-Philippe-Robert Duke of Orléans [1869–1926], with Adrien Victor Joseph de Gerlache de Gomery [1866–1934] as captain. After visiting the west coast of Spitsbergen, the *BELGICA* sailed for East Greenland, and off the coast near Kap Bismarck (76°42'N) met the Norwegian sealer *SØSTRENE* which had reached latitude 77°N and reported ice conditions to be the best its captain had known in 30 years. Thus encouraged the *BELGICA* pressed northwards along the coast, touching land at 77°35'N, and had reached 78°16'N when stopped by unbroken winter ice. Landings were made at several places, and a rough chart made of newly discovered land areas between 77° and 78°50'N. Geological, botanical, oceanographic and meteorological observations were also made during the voyage (Orléans 1907a, b). Soundings were made at 74 locations and the relatively shallow Belgica Bank was discovered and delineated (Barr 2010).

L.-P.-R. Duke of Orléans included 28 new names on his charts, given mainly for members of the Orléans family, for notable French and Belgian explorers, and for officers of the ship's company (Fig. 9). Few explanations of the names are given. The Duke of Orléans (1907a) notes with regret that some of the names on his original chart were modified at the request of the Danish authorities. Thus, his original name *Terre de France* was changed to *Terre de Duc d'Orléans*, the present Hertugen af Orléans Land.

The 1906–08 Danmark-Ekspeditionen (see below) had received an advance copy of the Orléans chart, and in the course of their explorations remapped the area in considerably more detail. They record the difficulty of correctly locating the features seen and named by the Duke of Orléans, and while preserving as many of the original names as possible, admit that some positions may be incorrect. Nevertheless, it is these positions that have survived on modern maps.

In 2010 the cruise ship *PLANCIUS* visited *Île de France* (now *Qeqertaq Prins Henrik*) with Queen Paola of Belgium and nine descendents of the captain of the *BELGICA*, Adrien de Gerlache de Gomery, on board. The journey was arranged to commemorate that de Gomery had reached the island with the *BELGICA* in 1905. A similar but unsuccessful attempt had been made on the 100th anniversary of the event.

### 1906–08 Danmark-Ekspeditionen til Grønlands Nordøstkyst (Danmark expedition to North-East Greenland): Ludvig Mylius-Erichsen

This was one of the largest and most ambitious of early Danish expeditions, whose aims were to explore and survey the large unknown region north of Kap Bismarck (76°42'N) and to link up with the explorations of Robert E. Peary in North Greenland. The expedition numbered 28, including scientists, ship's crew and three Greenlanders, and was led by Ludvig Mylius-Erichsen (Friis 1909; Amdrup 1913).

The expedition sailed from Copenhagen on 24 June 1906 aboard *DANMARK*, met difficult ice conditions, and reached the coast of East Greenland at Store Koldewey (76°30'N) on 13 August. After sailing north along the coast to *Île de France* (in 2004 renamed *Qeqertaq Prins Henrik*), *DANMARK* turned south again to Danmark Havn (76°46'N) which was to become the expedition base for the next two years (the ICAO – International Civil Aviation Organisation weather station 'Danmarkshavn', spelt as one word, was established on the north side of Danmark Havn in 1948).

During the course of the expedition nearly 200 short and long journeys were made by sledge, boat or on foot. Many of these were made during exploration of the islands and fjords around Dove Bugt south of Danmark Havn. A meteorological station set up west of Danmark Havn at Pustersvig was manned for a long period by Peter Freuchen. Two journeys were made across the glacier *Storstrømmen*, one via *Sæl søen* to *Dronning Louise Land*, and the second via *Annekssø* to *Ymer Nunatak*. Two long journeys were also made southwards along the coast to check the depots at Bass Rock (74°43'N), and also to deposit the traditional mail.

Four depot-laying journeys were made northwards in the winter of 1906–07 in preparation for the main spring sledge journeys. On 28 March 1907 a start was made from Danmark Havn with four parties, in all 10 men and 86 dogs. Two of the parties turned back from 80°30'N, surveying on the way and reaching the ship again in late April. At *Nakkehoved* (81°42'N) the two other parties, led by Ludvig Mylius-Erichsen and J.P. Koch respectively, parted company.

Koch's party went northwards along the east coast of Peary Land as far as *Kap Bridgman* (83°29'N), retrieving Peary's record at *Kap Clarence Wyckhoff* on the way. Returning southwards they unexpectedly met Mylius-Erichsen's party on 27 May, and then retraced their outward steps to reach Danmark Havn on 23 June 1907.

Ludvig Mylius-Erichsen, Niels Peter Høeg-Hagen and Jørgen Brønlund travelled westwards after parting from J.P. Koch's party, to explore Independence Fjord and Danmark Fjord, and were forced by open water to spend the following summer on the west shore of Danmark Fjord (81°30'N), where they and their dogs suffered badly due to poor hunting. They began their return journey in mid-October, but Mylius-Erichsen and Høeg-Hagen died (possibly near Nioghalvfjerdingsfjorden 79°37'N), while Brønlund reached the east point of Lambert Land (79°09'N) before he also died.

Two relief parties were sent out to look for the missing party, the first in autumn 1907, and the second in March 1908 that found Brønlund's body and diary. The bodies of Mylius-Erichsen and Høeg-Hagen have never been found, and the precise route followed by the retreating party from Danmark Fjord to Lambert Land has remained a lasting topic of speculation (e.g. E. Mikkelsen 1913; Knuth 1958; Lundbye 1984). The expedition sailed back to Denmark in August 1908.

More than 200 names are associated with the activities of Danmark-Ekspeditionen in northern East Greenland, of which 190 have official status. They record incidents during the expedition, geological characteristics, associations with bird and animal life, while some were named after Danish localities, Danish personalities and the families of the expedition members.

### 1908–09 Floren expedition: Severin Liavaag

A seven-man hunting expedition on the FLOREN was sent out from the Sunnmøre district of Norway on the initiative of Severin Liavaag and the Ålesund merchant Hans Koppernes, and became the first Norwegian hunting expedition to overwinter in East Greenland. The FLOREN anchored in Germania Havn (74°32'N), and two huts were built nearby, at Kap Wynn and Kap Borlase Warren. In the winter and spring hunting was carried out between Kap Herschel and Germania Havn, and in the summer as far north as Shannon (75°10'N). Two men were drowned, including Liavaag, when they fell through the ice in May 1909 during a bear hunt. The only original published account of the expedition is a diary by Brandal (1930), which mentions 15 names used by the hunters. A brief account of subsequent Sunnmøre expeditions is given by Rogne (1981).

### 1909 Expédition Arctique du Duc d'Orléans (Arctic expedition of the Duke of Orléans)

The Duke of Orléans, aboard the BELGICA captained by Adrien de Gerlache de Gomery as in 1905, made a voyage to East Greenland, Spitsbergen and Franz Josef Land in 1909. In East Greenland, difficult ice conditions restricted movements to the area between Hold with Hope and Shannon (73°30'–75°30'N), where they met the surviving members of the 1908–09 Floren expedition (Orléans 1911; Barr 2010).

### 1909–10 Vebjørn Landmark's expedition

A six-man Norwegian hunting expedition led by Vebjørn Landmark was sent out in the 7<sup>DE JUNI</sup> on the initiative of S.Th. Sverre of Kristiania (Oslo). A hunting station was built at Kap Mary (74°10'N), and a smaller house in Germania Havn (74°32'N). Hunting was carried out between Clavering Ø and the Pendulum Øer in the winter and between Jackson Ø and Shannon in the summer. It was this expedition that in 1910 rescued five members of the 1909–12 Alabama expedition from Bass Rock (see below; E. Mikkelsen 1913, 1922).

### 1909–12 Alabama-ekspeditionen til Grønlands Nordøstkyst (Alabama expedition to North-East Greenland): Ejnar Mikkelsen

This seven-man expedition was organised and led by Ejnar Mikkelsen, and had as its main aim the recovery of the lost diaries and journals of Mylius Erichsen and Høeg-Hagen, who had died with Jørgen Brønlund during Danmark-Ekspeditionen 1906–08. After a very difficult passage through the pack ice aboard the ALABAMA, the expedition was forced to overwinter at Kap Sussi on the east coast of Shannon (75°19'N).

At the end of September 1909, a sledge journey was made northwards to Lambert Land (79°15'N), where Jørgen Brønlund's body had been found in 1908, but no significant new documents were found on the body, and no traces of Mylius-Erichsen and Høeg-Hagen were found in the vicinity.

In March 1910, a five-man sledge party embarked on a long journey northwards, crossing Dove Bugt and ascending onto the Inland Ice via the glacier Storstrømmen. Three men then explored northernmost Dronning Louise Land (76°08'N) before returning to the ALABAMA, while Mikkelsen and Iver P. Iversen continued northwards across the margin of

the Inland Ice to the inner part of Danmark Fjord (80°34'N). From here they attempted to retrace Mylius-Erichsen's route and located two cairn reports. Returning home along the outer coast of Kronprins Christian Land the two men met great difficulties, suffered from illness and hunger, and at one point abandoned their equipment and even their diaries to make a dash for Danmark Havn, where they arrived on 18 September. After a failed attempt to reach their abandoned equipment, they retreated southwards, only to find on reaching Shannon on 25 November that the ALABAMA had sunk. A house (subsequently known as Alabama) had been built on shore, but there was no sign of their five companions, who had left for Norway aboard the 7DE JUNI in early August.

In the spring of 1911, Mikkelsen and Iversen made a sledge trip northwards to recover their diaries, but it was not until the summer of 1912 that the two men were picked up from Bass Rock by the Norwegian sealer SJØBLOMSTEN.

The popular accounts of the expedition contain no new place names (E. Mikkelsen 1913), but the official report including scientific observations (E. Mikkelsen 1922) provides 23 new names, mostly given for members of the expedition committee, members of the expedition, and others who had assisted them.

### 1912–13 Den danske Ekspedition til Dronning Louises Land og tværsover Nordgrønlands Indlandsis (The Danish expedition to Dronning Louise Land and across the Inland Ice): Johan Peter Koch

J.P. Koch and Alfred Wegener, both of whom had been members of the 1906–08 Danmark-Ekspeditionen, organised a four-man expedition whose principal aims were to study meteorological and glacial conditions at the margin of the Inland Ice (Koch 1913; Sigurðsson 1948; Wegener 1961).

A traverse of the main ice cap of Iceland with their Icelandic ponies was made to gain experience of travelling on ice, after which the expedition was transported to Greenland aboard the GODTHAAB, on loan from the Danish government, arriving at Danmark Havn (76°46'N) on 23 July 1912. Equipment unloaded at Danmark Havn and Stormkap included a motorboat, 16 Icelandic ponies, 20 tons of pony food and a house for overwintering.

During the summer the expedition goods were transported overland and by motorboat, around and across Dove Bugt, as far as Kap Stop where further progress was halted until the fjord froze over in the autumn (Fig. 10); several of their ponies were shot at



Fig. 10. J.P. Koch and Alfred Wegener with their two helpers (Vigfus Sigurðsson and Lars Larsen) disembarked from the GODTHAAB on 23 July 1912 at Danmark Havn. Their equipment included a motorboat, 16 Icelandic ponies, 20 tons of pony food and a wintering house. From Danmark Havn the expedition travelled overland, and by motorboat, around and across Dove Bugt as far as Kap Stop, where they were forced to wait until the fjord ice froze. At Kap Stop messages were left in a bottle attached to a wooden pole anchored in a stone-filled barrel. The messages were recovered in 1989, although the barrel had been blown over by strong katabatic winds.

Kap Stop. Equipment was then sledged to the front of Bredebræ, and about halfway across the glacier towards Dronning Louise Land, at which point the winter house *Borg* was erected. Koch fell into a crevasse on 5 November and broke a leg, but this healed well during the winter.

In the spring of 1913, the journey was resumed with the remaining five ponies. Dronning Louise Land was traversed from east to west via Borgjökelen, Farimagsdalen and Kursbræ, and several peaks including Dronningestolen and Kaldbakur were climbed. On 8 May the last nunatak was left behind and the crossing of the Inland Ice began, the west coast of Greenland being reached north-east of Prøven (72°23'N) on 4 July.

The majority of the 40 new place names found on the expedition maps are in Dronning Louise Land; a large group of names commemorate members of Danmark-ekspeditionen 1906–08, while others were given after Danish localities, incidents on the journey, or the appearance of features.

## **Commercial activities, early mountaineering, geological mapping: 1919–1960**

### **1919–24 A/S Østgrønlandsk Kompagni (East Greenland Company Ltd.)**

Østgrønlandsk Kompagni was a Danish trapping company founded in February 1919 on the initiative of former members of the 1906–08 Danmark-Ekspeditionen. It was based on private capital, with some state assistance, but poor hunting and the loss of two ships in the ice led to its closure in 1924.

The first group of 10 hunters sailed in 1919 aboard the *DAGNY* to the Danmark Havn region (76°46'N), and established hunting stations at Danmark Havn (*Danmarkshavnhuset*) and Hvalrosodden, with another farther south at Germania Havn (74°32'N). The company eventually had 14 huts and stations between Kap Broer Ruys in the south and Hvalrosodden in the north, including two taken over from the 1901 Baldwin-Ziegler expedition, and Alabama on Shannon built by the 1909–12 Alabama expedition.

In August 1920, the *DAGNY* was crushed in the ice off Shannon, before it could reach the northern stations. The crew overwintered, but two died before the rescue ship *TEDDY* arrived in 1921. One of the hun-

ters, John Tutein, was killed by a bear in February 1921. The *TEDDY* supplied the hunting stations in 1921, and also in 1922 and 1923. On the way home in 1923, a bad ice year, the *TEDDY* was crushed in the ice, but the 21 crew and hunters eventually reached land in the Ammassalik region (Bistrup 1924; Dahl 1925; Tutein 1945), and were picked up by the *QUEST* in 1924. In 1924 the *GODTHAAB* was sent up to evacuate the remaining hunters from Carlshavn, Germaniahavn and Sandodden, and the company suspended operations.

Descriptions of hunting with the company are given by Lund (1926), and a general account of company activities by Møller (1939) and Lauritsen (1984). Jennov (1945) records the total catch of the company's hunters from 1919–24 as 679 foxes and 117 bears.

Numerous place names originated from the hunters and the captains of the two ships. Lists of huts and stations with their names are given by Møller (1939) and P.S. Mikkelsen (1994, 2008). Most of these were named for their geographical locations, some for features and incidents, and a number for persons, including members of the board of directors of the company. Møller's account includes a sketch map from Gustav Thostrup's 1921 logbook with about 20 names around eastern Clavering Ø. Many of these names now have approved status.

### **1922–23 Johan A. Olsen expedition**

A seven-man Norwegian expedition sailed to East Greenland on the *ANNI I*, with the prime objectives of fox trapping and setting up a weather station at Myggbukta for the Geofysisk Institutt in Tromsø. The station transmitted weather reports three times daily from 14 October 1922 until 15 August 1923, when the expedition began its homeward voyage. The *ANNI I* was lost with all hands, presumably crushed in the pack ice. 1923 was a bad ice year.

### **1924–25 Foundation of Scoresbysund**

Harald Olrik had proposed the foundation of a settlement in the unpopulated tracts of Scoresby Sund (70°–71°N) in 1911. The project was brought to fruition in 1924 due to the interest and influence of Ejnar Mikkelsen. The 'Scoresbysund-Komiteen' was founded on 24 March 1924 with Ejnar Mikkelsen as chairman, a post he was to hold for 40 years. An appeal to the Danish public was immediately successful thanks to the support of Valdemar Galster, editor

of the Ferslew Press, and H.N. (Hans Niels) Andersen of the Østasiatisk Kompagni that purchased a ship for the expedition, the FOX II that was renamed the GRØNLAND.

The GRØNLAND left Copenhagen on 10 July 1924 laden with building materials and provisions, made an easy passage of the ice belt and arrived off the mouth of Scoresby Sund on 24 July. At Fox Pynt near Kap Tobin the ship was caught in the ice and lost its rudder, an incident which led to immediate selection of a site nearby for the settlement without the planned preliminary reconnaissance (E. Mikkelsen 1925). Materials were unloaded at Ferslew Pynt, and the GRØNLAND returned home leaving behind a wintering party of seven, including three carpenters and three scientists. One of the latter, the geologist Bjerring Pedersen, died in July 1925, apparently of scurvy (Bengtsson 1927).

A large house was built at the present Scoresbysund (the name of the settlement is spelt in Danish in one word as 'Scoresbysund', to distinguish it from the fjord known as Scoresby Sund) and small houses were built at Kap Stewart, Kap Hope and Kap Tobin for the Greenlandic hunters and their families.

About 16 names are associated with the colonisation expedition and reports of the overwintering scientists; some were given for expedition supporters and the ship, others record the bird and animal life.

About 85 Greenlanders arrived in 1925, the nucleus of what was to be a successful settlement (see also below).

### 1924–67 Østgrønlandstraktaten (Danish–Norwegian treaty on East Greenland)

The Danish–Norwegian treaty on East Greenland (Østgrønlandstraktaten) which came into effect in July 1924 gave both countries the right to engage in hunting, fishing and scientific activities in the uninhabited parts of East Greenland, including the operation of meteorological stations. However, no agreement was reached concerning sovereignty. The provisions of the treaty were exploited by both nations. Denmark founded the new colony of Scoresbysund, specifically allowed for by the treaty, and both Norway and Denmark developed trapping activities; Norway re-opened the radio and weather station at Myggbukta. Danish scientific activities were initiated by Lauge Koch in 1926, the first of a succession of mainly geological expeditions under his leadership which continued until 1958. Norway also embarked

on scientific explorations, the Norges Svalbard- og Ishavsundersøkelser (NSIU – Norwegian Svalbard and Arctic Ocean Survey) expeditions of 1929–33, but these were suspended when the dispute over the sovereignty of East Greenland was determined in Denmark's favour by the Court of International Justice at The Haage in April 1933 (Blom 1973; Skarstein 2006).

The treaty was to have lasted for 20 years, after which it could be terminated with two years notice. After the 1939–45 war, in which both Danish and Norwegian hunters had co-operated as members of Nordøstgrønlands Slædepatrulje, the treaty was extended (Bruun 1966) and both Danish and Norwegian fox-trapping activities were resumed. However, the value of fox skins had halved, and in practice the trapping companies were only able to exist with state subsidies. The Danish state withdrew its subsidies to Nanok in 1952, and Norway similarly withdrew its subsidies to Arktisk Næringsdrift in 1959. After 1959 there was effectively no longer a Norwegian presence in East Greenland. Denmark therefore took advantage of the termination clause of the treaty, and gave two years notice of its intentions in 1965. Østgrønlandstraktaten was finally suspended on 9 July 1967; one of the principle arguments for the move was the need to establish a National Park in North-East Greenland to protect its wildlife (Bruun 1966).

### 1925–36 Campagne du Pourquoi Pas? (Greenland voyages of Pourquoi Pas?): Jean-Baptiste Charcot

The French Polar explorer Jean-Baptiste Charcot made numerous voyages to the Arctic in his three-mast barque POURQUOI PAS?, of which seven visited the Scoresby Sund region (Charcot 1929, 1938; Faure 1933). Charcot was France's leading polar explorer, the 'father of French polar research', and had earlier led two major expeditions to the Antarctic in 1903–05 and 1908–10 (Maurie 1989) (Fig. 11). During his first visit to East Greenland in 1925, to the newly founded settlement of Scoresbysund (70°29'N), a short trip was made to nearby Jameson Land. In 1926 Ejnar Mikkelsen and Ebbe Munck travelled up as guests on the POURQUOI PAS? when Charcot made a second visit to the Scoresbysund settlement.

The voyages between 1931 and 1933 were mainly concerned with the French Polar Station for the International Polar Year 1932–33 established at Scoresbysund. Before leaving for home in 1932, the



Fig. 11. The French polar explorer Jean-Baptiste Charcot [1867–1936] made seven voyages to the Scoresby Sund region with his 3 mast ice strengthened barque *POURQUOI PAS?* Charcot was drowned on 16 September 1936, when *POURQUOI PAS?* was wrecked shortly after leaving Iceland with the loss of 39 crew and scientists; only one man survived. Photo: Kindly supplied by Emilie Thomassot, © Centre de Recherches Pétrographiques et Géochimiques, Nancy, France.

*POURQUOI PAS?* visited the Kap Leslie area of Milne Land with Lauge Koch (see also Fig. 71). Charcot returned in 1933 to pick up the International Polar Year wintering party, and the station buildings were handed over to the settlement. The *POURQUOI PAS?* also brought up the three-man ‘1933 Cambridge East Greenland expedition’ that worked in the Hurry Inlet area. Charcot once again visited the Kap Leslie area.

Charcot returned to Scoresbysund in 1934 and 1936, but on the voyage back to Europe in 1936, the *POURQUOI PAS?* was wrecked on 15 September in a

severe storm just after leaving Reykjavik in Iceland; only one crew member survived.

About 20 names are linked with Charcot’s expeditions, only one of which is commemorated on modern maps, a minor peak on Milne Land known as *Pourquoi Pas Tinde*. The localities Charcot Gletscher and Charcot Havn, also located on Milne Land, were named subsequently by Lauge Koch’s expeditions. Charcot’s place names are found in scientific reports of the work in the Kap Leslie region, and on a map of the area around Scoresbysund (Rothé 1941).

### 1925–present: Scoresbysund / Illoqqortoormiut [*Ittoqqortoormiit*]

The first party of Greenlandic settlers, about 70 from Ammassalik and 15 from West Greenland, arrived at Scoresbysund with the *GUSTAV HOLM* (formerly the *GRØNLAND*, and originally the *FOX II*) on 1 September 1925. Different accounts give slightly different figures for the actual number of settlers. Photographs indicate there were a large proportion of children. The 15 from West Greenland were Henrik Høegh (later colony manager) and the priest Sejer Abelsen, and their families. The first colony manager was Johan Petersen, former manager of the Ammassalik colony for 30 years (Nielsen 1957). The first few months were made difficult by an influenza epidemic, picked up when the ship called at Iceland. Everyone became ill, and three women, one man and a child died. By the end of the first year, however, 10 hunters had achieved a catch of 12 narwhales, 700–800 seals, 60 walrus, 115 bears and 75 foxes, and favourable hunting subsequently ensured the survival of the settlement (E. Mikkelsen 1989). However, walrus were reported as rare after 1926. In 1926 the colony was reinforced by a family of 10 from West Greenland, and in 1935 by a further 31 Greenlanders from Ammassalik (E. Mikkelsen 1950).

The Greenlandic name for the settlement of Scoresbysund started as *Igtorqortormiit*, which translates as ‘those that live at the place with one large house’. E. Mikkelsen (1950) describes the large house as comprising living quarters for the families of the colony manager and the priest, which were separated by a small shop. When a church was built at the settlement in 1928, the priest had his own residence attached to the church and there was also space for a school.

The Greenlanders lived at first in the villages of Kap Stewart, Kap Tobin and Kap Hope, near the best hunting grounds. A tendency for a concentration of the population at Scoresbysund was later reported,



allegedly due to the influence of the priest. Kap Stewart proved liable to heavy snow, and was abandoned in 1930. In 1947 two hunters with their families moved to a new settlement established west of Kap Brewster on the south side of Scoresby Sund. Hunters also spent periods at Sydkap in 1934–35, and a shop and store house were built there in 1946; however, this site has only occasionally been occupied. Hunting huts have been built in several areas, including Hurry Inlet, Steward Ø, the coast of Jameson Land and the east coast of Liverpool Land.

In 1928 Scoresbysund was expanded with the addition of 10 houses, as well as the church noted above. A radio station was established by Janus Sørensen in 1927. In 1932 the French expedition house, built for the International Polar Year, was taken over by the settlement, and used first as the telegraphist's house, and later as a hospital. A new hospital was built in 1957 after a fire had destroyed the old building.

During World War II, American forces operated a weather station manned by 20–30 men in Hvalrosbugten nearby. A larger weather and radio station was established at Kap Tobin just south of Scoresbysund in 1947, and closed down in 1980.

The population of Scoresbysund / Illoqqortoormiut was 430 in 1983, with an additional 79 at the settlements at Kap Tobin and Kap Hope (Statistisk årbog 1984), and in 2009 a total of 489 persons all in Scoresbysund (Statistisk årbog 2009). In 1983, there were 77 persons licensed as full-time hunters and 99 as part-time hunters. The yearly catch by registered hunters totaled about 6000 ringed seals, 50–70 polar bears, and smaller numbers of other seals, narwhales and walrus. The activities of Greenpeace and Brigitte Bardot have influenced the market for ringed seal skins since 1978, and as a result bear skins have provided an increased proportion of income. Spring hunting for polar bears now ranges far afield, south along the Blosseville Kyst, north to Daneborg, and westwards to Gåsefjord.

The Greenlandic population has given numerous names to features in the vicinity of the settlements and the main hunting grounds. About 190 names were recorded by the 1955 Geodætisk Institut name registration, all of which were approved.

The spelling of the Greenlandic name for the settlement that began as *Igtorqortôrmiit* became *Ittoqqortoormiit* in the East Greenland dialect following the revision in spelling (see e.g. Arke 2003). However, a West Greenland dialect spelling *Illoqqortoormiut* that had appeared in many Ministry for Greenland

documents in the 1970s, was applied on official maps in 1995 for the town; however, the '*Ittoqqortoormiit*' spelling variation officially survives for several names derived from their proximity to the town (e.g. Ittoqqortoormiit Ilinnerat, Ittoqqortoormiit Kimmut Kangertivat, Ittoqqortoormiit Qinnerajivat).



Fig. 12. While James Wordie investigated a possible route to Petermann Bjerg (climbed during his 1929 expedition) during the 1926 Cambridge East Greenland expedition, other members of the party carried out geological and other investigations. This is part of the map surveyed by White (1927), showing the location of three of William Scoresby Jr.'s capes (Scoresby 1823) that he was able to identify as mountains (*Mt. Freycinet*, *Mt. Leitch*, *Mt. Laplace*; now Freycinet Bjerg, Leith Bjerg, Laplace Bjerg).

## 1926 Cambridge East Greenland expedition: James Mann Wordie

J.M. Wordie led an eight-man expedition to East Greenland in 1926, travelling aboard the *HEIMLAND* with Lars Jakobsen as captain. Most of the scientists were from Cambridge University in England. The expedition aims included surveying, archaeology and exploration of a route to the 2970 m high mountain of Petermann Bjerg (73°05'N) seen from a distance by Karl Koldewey's 1869–70 expedition (Wordie 1927). A similar expedition in 1923 on the smaller *HEIMEN* had failed to reach the coast due to very bad ice conditions.

The 1926 expedition left Aberdeen on 30 June, stopped briefly at Jan Mayen, then made an easy passage of the ice belt to reach Lille Pendulum on 12 July. Pendulum experiments were made on Sabine Ø (74°35'N), repeating Sabine's observations of 1823. During the summer, extensive surveying was carried out around the Pendulum Øer, the west side of Clavering Ø (where Granta Fjord was discovered), Hold with Hope and the interior of Loch Fyne (leading to the discovery of Stordal), and along the outer poorly known coasts of Geographical Society Ø and Traill Ø. From the inner part of Kejser Franz Joseph Fjord a route to Petermann Bjerg via Ridderdal was explored, but the short time available prohibited an attempt on the peak. The *HEIMLAND* left the East Greenland coast on 25 August after calling briefly at Scoresbysund.

In addition to the great improvements to existing charts in the coastal region, success was achieved in correctly placing many of the features named by William Scoresby Jr. in 1822 (Fig. 12); many of his capes proved to be mountains standing well back from the coast (White 1927). About 30 new names were proposed for the coastal region and the area west of Kjerulf Fjord, some commemorating polar explorers, others Cambridge locations and the general appearance of features.

## 1926–27 Lauge Koch's geological expedition

Lauge Koch's East Greenland expedition of 1926–1927 comprised three geologists and two Greenlandic dog-sledge drivers, and had as its object a general geological survey of the region north of Scoresby Sund (70°15'N). The Danish geologist Lauge Koch [1892–1964] had already made his name as a member of Knud Rasmussen's 2nd Thule expedition, and especially for his geological and topographical map-

ping during his own 'Jubilæumsekspeditionen Nord om Grønland' (Jubilee expedition of North Greenland) 1920–23. The 1926–27 expedition was the first of a long series of East Greenland geological expeditions led by Lauge Koch that were to continue until 1958.

The expedition travelled to Greenland with the *GUSTAV HOLM* in July 1926. In August and September two geologists, Alfred Rosenkrantz and Tom Harris, worked in eastern Jameson Land (70°50'N), while Koch organised construction of an expedition house in Scoresbysund. In October Koch made a sledge journey northwards to Hold with Hope via Hurry Inlet, Kong Oscar Fjord and Sofia Sund, returning westward around Ymer Ø and retracing his outward track in November.

Between February and June 1927 Koch made a long sledge journey to Danmark Havn (76°46'N). On the return journey the fjord system between 72° and 74°N was explored, and an unexpected extension of Dusén Fjord discovered. Meanwhile Rosenkrantz and Harris had continued their work in Jameson Land, and also on eastern Milne Land. Rosenkrantz made a journey to the interior of Gåsefjord in 1927 to search for H.K.E. Krueger, a German geologist erroneously supposed to have crossed the Inland Ice.

The expedition returned to Denmark aboard the *GUSTAV HOLM* in August 1927.

The main geological results of the expedition are described by Koch (1929a, b, 1930a), and include a geological reconnaissance map of the region 70°–76°N. Both Alfred Rosenkrantz, a geologist and palaeontologist based at the Mineralogical Museum in Copenhagen, and Tom Harris, a palaeobotanist from Cambridge University in England, carried out pioneer investigations of the Mesozoic sedimentary rocks of the Jameson Land region.

Koch's sledge journeys gave rise to about 12 place names, while the work of Alfred Rosenkrantz and Tom Harris gave rise to an additional 47 place names, mainly in Jameson Land and southern Liverpool Land. These were given for the shape and character of features, for geological associations such as finds of fossils, for animals, and for a few persons including their Greenlandic assistants. Many of these names first appeared on maps drawn by Lauge Koch (Koch 1929a), and others in reports by Harris (1931) and Rosenkrantz (1932, 1934, 1942).

### 1926–28 Foldvik expedition

The Norwegian Foldvik expedition was the third to overwinter in East Greenland, but broke new ground in adapting techniques of hunting used in Spitsbergen and Jan Mayen to the larger Greenland terrains. The practice of building numerous small huts over a wide area around a central station was subsequently followed by all Norwegian and Danish hunting expeditions. The 1926–28 expedition comprised Nils Foldvik, Hallvard Devold and Fritz Øien, all telegraphists from the Geofysisk Institutt (Geophysical Institute) in Tromsø, who with three hunters travelled to Greenland in 1926 aboard the RINGSEL. Two hunting stations were built, at Revet (74°22' N) and near Kap Stosch (*Krogness*; 74°03' N), and 17 huts in the surrounding areas. Hunting was carried out between Kap Bennet in the south and Tyrolerfjord in the north, the catch including 287 foxes, 18 bears and seven wolves. The expedition returned to Norway aboard the TERNINGEN in 1928. A short account of their work is given by Foldvik (1933).

### 1927–28 Scoresbysund seismic and radio station: Janus Sørensen

Following a short visit to Scoresbysund (70°29' N) in 1926 to choose a site, Janus Sørensen returned in 1927 to erect a radio station and seismic station at the settlement. The latter operated until 1948, when it was moved to Kap Tobin. Janus Sørensen made sledge journeys around the coast of southern Liverpool Land, as a result of which a simple map was prepared that included several new names, including Kap Høegh, named after the colony manager (Sørensen 1928).

### 1927–29 Hird expedition: Jonas Karlsbak

This six-man Norwegian expedition led by Jonas Karlsbak took its name from the 49-foot fishing boat HIRD which carried it to Greenland, and which sank in its winter harbour in the Finsch Øer (74°N) in August 1927. The expedition built three hunting stations, one at Kap Herschel, another on the south-east side of Clavering Ø (Elvsborg), and the third on Jackson Ø; in addition seven huts were erected, of which five were on Wollaston Foreland. Their catch amounted to 352 foxes and 42 bears. They returned home with the VESLEKARI in 1929 (Giæver 1939).

### 1927–29 Alwin Pedersen – Scoresbysund

As a follow up of his work in 1924–25 on the expedition that had founded Scoresbysund, the German zoologist Alwin Pedersen organised an independent expedition to continue his studies. Two years were spent at Scoresbysund (70°29' N), during which he made a number of sledge journeys, one of them to the interior of Nordvestfjord which led to the discovery of new arms of the fjord and the finding of polar bear dens (Pedersen 1930). Another trip took him south of Scoresby Sund as far as Kap Dalton.

### 1928–30 Finn Devold's expedition

A six-man Norwegian hunting expedition led by Finn Devold sailed to East Greenland in 1928 on the TERNINGEN, taking over the Foldvik expedition terrain. A larger station was built at Revet (74°22' N), and four new huts. Their catch amounted to 346 foxes, 11 bears and 8 wolves (Giæver 1939). The expedition returned to Norway in 1930 with the VESLEKARI.

### 1929 Cambridge East Greenland expedition: James Mann Wordie

Wordie's nine-man expedition from Cambridge University in England, had two prime aims: the ascent of Petermann Bjerg (2970 m; 73°05' N) and geological exploration. The HEIMLAND that had been used in 1926 was again chartered, captained by Karl Jakobsen, and departed from Aberdeen on 2 July. However, ice conditions were severe, and the coast of East Greenland was not reached until 4 August.

From the inner end of Kejser Franz Joseph Fjord six of the party set off via Ridderdal for what proved to be a successful first ascent of Petermann Bjerg, via Ptarmigan Gletscher, across Nordenskiöld Gletscher and up Disa Gletscher. The summit of Petermann Bjerg was reached via the south-west ridge on 15 August (Wordie 1930a, b). Meanwhile two of the geologists carried out regional geological studies from the ship (Wordie & Whittard 1930; Parkinson & Whittard 1931).

The survey work of the expedition, much of it carried out by R.C. (Cuthbert) Wakefield and Augustine Courtauld, was mainly around the head of Kejser Franz Joseph Fjord and Petermann Bjerg, and most of the 20 new place names are in this region. A few elsewhere derive from the geological work.

The expedition left the Greenland coast on 25 August, again meeting difficult ice conditions which took them five days to clear.

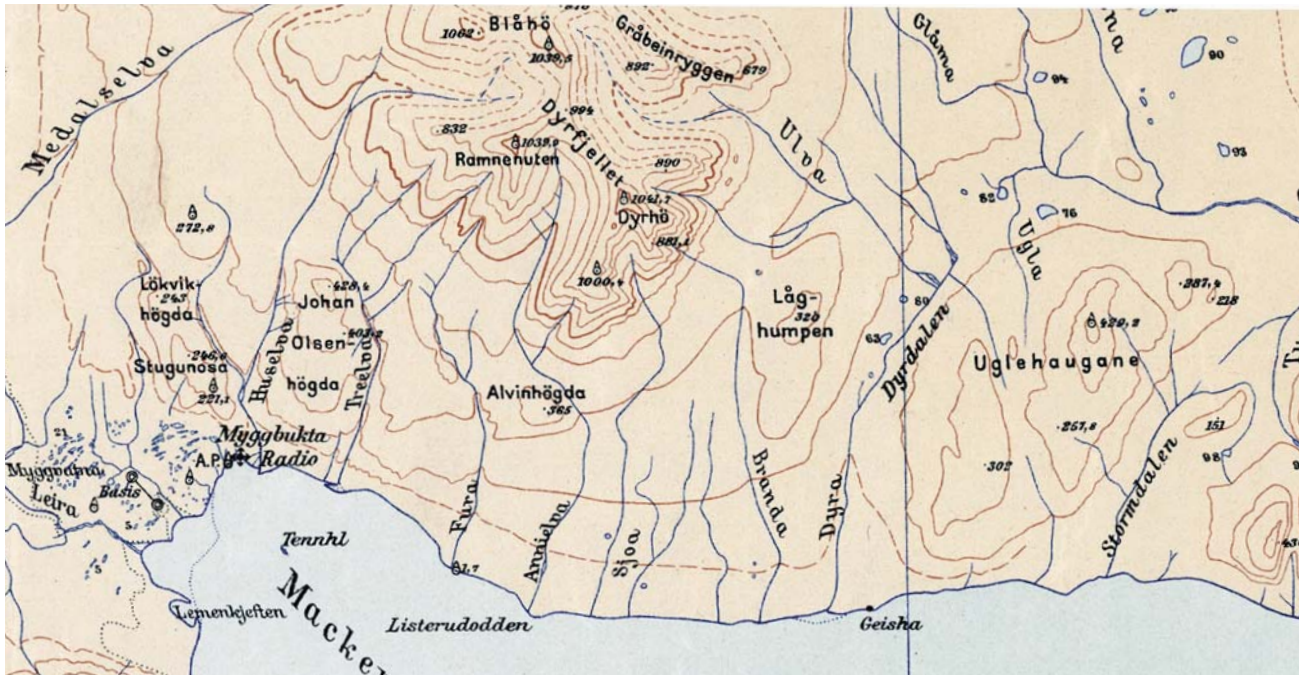


Fig. 13. Part of the 1932 map by Norges Svalbard- og Ishavsundersøkelser (NSIU) at a scale of 1:200 000. The map is part of the region that Norwegian trappers called 'Eirik Raudes Land', and the segment shown gives the location of Myggbukta on the south coast of Hold with Hope (NSIU 1932a).

### 1929–30 Lauge Koch's geological expeditions

Lauge Koch organised a summer expedition in 1929, financed largely by private contributions with the balance provided by the Carlsberg Foundation and Rask-Ørsted Foundation; the ship *GODTHAAB* was supplied by the Danish state.

The expedition numbered 22, including the ship's crew, four geological parties and one botanical party. Difficulties were experienced in penetrating the ice belt both on the way in and out. Work was mainly carried out in the fjord region between 72°–75°N, with topographical surveying of parts of Clavering Ø, Wollaston Forland, Hudson Land and Ymer Ø (Koch 1930b).

For the 1930 summer expedition, Koch secured passage on the *GODTHAAB*, which was to visit East Greenland on a Danish navy inspection cruise. There were two geological, one zoological and one botanical parties on board. Ice conditions created some difficulties, but work was carried out on Clavering Ø, and in parts of the Kap Stosch and Moskusoksefjord areas. A brief description of the expedition is given in Koch (1955 pp. 26–32).

The summer expeditions of 1929 and 1930 visited the same general region and had many of the same participants. The majority of the *c.* 100 place names

associated with these two expeditions are discussed by Seidenfaden (1931), while others appear in the report of Backlund (1932). About 45 names commemorate persons, including Danish and Swedish scientists, and members of J.M. Wordie's 1926 and 1929 expeditions. Most others refer to incidents, or to characteristics of the features.

### 1929–33 Norges Svalbard- og Ishavsundersøkelser (Norwegian Svalbard- and Arctic Ocean Survey)

Norges Svalbard- og Ishavsundersøkelser (NSIU) commenced scientific activities in East Greenland in 1929 on the initiative of Adolf Hoel, a move coinciding with the foundation of *Arktisk Næringsdrift A/S* (see below) and the commencement of intensive land-based fox trapping. From 1929 to 1931 the scientific activities were on a modest scale, and included topographical surveying, oceanographical, botanical, zoological and geological investigations, mainly in the region between Antarctic Havn (72°N) in the south to Wollaston Forland (74°15'N) in the north.

Following the declaration of sovereignty over *Eirik Raudes Land* (71°30'–75°40'N) by Norway in 1931, the pace of activities was greatly increased. A



Fig. 14. Segment of one of the 1:100 000 scale topographic maps published to support the Norwegian claims to the part of East Greenland they called 'Eirik Raudes Land' (Lacmann 1937). The excerpt shows the eastern part of Vega Sund that forms the south boundary of Geographical Society Ø. Most of the place names were new, and were not approved by the Danish authorities.

major expedition sent up in 1932 with the POLARBJØRN included two aeroplanes to undertake aerial photography.

The ruling of the Court of International Justice at The Hague in April 1933 in Denmark's favour led to a reduction in activities. The NSIU scientific group in 1933 numbered nine and from 1934 scientific activities virtually ceased. However, NSIU continued to cooperate with Arktisk Næringsdrift in the dispatch of relief ships to serve the Norwegian hunters, as well as supplying the telegraphists at Myggbukta.

The majority of place names associated with NSIU are found on map sheets published by NSIU at scales of 1:200 000 (Fig. 13) and 1:1 million (NSIU 1932a, 1932b), the 1:100 000 topographic maps of Lacmann (1937; Fig. 14), and in expedition reports by Orvin (1930, 1931) and NSIU (1937). Lacmann lists the derivation of 299 new names appearing on the new maps, most of which were given for natural features of the terrain (75), followed by Norwegian place names (41), Norwegian ships (32), hunters (30) and scientists involved in photogrammetric developments (26). Only a selection of the many names used by NSIU has been officially approved for usage on Danish maps of Greenland, largely because of the nationalistic climate associated with the dispute over East Greenland, and an impression that the name-giving was more prolific than necessary. However, a few of the NSIU names subsequently appeared on the

United States Air Force 1:250 000 scale aeronautical charts published in the 1950s.

#### 1929–41 Østgrønlandsk Fangstkompani Nanok A/S (East Greenland Trapping Company Nanok Ltd.)

Østgrønlandsk Fangstkompani Nanok (The East Greenland Trapping Company Nanok, commonly known as 'Nanok') was founded in May 1929 on the basis of a plan by J.G. (Johannes Gerhardt) Jennov, following several failed attempts to revive the old Østgrønlandsk Kompani. The capital was secured by the support of several large Danish companies. However, trapping was often poor, and Nanok only survived with the assistance of the Danish State, which provided free transport to and from Greenland, and the support of private funds, notably Laurits Andersens Fond, Otto Mønstedts Fond, Julius Skrikes Stiftelse, Tuborg Fondet and Kaptain Alf Trolle og Hustrus Legat. The interest in the maintenance of Danish hunting activities was largely a consequence of the challenge to Danish sovereignty of East Greenland by Norway, and the necessity of competing with Norwegian hunters.

In 1929 Nanok sent up 10 hunters with the BIRGILD, accompanied by Jennov and the geologist Richard Bøgvad, but due to poor ice conditions only the southern hunting stations taken over from Øst-

grønlandsk Kompagni were occupied. Transport to and from Greenland was subsequently largely undertaken with the *GODTHAAB* or the *GUSTAV HOLM*, the two ships serving Lauge Koch's geological expeditions. Ice conditions often meant that stations in one or another area could not be reached, although J.G. Jennov blamed the failure to relieve Nanok's stations in 1934 on Lauge Koch's lack of interest in helping the Danish hunters, a viewpoint unexpectedly supported by John Giæver (Lauritsen 1984). In 1935, the *GODTHAAB* failed to reach the coast, but three hunters were evacuated by plane, and another four by the Norwegian sealer *BUSKØ*. In 1937, the *GUSTAV HOLM* became trapped by ice in Scoresby Sund, and no stations were reached.

Nanok had taken over 14 hunting stations from Østgrønlandsk Kompagni and built many new huts in the period 1930 to 1932. In 1932 the *GEFION* was sent up to re-occupy the station at Danmark Havn, and a radio station was built at Hvalrosodden (Jennov 1935). Following a fund-raising campaign numerous huts were built in 1938, and the company eventually had more than 60 huts between Kap Broer Ruys (73°32'N) in the south and Sælsøen (77°04'N) in the north.

Hunting success varied; 1931–32 and 1937–38 were reported as good trapping seasons, while trapping was poor in the 1934 to 1937 seasons. Jennov (1945) reported the catch for the years 1929–38 as 1232 foxes and 67 bears. Accounts of hunters' experiences with Nanok are given by Drastrup (1932), Hvidberg (1932), Hansen (1939), Kristoffersen (1969) and Nyholm-Poulsen (1985), and summaries of Nanok's activities by Jennov (1935, 1939, 1945, 1953), Lauritsen (1984) and P.S. Mikkelsen (1994, 2008).

Operations were suspended in 1941 with the advent of war in Europe, and the hunters returned home, moved to West Greenland or North America, or joined Nordøstgrønlands Slædepatrulje. Hunting was resumed in 1945.

Names originating from Nanok are found in the descriptive, published accounts of the hunters, but notably in the maps and reports of Jennov (1935, 1945) and the systematic descriptions of huts and stations by P.S. Mikkelsen (1994, 2008). Some names were officially approved, but others conflicted with the principles established by the then newly formed Place Name Committee and were rejected. A large proportion of the names were suggested by J.G. Jennov.

## 1929–42 Arktisk Næringsdrift A/S (Arctic Commercial Enterprise Ltd.)

The Norwegian trapping company Arktisk Næringsdrift was founded in October 1929. Following Hallvard Devold's return from a private hunting expedition to East Greenland, Devold gained Adolf Hoel's interest and support in greatly expanding Norwegian hunting activities, while Hoel saw the opportunity of developing NSIU scientific investigations (see above). Arktisk Næringsdrift began operations in 1929, and had hunters in East Greenland continuously until 1942, and again from 1946 to 1959. The company had variable, often substantial, financial support from the Norwegian state, and lesser amounts from the Norwegian Meteorological Institute on whose behalf the Myggbukta radio and weather station was operated from 1930. Transport of hunters to and from Greenland was undertaken by NSIU from 1929 to 1934, after which Arktisk Næringsdrift took over responsibility for ship charter for their own hunters (still in cooperation with NSIU), as well as those of private Norwegian hunting expeditions.

Between 1929 and 1931, Arktisk Næringsdrift built 35 hunting huts between Vega Sund and Moskusoksefjord, and by 1938 with the other Norwegian hunting expeditions had established 130 hunting huts and stations between Canning Land (71°41'N) in the south, and southern Dove Bugt in the north (76°15'N).

On 29 June 1931, Hallvard Devold raised the Norwegian flag at Myggbukta and took possession of *Eirik Raudes Land*, the region between 71°30'N and 75°40'N where Norwegian hunters had been most active; this action was supported by Norway who proclaimed annexation on 10 July 1931. The claim was contested by Denmark, which appealed to the International Court of Justice at The Hague; the case was decided in Denmark's favour on 5 April 1933, by a majority verdict (12 to 2).

Arktisk Næringsdrift had 10 hunters in East Greenland from 1929 to 1931, and subsequently had 5–6 hunters active each year. Many spent long periods in East Greenland; Gerhard Antonsen wintered for a total of seven years at Revet. Norwegian hunters seem to have been generally more successful than their Danish counterparts, Arktisk Næringsdrift reporting a catch of 3400 foxes and 26 bears between 1929 and 1938 (Giæver 1939). In the season 1937–38 a single hunter at Kap Herschell caught a record 642 foxes. Norwegian hunters are reported to have shot large

numbers of birds (Schaanning 1933), including in the period 1928 to 1931 a total of 190 ravens, 40 snowy owls, 170 falcons (70 shot by Finn Devold at Myggbukta in 1928), 200 barnacle geese, 80 eider ducks, 65 red-throated divers and 2040 ptarmigans.

Supply ships visited the hunting stations every year; those used including the VESLEKARI, POLARBJØRN, SÆLBARDEN, BUSKØ and ISBJØRN. The supply ships occasionally carried small parties of tourists or sport hunters (Munsterhjelm 1937). In spite of the outbreak of war in Europe and Norway's capitulation, the VESLEKARI was sent to East Greenland in 1940 to relieve the Norwegian hunting stations as usual. On its return voyage it was arrested by the FRIDTHOF NANSEN, a Norwegian naval ship in the service of the allied forces, which also destroyed the radio facilities at Myggbukta. In 1941 another supply vessel, the BUSKØ, was arrested by the United States patrol boat NORTHLAND. Only three hunters wintered in 1941–42, and in the summer of 1942 trapping operations were suspended. One hunter went to West Greenland, another joined the US forces, while Henry Rudi remained in East Greenland as a member of Nordøstgrønlands Slædepatrulje.

Personal accounts of hunting activities and experiences in East Greenland are given by Giæver (1930, 1931), Bang (1944), Akre (1957) and Winther (1970, 1980), and summaries of the work of Arktisk Næringsdrift and other hunting expeditions by Giæver (1939) and Lønø (1964).

All hunting stations and huts had names, some incidental or commemorative, although many were known simply by their geographical location. A large number were known by different names at different times. The most exhaustive account of the stations and huts is that of P.S. Mikkelsen (1994, 2008).

### 1930 Robert A. Bartlett East Greenland expedition

Robert A. (Bob) Bartlett, the noted American skipper who captained the ROOSEVELT during Robert E. Peary's attempts on the North Pole, made a journey to East Greenland with his schooner EFFIE M. MORRISSEY in 1930, accompanied by the big-game hunter Harry Whitney. Their main objective was to collect archaeological and anthropological specimens for the Museum of the American Indian, Heye Foundation (now part of the Smithsonian Institution). The expedition visited the coastal region between 74° and 76°50'N, Kap Bismarck being the northernmost

point reached. Archaeological excavations were made at Kap David Gray and Eskimonæs (Bartlett & Bird 1931; Bartlett 1934).

### 1930–31 Constantin Dumbrava's Scoresby Sund expedition

Having spent several years in the Ammassalik / Tasiilaq region, the Rumanian scientist Constantin Dumbrava moved his area of interest to the Scoresby Sund region, in defiance of the wishes of the Danish authorities. The Norwegian sealer GRANDE, captained by Bernt Heide, had disembarked Dumbrava with his equipment on the east side of Hurry Inlet in the summer of 1930; Dumbrava built a house and made meteorological observations. The next year the GODTHAAB was diverted to pick him up and extradite him to Europe. His visit gave rise to use of three place names: Dumbrava, Dumbravap Imia and Dumbrava Kangileqitaa, all of which were incorrectly spelt *Dombrava* for many years. [Place Name Committee archive.]

### 1930–31 Deutsche Grönland-Expedition (German Greenland expedition): Alfred L. Wegener

The main 19-man party of Alfred Wegener's expedition to undertake a systematic study of the Greenland Inland Ice and its climate sailed to West Greenland. The expedition ascended the ice cap using primitive tracked vehicles, and established the Eismitte station. Wegener died while attempting to return from Eismitte to the coast of West Greenland in November 1930 (Wegener 1932, 1935).

A three-man party led by Walther Kapp travelled to the Scoresby Sund region of East Greenland in July 1930 aboard the GERTRUD RASK, to establish Wegener's eastern land station that was to carry out complimentary meteorological observations. Initially studies were undertaken around the town of Scoresbysund, but in early September the party moved with the help of Greenlanders to the west coast of Jameson Land where Wegener's *Oststation* was established south of the present Gurreholm (Wegener 1932, 1935). The party sledged back to Scoresbysund in May 1931, and in July sailed back to Europe aboard the GERTRUD RASK. Only three names in the Scoresby Sund region are associated with this expedition, including one given by the Greenlanders, Tyskit Nunaat.

### 1930–32 Møre Grønlands ekspedition (Møre Greenland expedition)

This Norwegian six-man hunting expedition was led by Jonas Karlsbak, and included four members who had previously hunted with the Hird expedition. They travelled up in 1930 with the *VESLEKARI*. Three of the hunters opened up new terrain on the south side of Kong Oscar Fjord with main stations at Ant-artichavn and *Kap Peterséns*, and built twelve new huts between Canning Land and Alpefjord. In autumn 1931, one of the hunters, Knut Røbek, fell through the fjord ice and drowned. Two men returned home in 1931 because of illness, and the others in 1932 aboard the *POLARBJØRN* (Giæver 1939; P.S. Mikkelsen 1994).

### 1931 Louise A. Boyd's Arctic expedition

This was Louise Boyd's third Arctic expedition, but the first to visit East Greenland; the earlier expeditions were to Franz Josef Land in 1926, and to Spitsbergen and Franz Josef Land in 1928. Louise Arner Boyd [1887–1972] had inherited her father's considerable fortune in 1920, and her independent and adventurous spirit led to her becoming involved in Arctic exploration. Her 1931 East Greenland expedition was primarily a photographic reconnaissance in preparation for the more ambitious 1933 expedition. The Norwegian sealer *VESLEKARI* was chartered, and in the course of the summer visited every fjord and sound between 72° and 74°N. The inner part of Isfjord was visited for the first time and Gerard de Geer Gletscher discovered, and from the south end of Kjerulf Fjord a new route to Hisinger Gletscher was explored and mapped. Alpefjord and Röhss Fjord were also penetrated to their inner ends (Anrick 1932; Boyd 1932). The passengers included the big-game hunter Harry Whitney. A small group of names are associated with the expedition.

### 1931 Von Gronau's flight over the Inland Ice

The German aviator, Wolfgang von Gronau, with three companions made a pioneer flight in August 1931 from Europe to North America in a Dornier seaplane, 'Grønland-Wal', which included a crossing of the Greenland Inland Ice from Scoresbysund to Maniitsoq/Sukkertoppen (Gronau 1933). After taking off from Scoresbysund strong winds were encountered in the inner part of the fjords. A diversion was made southwards to gain altitude, in the process flying over

unexplored mountains south of Scoresby Sund; one group of these mountains now bears the name Gronau Nunatakker.

### 1931 Høygaard & Mehren expedition

The Norwegians Arne Høygaard and Martin Mehren made a crossing of the Inland Ice from west to east in July and August 1931. On 6 August they sighted the first nunataks of East Greenland at about 73°30'N, and during the next ten days made their way through the unexplored glaciers and nunataks between 73°30' and 74°10'N, eventually reaching northern Strindberg Land, and via Waltershausen Gletscher the west coast of Nordfjord. The return to Norway was made with the *POLARBJØRN* (Høygaard & Mehren 1931).

Of the 14 new names recorded, nine commemorate Norwegians who had assisted them, or had connections with Arctic whaling or exploration. Other names were given for the appearance of features.

### 1931 Norcross-Bartlett expedition to the Greenland Sea

Robert A. Bartlett again visited East Greenland with his schooner *EFFIE M. MORRISSEY*, this time in company with Arthur D. Norcross. The aims were similar to his 1930 voyage, to make collections for the Smithsonian Institute, the American Museum of Natural History and the Heye Foundation. Ice conditions off East Greenland were very difficult, and the ship was trapped for 37 days before land was reached at Clavering Ø. Visits were made to Kap Stosch, Shannon and a few other localities (Bartlett 1934).

### 1931–34 Treårsekspektionen til Christian X's Land (The Three-year expedition to East Greenland): Lauge Koch

Treårsekspektionen was the largest and most comprehensive expedition hitherto sent to East Greenland by Denmark. The financial support came largely from the Carlsberg Foundation and from private contributions, while government support was in the form of transport in the ships *GUSTAV HOLM* and *GODTHAAB* and seaplanes borrowed from the Danish Navy. Topographical surveying was entrusted to the Geodetic Institute (Geodætisk Institut). The expedition was to extend over four summers and three winters, the scientists wintering in specially built stations. The specific tasks of the expedition includ-



ed preparation of topographic maps of the region 72°–76°N, together with geological, zoological, botanical, archaeological and hydrographical studies in the same region. General accounts of the expedition are given by Thorson (1937) and Koch (1955).

Lauge Koch was empowered as the Danish police authority in East Greenland pending the verdict on sovereignty of East Greenland by the International Court of Justice at The Hague. After the decision in favour of Denmark, Ejnar Mikkelsen was appointed Inspector for East Greenland under the authority of Grønlands Styrelse (The Greenland Administration) although in practice Lauge Koch continued to represent police authority in East Greenland during his expeditions until 1939.

The 1931 expedition numbered 65, including 22 scientists and their assistants. The principal task of the first year was construction of the two main wintering stations at Eskimonæs and on Ella Ø, and two smaller houses at Nordfjord and Kap Brown (see also Fig. 40). Scientific work of all kinds was commenced, but was not extensive during the summer because of

difficult ice conditions and house-building. Geological work was carried out mainly on Clavering Ø, Ymer Ø, Traill Ø and Hochstetter Forland. Ten scientists overwintered in 1931–32, and a great deal of scientific work was carried out during autumn and spring sledge journeys.

The 1932 expedition numbered 95, including 37 scientists and their assistants. Two sea-planes were borrowed from the Danish Navy, one carried up aboard the GUSTAV HOLM, and the second brought up on the French ship POURQUOI PAS?. The Danish Army Flying Corps provided four aerial photographers. The air support meant a considerable increase in the effectiveness of the cartographic work, with aerial photography supporting the ground trigonometrical surveys. On the basis of reconnaissance flights a working chart was prepared of the region from 70° to 77°N and was published in 1932 at a scale of 1:1 million (Geodætisk Institut 1932); it included many hitherto unexplored areas along the margin of the Inland Ice, (Fig. 15). A new house (Kulhus) was built during the summer on Hochstetter Forland. Scien-



Fig. 15. The 1932 1:1 million scale Geodætisk Institut published map was drawn during the 1931–34 Treårsekspedition by Lauge Koch (Geodætisk Institut 1932), and is partly based on aerial observations. Following public criticism of Lauge Koch's naming policy the glacier names *Gerda Gl.* and *(Anna Sten Gl.)* indicated at the top were not approved.

tific studies were carried out between Hochstetter Forland in the north and Traill Ø in the south. Zoological and hydrographical investigations based on the GODTHAAB were carried out in most of the fjord system from 72° to 74°N. Archaeological studies were made on the Thule culture sites on Clavering Ø (Dødemandsbugten), and in the district around Ella Ø. Icelandic ponies were used with some success for the transport of camp equipment and geological samples. Weather and ice conditions were more favorable than in 1931. Twelve scientists overwintered in 1932–33.

The summer of 1933 saw the culmination of the expedition, which numbered 109, of whom half were scientists. Weather and ice conditions were very favourable, and in August the GUSTAV HOLM reached as far north as the Norske Øer off Lambert Land (77°N), from where reconnaissance flights were made northwards to Peary Land. Aerial photography was undertaken throughout the region between 72° and 76°N, and the ground- trigonometrical survey was completed. Geological studies extended from Liverpool Land in the south to Skærfjorden in the north, and westwards to the innermost parts of the fjord systems. A mining camp was established on Clavering Ø to investigate a mineralised dyke with a conspicuous gossan; the 'gold mine' was found to comprise 90% pyrite and trace amounts of gold and silver. The GODTHAAB undertook zoological and hydrographical studies in the Scoresby Sund fjord system. Eleven ponies were used for transport, mainly to supply the mining camp. Seven scientists overwintered in 1933–34.

The 1934 expedition numbered only 65, including 31 scientists and assistants, and had only one ship, GUSTAV HOLM, and one sea-plane. The main work of the summer was geological, including work in the coastal region between Canning Land and Hudson Land, while inland Eugène Wegmann's party reached Cecilia Nunatak and Helge G. Backlund's party investigated the inner Scoresby Sund fjord system. Poor weather and bad ice conditions hindered activities, and in particular prevented planned relief and transport of supplies to hunters of the Nanok company.

The intensive scientific activity over most of the region north of latitude 70°N, reaching many previously unexplored regions, gave rise to the introduction of a very large number of new place names. More than 480 names are credited to members of the 1931–34 expedition. Most of the names can be attributed to particular expedition members as summar-

ised below. [Place Name Committee archive.]

Hermann Aldinger visited the Kap Leslie region of eastern Milne Land in 1933 and introduced 22 new names. They were given chiefly for geological characteristics and geographical location, except for four names for French scientists who had worked in the same region with J.-B. Charcot's expeditions (Aldinger 1935).

Helge G. Backlund joined the expedition in the years 1932–34, although the majority of his names derive from his 1933 explorations of Liverpool Land. His 16 names were given for geological phenomena and other natural features, with some personal names. Many other names proposed by Backlund have not appeared in print, the alternative suggestions by Laurits Bruhn (mainly given after Danish localities) being preferred by the Place Name Committee, although as Backlund pointed out they have no resemblance to their namesakes in Denmark.

Laurits Bruhn was a member of the Geodetic Institute surveying party in 1932 and 1933, when he was mainly at work in the Scoresby Sund region. Of his 98 recorded names, many were named after Danish localities, in particular the fjords of eastern Liverpool Land and the rivers of Jameson Land (Map 4). Other names were given for the appearance of features, a few for characters in fairy tales, while the precipitous cliffs of the Volquaart Boon Kyst and its hinterland were given names with an element of fantasy.

The Ella Ø overwintering party of 1931–32, that included Ole Simonsen, Arne Noe-Nygaard and Gunnar Thorson, is credited with 10 names in the vicinity of the station, mainly named after the appearance of features and different animals.

Hans Frebald undertook geological work in Wolleston Forland and Hochstetter Forland in 1931. His 13 names were mainly given for geological features (Frebald 1932, 1935).

Lauge Koch was largely responsible for the numerous new names that appeared on the 1932 edition of the Geodetic Institute (Geodætisk Institut) 1:1 million scale topographical map of the region from 70° to 77°N (Geodætisk Institut 1932), which included extensive, previously unmapped regions. Many of his 59 names were given for Danish politicians, army and navy officers and scientists who had assisted his expeditions. Some were given for British and American scientists.

The overwintering parties at Kulhus in 1932–33 and Eskimonæs from 1931 to 1934 were credited with 45 names in the region from 74° to 76°N. They have a

variety of origins, including their geographical location, size, shape and colour, while a few derive from incidents and from Norse mythology.

David Malmquist in company with Thorvald Sørensen reached 77°N aboard the GUSTAV HOLM in 1933. Their exploration and mapping of the Skærfjorden area gave rise to 23 names, given for the size and shape of features, incidents, and for family members and friends (Seidenfaden & Sørensen 1937).

Eigil Nielsen, a vertebrate palaeontologist, gave 25 names to features in the vicinity of Kap Stosch, arising from his work in 1932 and 1933. They record a mixture of geological features, shape and colour, together with four Greenlandic names (Nielsen 1935).

Arne Noe-Nygaard and the Swedish palaeontologist Gunnar Säve-Söderbergh gave seven names to features in north-east Clavering Ø deriving from their joint work in 1931 (Noe-Nygaard & Säve-Söderbergh 1932). They were given for geological characteristics, shape and colour. A further 35 names originate from Noe-Nygaard's work in Canning Land in the years 1931 to 1934, often in association with other geologists (Noe-Nygaard 1934). These names were given mostly for natural features of the localities, or for existing named features nearby. Some features were named after notable scientists.

Gunnar Säve-Söderbergh studied late Palaeozoic stratigraphy and palaeontology between Jameson Land and Clavering Ø from 1931 to 1934. Most of his 34 names were given for features in Gauss Halvø, and derive from geological characteristics, notable geologists, and girls' names (Säve-Söderbergh 1932, 1933, 1934, 1937).

Ole Simonsen was a member of the Geodætisk Institut (Geodetic Institute) surveying party from 1931 to 1933, and is credited with 52 names from parts of Andrée Land, Fränkel Land, Suess Land, Nathorst Land, Traill Ø and the Stauning Alper. Many of them were named after Danish place names, while others result from incidents, or derive from the appearance of features. Three were given for his Greenlandic assistants.

Ragnar Spärck and Gunnar Thorson were engaged in marine zoological studies aboard GODTHAAB in 1932 and 1933 in the fjord systems between 72° and 74°N. They proposed 14 names, mostly given for natural features of the localities.

The Swiss geologist Eugène Wegmann carried out work in the inner parts of the fjord system from 1932 to 1934, including the first exploration of the interior parts of Suess Land, Gletscherland and Lyell Land,

and the first visit to Cecilia Nunatak. About 60 names have been recorded, the great majority given for Swiss localities, and a number for French and Swiss scientists (Wegmann 1935).

A further 30 names arose during the expedition, but cannot be credited with any certainty to particular members. Some are botanical localities apparently first used by Gelting (1934), and others derive from a journey along the margin of the Inland Ice by Th. Sørensen and others in 1932 (Koch 1940). [Place Name Committee archive.]

### 1932 Østgrønlandsk Fangstkompani Nanok (East Greenland Trapping Company Nanok): Gefion expedition

J.G. (Johannes Gerhardt) Jennov led an expedition in the GEFION in 1932 with the objective of re-occupying the Danmark Havn trapping station and establishing and extending Danish hunting activities in the Dove Bugt region (75°–77°N; Jennov 1935). A radio station was established at Hvalrosodden. A number of new names appear on the map published in Jennov's account of the voyage, but very few of them were officially approved in spite of repeated applications to the Place Name Committee. [Place Name Committee archive.]

### 1932 Scoresbysund Committee second East Greenland expedition: Ejnar Mikkelsen

Ejnar Mikkelsen, chairman of the Scoresbysund Committee for more than 40 years, was leader of this expedition to the relatively poorly known coastal region south of Scoresby Sund. The aims were in part scientific, and in part to erect houses at suitable locations to enable communication between the settlements at Ammassalik / Tasiilak and those of Scoresbysund / Illoqqortoormiut (*Ittoqqortoormiit*). The expedition included British and Danish scientists and sailed from Copenhagen on 22 June aboard the SØKONGEN, reaching the Greenland coast at Kap Dalton on 10 July (E. Mikkelsen 1933). Scientific work was begun here and extended progressively southwards, detailed work being carried out in the Kangerlussuaq region (68°–68°30'N). The expedition left Ammassalik for Copenhagen on 10 September. Only one new place name is recorded north of latitude 69°N, Høst Havn, a bay near Kap Barclay.

## 1932 Skaun & Welde – ‘Dagsposten’ expedition

Sigurd Skaun and Harald Welde visited East Greenland with the support of the Norwegian newspaper ‘Dagsposten’ and Adolf Hoel, to investigate supposed columns of smoke seen by Arne Høygaard and Martin Mehren in 1931 on the east side of Waltershausen Gletscher. They travelled to Greenland with the POLARBJØRN, and were landed at Kap Bull at the mouth of Moskusoksefjord. A three week journey in difficult terrain in western Hudson Land and Ole Rømer Land yielded no evidence of volcanic activity or hot springs (Skaun 1932). Their explorations gave rise to 12 new names, eight of which have come into general use with approved status. They returned home with the POLARBJØRN. In 1952 further sightings of ‘smoke’ in this region were reported by Charles Swithinbank and others aboard the POLARBJØRN, who were convinced that it was due to volcanic activity; this gave rise to reports in the ‘New Yorker’ and Norwegian newspapers. An unpublished letter by Lauge Koch, dated 1953, states that he is familiar with the ‘smoke’ in this region that consists of clouds of dust derived from dried-out silt deposits on the floor of an ice-dammed lake beside Waltershausen Gletscher, periodically disturbed by strong winds [GEUS archive.]

## 1932–33 7th Thule expedition: Knud Rasmussen

Knud Rasmussen [1879–1933] was a Danish–Greenlandic polar explorer and anthropologist, most noted for his ‘Thule Expeditions’, that take their name from the trading station he established with Peter Freuchen in North-West Greenland in 1910. The 7th Thule expedition, the last of Knud Rasmussen’s Thule expeditions, involved major scientific investigations along the south-east coast of Greenland from Kap Farvel in the south to Kangerlussuaq (68°30’N) in the north. Emphasis was placed on surveying, and a sea-plane was supplied by the Danish Navy to undertake aerial photography. Geological, archaeological, botanical and zoological studies were also prominent, and in 1933 Knud Rasmussen was notably involved in the production of a cinematographic record of Greenlandic Inuit life.

Almost all the work of the expedition was south of 69°N, but some of the aerial photography extended into the almost unknown region of high mountains and glaciers between Kangerlussuaq (68°30’N) and

Scoresby Sund, a region that figures prominently in official reports of the expedition as *Knud Rasmussens Land* (Gabel-Jørgensen 1940). Rasmussen had sailed along the Blossville Kyst in August 1933 aboard the KIVIOQ on the way to visit Scoresbysund, returning to Ammassalik by the same route. *Knud Rasmussens Land* was the official name of the region between Kangerlussuaq and Scoresby Sund (68°30’–70°N) from 1936 to 1953, but was then abandoned when the name was transferred at the suggestion of Eske Bruun (Head of Grønlands Styrelse – the Greenland Administration) to cover much of western North Greenland, explored by Knud Rasmussen during the 1st and 2nd Thule expeditions. The official ‘Knud Rasmussen Land’ is very rarely used as a place name due to the very broad region which it now covers. However, the region between Kangerlussuaq (68°30’N) and Scoresby Sund is still commonly referred to as *Knud Rasmussens Land*, especially in mountaineering literature.

## 1932–33 International Polar Year: J.-B. Charcot

Jean-Baptiste Charcot had selected the site for a French scientific station at Scoresbysund in 1931. In 1932, the POURQUOI PAS? and the French icebreaker POLLUX carried materials and personnel to set up the station, which comprised a main building *Ker Doumer* and a smaller house *Ker Virginia*. The station was manned until the summer of 1933 (Rothé 1941).

Elsewhere in East Greenland the Norwegian weather stations at Myggbukta and Jónsbu took part in the International Polar Year project.

## 1932–34 Sigurd Tolløfsen’s expedition

A Norwegian six-man hunting expedition led by Sigurd Tolløfsen travelled to East Greenland together with John Giæver’s expedition aboard the ISBJØRN in 1932. Tolløfsen’s party used the Arktisk Næringsdrift terrain between Revet and Godthåb Gulf (74°–74°30’N), and the so-called Sunnmøre terrain from Jackson Ø to Kuhn Ø (73°50’–75°N). The expedition expanded the northern terrain with a new station, *Sigurdsheim*, and six new huts. One of the hunters, Arnljot Tolløfsen, was drowned between Loch Fyne and Kap Herschel, and the remaining five went home with the NSIU relief ship SÆLBARDEN in 1934 (Giæver 1939).

### 1932–34 Helge Ingstad's expedition

This six-man expedition was led by Helge Ingstad, a Norwegian writer and lawyer who had been appointed *sysselmann* (= governor) of *Eirik Raudes Land* following Norway's declaration of sovereignty over parts of East Greenland in 1931. The expedition went up with the POLARBJØRN and took over the territory on the south side of Kong Oscar Fjord. Several huts were built, and a number of sledge journeys made, including one in the spring of 1933 across Jameson Land to the interior of Nordvestfjord (Ingstad 1935, 1937). After news that Norway had lost the court case in The Hague was received, Ingstad returned home in 1933 with the POLARBJØRN, while the remainder of the expedition returned to Norway with the SÆLBARDEN in 1934.

### 1932–34 John Giæver's expedition

John Giæver's six-man hunting expedition travelled up with Tolløfsen's expedition on the ISBJØRN. They established the trapping and radio station Jónsbu, which operated from 1932 to 1934, and two other hunting stations north of Ardencaple Fjord (*Ottestrand* and *Olestua*). Eighteen hunting huts were built between the south coast of Ardencaple Fjord and Kap Niels (75°–76°24'N), including two inland by large lakes, together representing a considerable expansion in the range of Norwegian hunting activities. The expedition returned home with the SÆLBARDEN in 1934 (Giæver 1939).

### 1933 Louise Boyd's Arctic expedition

Louise A. Boyd's fourth Arctic expedition was organised with the cooperation and assistance of the American Geographical Society, and included five scientists: two surveyors, a physiographer, a geologist and a botanist. The botanist developed appendicitis and returned home without reaching Greenland. The VESLEKARI, captained by Johan Olsen, was the expedition ship and left Norway on 28 June for Jan Mayen and Greenland. Hold with Hope was reached on 13 July after an easy passage through the ice. Nearly all the fjords from 72°30' to 74°N were visited, and the expedition departed from Mackenzie Bugt on 9 September (Boyd 1935).

Louise Boyd continued, during this voyage, her primary interest of making a photographic record of Arctic scenery. For the 1933 voyage the VESLEKARI had been fitted with an echo sounder, and profiles

were successfully made in all the fjords, as well as on the Atlantic crossing. Knækdalen (*Gregory Valley*) was discovered and explored for the first time, and a photogrammetric map was made of the valley, as well as detailed maps of glaciers in Knækdalen and on Louise Boyd Land. In the course of geological studies Noel E. Odell ascended a number of mountains around Knækdalen and in other areas (Odell 1934a, b, 1937a, b, 1939, 1943, 1944). Tidal gauges set up at two localities gave useful information.

About 20 new names are associated with the expedition, nearly all arising from the exploration of Knækdalen (Boyd 1935), and were given mainly for the appearance of features.

### 1933 Charles Lindbergh's flight across Greenland

The American aviator Charles Lindbergh and his wife crossed the Greenland Inland Ice from west to east on 4 August in their Lockheed Sirius monoplane 'Tingmissartoq' as part of a six month series of flights which took them around much of the North Atlantic Ocean. Lauge Koch provided them with weather reports, and they landed at Ella Ø, subsequently visiting Eskimonæs on 5 August. On 6 August the Lindberghs flew south to Ammassalik, with instructions from Koch to pay particular attention to the high mountains south of Scoresby Sund. They re-crossed the Inland Ice westwards to Nuuk (then known as Godthåb), then rounded the south coast of Greenland and flew back to Ammassalik. At Ammassalik they were entertained by Knud Rasmussen on 13 August, before departing the next day for Iceland (Lindbergh 1934). Lauge Koch subsequently named a group of nunataks south of Scoresby Sund after Lindbergh.

### 1933 Cambridge expedition to East Greenland

G.C.L. (Colin) Bertram, David Lack and Brian B. Roberts, scientists based at Cambridge University (England), travelled to East Greenland in 1933 as guests of J.-B. Charcot aboard the POURQUOI PAS?. Zoological and ornithological studies were made around the inner part of Hurry Inlet (Roberts 1935). Most of their place names were adopted from the work of Alfred Rosenkrantz and Tom Harris, although several were misplaced on their maps.

### 1933 John K. Howard expedition to East Greenland

The American John K. Howard visited East Greenland in August with the *NORDKAP II*. A small geological party disembarked on western Ymer Ø (73°20'N), and their work gave rise to five new names (Cleaves & Fox 1935). Two of their names were brought into general use by the next geologist to undertake systematic work in the area (Eha 1953).

### 1934 Count Leonardo Bonzi spedizione italiana (Italian climbing expedition)

A five-man Italian climbing expedition led by Leonardo Bonzi had intended to make an attempt on the Watkins Bjerge (69°N) from the Blossville Kyst. However, the expedition ran into difficult ice conditions in their small Icelandic boat *NJALL*, and turned their attention instead to the unexplored mountains behind Volquart Boon Kyst (70°N) on the south side of Scoresby Sund.

Between 22 and 29 August parties explored and climbed a number of mountains and glaciers over an E–W distance of 35 km. Thirteen names, nearly all with Italian connections, were bestowed on a variety of features. Bonzi's (1935, 1936) sketch map proved difficult to reconcile with existing maps, and only three of his names were later adopted officially – Savoia Halvø, Milano Gletscher and Roma Gletscher. However, all Bonzi's peaks have since been identified on modern maps (Fantin 1969). Ice conditions delayed departure, and the expedition did not leave the Greenland coast until 7 September.

### 1934 Alfred Rosenkrantz expedition to Scoresby Sund

The Danish geologist Alfred Rosenkrantz spent the summer in the Scoresby Sund region studying Jurassic stratigraphy, assisted by Greenlanders from Scoresbysund (Rosenkrantz 1942). The Greenlanders subsequently gave the name *Ilimanangip Nunaa* to two of the areas where Rosenkrantz worked, around Kap Leslie and around Rødeelv in eastern Jameson Land. 'Ilimanangip' translates roughly as 'one does not expect anything from him', implying that Rosenkrantz was not a generous employer; however Alfred Rosenkrantz was noted for his good relationships with the Greenlandic members of his West Greenland expeditions (Niels Henriksen, personal communication 2010).

### 1934 British trans-Greenland expedition: Martin Lindsay

Martin Lindsay led a three-man expedition to investigate the mountainous region south of Scoresby Sund in 1934, approaching the area after crossing the Inland Ice from West Greenland by dog sledge. From the area of the Gronau Nunatak the expedition traversed south-west around the head of Kangerlussuaq (68°30'N), and eventually reached Ammassalik. The expedition sailed back to Europe with the *JACINTH* (Lindsay 1935).

Only a short time was spent north of latitude 69°N, and only three names are relevant to this account; two of these, Prinsen af Wales Bjerge and Grønlands Styrelse Gletscher, are approved.

### 1934–37 Suløya Grønlands ekspedition (Suløya Greenland expedition)

This four-man Norwegian hunting expedition included two of the pioneers from the Hird expedition, Hermann Andresen and Peder Sulebak. The group travelled up with the *SÆLBARDEN*, and hunted in two parties of two, on the south side of Kong Oscar Fjord (72°N) and on Wollaston Forland (74°20'N). Two men travelled home in 1936, and the other two in 1937 (Giæver 1939).

### 1935 Anglo-Danish expedition to East Greenland

Augustine Courtauld and Lawrence R. Wager joined forces in 1935 for a summer expedition based at Kangerlussuaq (68°30'N), with the primary aim of an ascent of the highest summit of the Watkins Bjerge. The 14-strong party included a Danish archaeological group (Eigil Knuth, Helge Larsen and Ebbe Munck) as well as four wives of expedition members. On the way to Kangerlussuaq the *QUEST* picked up two Greenlandic families who were to experiment with hunting.

In August 1935, a six-man climbing party, which included Courtauld, Wager and Munck, embarked on the successful ascent of Gunnbjørn Fjeld (3694 m), the highest peak of the Watkins Bjerge, and the highest summit in Greenland; a 190 km round trip via Sorgenfri Gletscher and Christian IV Gletscher (Courtauld 1936; Longland 1936; Munck 1957a, 1957b). The main peak lies south of latitude 69°N, but two new names given during this venture lie north of 69°N, Guiden and Ismågen.

The *QUEST* left Kangerlussuaq on 29 August, leaving behind seven members who were to continue work as the 1935–36 British East Greenland expedition.

### 1935–36 British East Greenland expedition: Lawrence R. Wager

This was a continuation of the 1935 Anglo-Danish expedition to East Greenland and was made up of a party of seven led by Lawrence R. Wager, supported by a group of 14 Greenlanders. The greater part of the work of the expedition was geological, and was carried out south of latitude 69°N. Wager discovered the 'Skaergaard' intrusion, possibly the best known layered igneous intrusion in the world (Wager 1937, 1947), that has subsequently been intensively studied by geologists and prospecting companies. Two sledge journeys penetrated north of 69°N, one in the spring of 1936 up Frederiksborg Gletscher to Gronau Nunatak and Seward Plateau, and the second in the summer of 1936 up Frederiksborg Gletscher, west of Prinsen af Wales Bjerger, and south around the head of Kangerlussuaq. The party returned to Europe in late August aboard the *SELEIS*.

These explorations gave rise to eight place names north of 69°N, and many more to the south outside the scope of this account.

### 1936 Alfred Rosenkrantz expedition to Scoresby Sund

Alfred Rosenkrantz again spent a summer in East Greenland studying Jurassic stratigraphy, mainly in the area north of Kap Hope (Rosenkrantz 1942). He was assisted by Greenlanders from Scoresbysund, and the expedition was made possible by financial support from the Carlsberg Foundation.

### 1936–37 Quest expedition: Gaston Micard

Count Gaston Micard hired the *QUEST*, captained by Ludolf Schelderup, for a trip to East Greenland, with the *QUEST* overwintering at the mouth of Loch Fyne (74°N). Micard made use of Norwegian hunting huts in Loch Fyne, and also built three new huts, later taken over by Arktisk Næringsdrift. Two of the crew, Willie Knutsen and Karl Nicolaisen wintered at Kap Stosch (Knutsen 1949). The crew of the *QUEST* caught 162 foxes. At the end of July 1937, the *QUEST* returned to Europe, making short stops at Scoresbysund and Ammassalik on the way.

### 1936–38 Bird & Bird ornithological expedition

Edward and Charles Bird spent respectively one and two years at Myggbukta and Peters Bugt making ornithological studies (Bird & Bird 1941). Transport and other facilities were provided by NSIU (Norges Svalbard- og Ishavsundersøkelser) and Arktisk Næringsdrift.

### 1936–38 Two-year expedition: Lauge Koch

This expedition, which had almost entirely geological objectives, was to last for three summers and two winters. Each summer expedition was ship-based, with up to seven motor boats providing local transport, and in 1938 a sea-plane was used for aerial reconnaissance. Ponies were used extensively for transport in Jameson Land. Large wintering parties extended the field season using dog sledges for spring geological exploration. The expedition was financed in part by private contributions, the balance and loan of the ship being provided by the Danish state (Koch 1955).

1936 – The *GUSTAV HOLM* carried 47 men to East Greenland, reaching Scoresbysund on 23 July. It was an exceptionally favourable ice year, no pack ice being encountered either on the voyage out or the voyage home. Five geological teams were at work mainly between latitudes 71° and 74°N, including parts of Gauss Halvø, Kap Stosch, Ella Ø, Traill Ø and Nathorst Fjord. Fourteen men wintered at the stations Ella Ø and Eskimonæs.

1937 – Ice conditions proved extremely difficult this year. One of the main objectives was the erection of a new wintering station, planned to be placed in Nathorst Fjord, but the *GUSTAV HOLM* could not reach the area because of pack ice, and the new station Gurreholm was built instead in western Jameson Land, near the mouth of Schuchert Dal. Ice prevented the relief of the northern wintering stations, with the result that the scientists who had intended to return home were forced to overwinter for a further year. Eight geological, one zoological and one botanical team were at work during the summer in parts of Hold with Hope, the Giesecke Bjerger and Jameson Land (71°–74°N). Twenty-three men overwintered at four stations.

1938 – The *GODTHAAB* was expedition ship, and carried one additional geological party to Greenland to join those already in the field. Ice conditions again proved difficult, although not as bad as 1937. Work

was carried out in Hudson Land, the Giesecke Bjerge, Jameson Land and Scoresby Land (71°–74°N). Only two members overwintered, both returning home in 1939.

Hans Stauber spent the entire period 1936–38 in Greenland, wintering at Ella Ø and Gurreholm, and working on Traill Ø, in Scoresby Land and Jameson Land. Of the 21 place names that he proposed several had geological connections, some were derived from existing names, a few record incidents during the expedition and others commemorate Swiss geologists.

Wolf Maync and Andreas Vischer also spent 1936–38 in Greenland, wintering at Eskimonæs. They gave 33 names to features on Gauss Halvø, the Giesecke Bjerge, Wollaston Forland and Kuhn Ø; these record geological associations, the appearance of features, or commemorate Swiss localities and scientists. However, a further group of suggested names were considered unsuitable by the Place Name Committee that proposed alternative names. Unfortunately more than 30 unapproved names were used in their publications, and some of these have subsequently come into use as type localities of geological formations.

Heinrich Bütler worked in the summers of 1936 and 1938 in Hudson Land and Ole Rømer Land. Most of his proposed names were given for Swiss localities, Swiss geologists, or for characteristics of the features. [Place Name Committee archive.]

### 1937 Louise A. Boyd's Arctic expedition

Louise Boyd once again chartered the *VESLEKARI*, captained by Johan Olsen, for a voyage to East Greenland and Spitsbergen. Scientific staff included two geologists, a botanist, a surveyor and a hydrographer. The expedition left Tromsø on 30 June, visited Jan Mayen, and then made a difficult passage of the pack ice belt arriving at the East Greenland coast on 25 July. Working first in the Tyrolerdal area, the *VESLEKARI* went to the assistance of the *POLARBJØRN* which had run aground, then sailed south and west to the inner part of Kejser Franz Joseph Fjord, where work was carried out at the head of Kjerulf Fjord. Rhedin Fjord, Alpefjord and Narhvalsund were also visited. Difficulties with the pack ice caused delays and diversions, but the *VESLEKARI* came free of the ice on 25 August and set course for Spitsbergen. The expedition's results are fully described by Boyd (1948).

Scientific results in East Greenland included a general hydrographic chart of the region 72° to 74°N, as well as detailed hydrographic surveys of Tyroler-

fjord, Kjerulf Fjord and Narhvalsund. Photogrammetric topographic maps were produced of parts of Tyrolerdal and Narhvalgletscher, as well as a plane-table survey of Agassiz Dal. Regional botanical studies were made, while geological work concentrated on aspects of glacial and Quaternary geology.

Only a few new place names are associated with the expedition, mainly found in the geological reports.

### 1937–38 Søren Richter's expedition

Søren Richter, an archaeologist who had twice overwintered with Arktisk Næringsdrift expeditions, led a three-man hunting group using the terrain south of Kong Oscar Fjord. The expedition travelled up and back with the *POLARBJØRN*, except for Peder Sulebak who continued until 1939 hunting alone (Giæver 1939; P.S. Mikkelsen 1994).

### 1937–39 Hermann Andresen's expedition

Hermann Andresen and Lars Vemøy travelled up in 1937 with the *POLARBJØRN* to work the Wollaston Forland terrain. Lars Vemøy returned to Norway in 1938, while Andresen continued alone until 1939. The 1938–39 season was generally a poor trapping year for the Norwegian hunters, but Andresen had a record year with 642 foxes, the highest total ever recorded by a single trapper (Giæver 1939; P.S. Mikkelsen 1994).

### 1937–40 Sigurd Tolløfsen's expedition

In 1937 a six-man hunting expedition led by Sigurd Tolløfsen travelled up on the *POLARBJØRN*, but due to bad ice conditions could not reach their hunting terrain and returned home. Four men went up in 1938, and occupied the hunting terrain between Kuhn Ø and Dove Bugt. Three returned home in 1939, with Eivind Tolløfsen continuing alone from a base at Jónsbu until 1940 (Giæver 1939; P.S. Mikkelsen 1994).

### 1938 Louise A. Boyd's Arctic expedition

The 1938 expedition proved to be Louise Boyd's last major expedition to East Greenland. The *VESLEKARI*, captained by Johan Olsen, was expedition ship, and scientists included a hydrographer, a surveyor and a geologist. Leaving Norway on 13 June, the *VESLEKARI*



visited Jan Mayen on the way to the coast of East Greenland which was reached at Bass Rock on 25 July. Investigations were made around Clavering Ø and in Granta Fjord until 31 July, when the *VESLEKARI* headed northwards along the coast. On 2 August the north-east end of *Île de France* (now Qeqertaq Prins Henrik; 77°48'N) was reached just south of Kap Montpensier (the *BELGICA* had reached 78°10'N in the pack ice in 1905, but their northernmost landing was on southern *Île de France*). Retreating southwards, parts of Dove Bugt were explored, and the inner parts of Bessel Fjord and Ardencaple Fjord visited. On 27 August the *VESLEKARI* left the coast for Spitsbergen. An account of the voyage is given by Boyd (1948).

The main scientific results included a general hydrographic chart of the region 74° to 77°N, with detailed profiles in Pustervig and off Soraner Gletscher. Tidal observations were made at Danmark Havn. Other work included geological studies, botanical work and a survey of the Orienteringsøer.

### 1938 Sea-plane expedition to Peary Land: Lauge Koch

Supposed sightings of land between Kronprins Christian Land and Spitsbergen had been made by J.P. Koch during the 1906–08 Danmark-Ekspeditionen, by Lauge Koch in 1933 and Peter Freuchen in 1935. Another alleged sighting of what had become known as *Fata Morgana Land* by Ivan D. Papanin's ice drift expedition in 1937 led directly to Lauge Koch's 1938 seaplane expedition (Koch 1940).

Koch flew to Kings Bay in Spitsbergen with the Dornier seaplane to be used on the two Greenland flights, while the *GUSTAV HOLM* sailed to Kings Bay with a reserve Heinkel seaplane. The first flight on 10 May reached the coast of Kronprins Christian Land, while the second on 15–16 May extended across Peary Land. Both flights crossed the supposed position of the mysterious land sightings, but no trace of land was seen.

### 1938–39 Ole Klokset's expedition

This two-man Norwegian hunting expedition, comprising Ole Klokset and a Swedish assistant, was put on land by the sealer *GRANDE*. A station was built on the north side of Geographical Society Ø at Kap Mackenzie and huts built on the north side of Ymer Ø and east of Walterhausen Gletscher (Pedersen 1969).

### 1938–39 Den Norsk–Franske Polar ekspedisjon (The Norwegian–French Polar expedition)

Willy Knutsen and Count Gaston Micard embarked on a combined hunting and scientific expedition in 1938. Micard purchased the *RINGSEL*, which was renamed the *EN AVANT* and captained for the voyage by Karl Nicolaisen. A main station, Micardbu, and three huts were built on the east coast of Germania Land, and two huts on islands south of Danmark Havn. Thirteen men overwintered, the *EN AVANT* in winter harbour in northern Lille Koldewey. Weather reports were sent to Oslo three times a day. During the winter Gaston Micard became ill, and was evacuated by a Stinson seaplane operating from the ship *VESLEKARI* (Knutsen 1949).

### 1938–39 Den Danske Hundeslæde-Ekspedition (The Danish dog-sledge expedition): Elmar Drastrup

In the winter of 1938–39, Elmar Drastrup and Finn Kristoffersen made a journey by dog sledge along the coast of East Greenland from Sandodden in Young Sund to Ingolf Fjord, and explored a new route to the interior of Kronprins Christian Land. The purpose of the journey was to find a better land route to Peary Land, and if possible to traverse across to North-West Greenland, although the latter objective was frustrated by open water and heavier than usual snow conditions that forced a retreat back along the East Greenland coast. A journey of 2350 km was completed in 105 travelling days. Improvements were made to the map on the route of the expedition, especially in the interior of Ingolf Fjord and the valley system of Vandredalen. Sixteen place names, nine of them approved, are found in expedition reports (Drastrup 1945; Kristoffersen 1969). Most names were given for incidents or the shapes of features, while the name Vandredalen commemorates the probable migration route of musk oxen between North and East Greenland.

### 1938–39 Mørkefjord expedition: Eigil Knuth & Ebbe Munck

An alleged sighting of the mythical *Fata Morgana Land* between Spitsbergen and Kronprins Christian Land by Ivan D. Papanin in 1937 was a prime factor in the promotion of this expedition, although its main aim came to be the exploration of the little known land region between latitudes 76° and 82°N, only

traversed previously by 1906–08 Danmark-Ekspeditionen and the 1909–12 Alabama expedition (Knuth 1940, 1942). The somewhat cumbersome full name of the expedition led by Eigil Knuth and Ebbe Munck was '*Den Danske Nordøstgrønlands Ekspedition, udsendt af Alf Trolle, Ebbe Munck og Eigil Knuth til Minde om Danmark-Ekspeditionen*' (The Danish North-East Greenland expedition, sent out by Alf Trolle, Ebbe Munck and Eigil Knuth to commemorate the DANMARK expedition); the participants sometimes used an abbreviated form 'MUNEK-Ekspeditionen', but it is generally known as the 'Mørkefjord expedition' after the main base at Mørkefjord. Alf Trolle had made very substantial financial donations, while other support came from the Carlsberg and Tuborg Foundations. Ebbe Munck and Eigil Knuth were co-leaders of the expedition, Knuth being in charge of the wintering party (five scientists and three Grelander sledge drivers).

The ship GAMMA was purchased, and captained by Peder Marcus Pedersen departed from Copenhagen on 19 June 1938 with a cargo including 70 dogs and a De Havilland Tiger Moth aircraft fitted with floats. The coast of East Greenland was reached near Store Koldewey, and the expedition and its equipment were unloaded west of Hvalrosodden at the mouth of Mørkefjord. The wintering house, *Mørkefjord Station*, was built here, while Alwin Pedersen, a zoologist loosely attached to the expedition, had his own small house at Hvalrosodden.

Between October 1938 and March 1939 seven sledge journeys were made northwards to lay out depots for the spring sledge journeys, of which there were three between April and June. Eigil Nielsen reached the north point of Kronprins Christian Land, exploring on the way the interior of Ingolf Fjord. Eigil Knuth reached as far as Antarctic Bugt, but also explored part of Skærfjorden and the Norske Øer. Svend Sølvér explored Jøkelbugten, and penetrated westwards into the nunatak region climbing Milepælen on Moltke Nunatak. Meanwhile, farther south, Alwin Pedersen and Paul Gelting made numerous shorter journeys around Dove Bugt, and to Sælsøen and Annekssøen.

Knuth (1942) lists 156 new place names, some with explanations of their origin. Some of the features named, especially around the Mørkefjord Station, are very minor. The great majority of the names are descriptive, given for the shape, colour or geographical position. About 15 commemorate persons, including Danish princes and princesses, and

members of earlier expeditions.

The main party returned home with the GAMMA in 1939, but *Mørkefjord Station* continued to be operated as a weather station by four men until 1942, although with increasing difficulty due to the war in Europe. Two men made a 1000 km journey from Mørkefjord to Scoresbysund in May–July 1940 (Haarløv 1941, 1957). In April 1941 four men left the station to go south, leaving just Ib Poulsen and Marius Jensen. The last two men were evacuated by the NORTHLAND in the summer of 1941. Ib Poulsen was to become leader of Nordøstgrønlands Slædepatrulje (the forerunner to the present Sirius Sledge Patrol).

### 1939–40 Swedish-Norwegian expedition to East Greenland

This five-man expedition to Clavering Ø included the Norwegian medical student Kaare Rodahl, who investigated vitamins in Arctic diet, and the Swedish professor Hans W:son Ahlmann, who carried out glaciological studies (Rodahl 1943). Three assistants, two of them Norwegian hunters, accompanied the expedition. Ahlmann and Rodahl travelled up with the POLARBJØRN arriving in July 1939; Ahlmann returned with the ship in August 1939. Rodahl remained in East Greenland until August 1940, when he went with the VESLEKARI to Iceland, and later to the Orkney Islands.

The hunting station at Revet was used as a base and laboratory, while a small hut was built in Lerbugt on northern Clavering Ø. Glaciological studies were carried out mainly on Frejagletscher, and ascents were made of Højnålen and Moltke Bjerg. Rodahl's biological studies led, amongst other things, to the discovery that poisoning due to eating polar bear liver arises from vitamin A enrichment.

Usage in the scientific publications of this expedition of several Norwegian place names on northern Clavering Ø (Lacmann 1937) led to their formal approval by Danish authorities in 1950.

### 1939–40 Søren Richter's expedition

This three-man Norwegian hunting expedition worked the terrain on the south side of Kong Oscar Fjord. A new main station, *Havna*, was built near Noret and made the best catch of all the Norwegian stations that winter, a total of 82 foxes, 34 of them kept alive in cages until their condition was optimal when they were killed. After the outbreak of war in

Europe the hunters travelled to Iceland in the summer of 1940.

### 1940–44 German meteorological expeditions

When the Danish and Norwegian weather stations in East Greenland ceased to transmit at the outbreak of war, Germany attempted to establish its own meteorological stations in order to follow the development of weather conditions in the North Atlantic. Five main expeditions are recorded (Holzapfel 1953) and are listed below, of which two operated radio stations for some time before being put out of action (Howarth 1957; Olsen 1965). Named features are associated with one of these, the 1943–44 Operation Bassgeiger.

### 1940 The Veslekari and Furenak expeditions

The first attempts by the German occupying powers in Norway to obtain weather reports from East Greenland involved the sending of Nazi sympathisers to East Greenland with hunting personnel. Bjerre (1980) records that the *VESLEKARI* was sent to Greenland as usual to relieve the radio station at Myggbukta, but was arrested by the *FRIDTJOF NANSEN*, a Norwegian patrol boat in allied service; the radio facilities at Myggbukta were destroyed. The *FURENAK* was sent to East Greenland from Ålesund and landed a party of four Danes on the south side of Davy Sund in the autumn of 1940; the party was discovered by the *FRIDTJOF NANSEN*, while building a winter-house, and the house and installations were destroyed (Lønø 1964; Akre 1983; P.S. Mikkelsen 1994, 2008).

### 1941 The Buskø expedition

The Norwegian sealer *BUSKØ* landed a small party of German meteorologists in Peters Bugt in the summer of 1941. The sledge patrol observed the *BUSKØ* and alerted the United States coast guard ship *NORTHLAND* which arrested the landing party.

### 1941–45 Nordøstgrønlands Slædepatrulje (North-East Greenland Sledge Patrol)

The first North-East Greenland Sledge Patrol was formed in the summer of 1941 on the initiative of Eske Brun [1904–1987]. Eske Brun was then provincial governor (landsfoged) of North Greenland, and when Denmark was occupied he activated his emer-

gency powers and moved to Godthåb (Nuuk) as head of a united Greenland administration (see also below). The sledge patrol was to consist of volunteers amongst the 27 Danes and Norwegians stranded in East Greenland at the outbreak of the war (mainly hunters and staff at the weather stations), and initially comprised six Danes, three Norwegians and six Greenlander dog drivers. Their responsibility was to patrol the coast from 70° to 77°N and to prevent and report German activity. The sledge-patrol activities led to the discovery of the German meteorological expedition at Hansa Bugt in March 1943 (see '1942–43 Operation Holzauge: The *SACHSEN* expedition'), as a consequence of which the patrol member Eli Knudsen was shot at Sandodden, and the sledge patrol base at Eskimonæs burnt down. A second German expedition at Kap Sussi on Shannon was attacked by the sledge patrol in April 1944 (see '1943–44 Operation Bassgeiger'). Accounts of these events are given by Malmquist (1955), Howarth (1957), Willoughby (1957), Henry Rudi (in: Sørensen 1958), Liversidge (1960), Olsen (1965), Bjerre (1980) and P.S. Mikkelsen (1994, 2008).

In 1943 a new patrol base was established at Dødemandsbugten, replaced in 1944 by a larger station erected with USA assistance at Sandodden. Emergency huts were built on Maria Ø and in Blæsedalen. The sledge patrol was disbanded in 1945 but revived in August 1950, the forerunner of the present Sirius Sledge Patrol.

### 1941–45 USA – Northeast Greenland Task Unit

United States activities in the coastal waters of East Greenland during the war years began with the agreement negotiated in 1941 by Eske Brun (head of the United Greenland administration at Nuuk / Godthåb) and the Danish ambassador in Washington, Henrik Kaufmann, by which the USA agreed to protect Greenland against foreign invasion. From 1941 three coastguard patrol boats (the *NORTHLAND*, *NORTH STAR* and *BEAR*) were on duty in East Greenland under the command of Edward H. Smith ('Iceberg Smith'), and to some extent supported and supplied Nordøstgrønlands Slædepatrulje (Willoughby 1957). In 1944 the patrol boats were partly replaced by the icebreakers *EASTWIND* and *SOUTHWIND*. In 1944 the *NORTHLAND* sank the *KEHDINGEN*, and the two icebreakers captured the *EXTERNSTEINE*; both ships had been carrying German meteorological expeditions.

## 1942–43 ‘Operation Holzauge’: The Sachsen expedition

A 19-man German meteorological expedition transported aboard the *SACHSEN* landed in Hansa Bugt in August 1942, and operated undetected until March 1943 when members of the sledge patrol met a group of German soldiers. In subsequent encounters, Eli Knudsen was killed at Sandodden, Eskimonæs station was burnt down, and the leader of the German party, Lieutenant Herman Ritter, was captured and taken to Scoresbysund (Howarth 1957). The Hansa Bugt weather station was bombed by four B-24 aircraft on 25 May 1943 (Balchen 1958), causing some damage, and leading to evacuation of the personnel by a German flying-boat between 7 and 17 June. The ship *SACHSEN* was burnt, and other installations destroyed. One member of the German expedition accidentally left behind (Rudolf Sensesse) was taken prisoner by the *NORHLAND* in July. An account of events from the German side is given by Weiss (1949).

A different interpretation of events is given by Bjarne Akre (1983). The two Norwegian Akre cousins in the Sledge Patrol were unhappy with their Danish colleagues, and disagreed with just about every decision that was made by Ib Poulsen, the Sledge Patrol leader. The account by Akre suggests that Eli Knudsen and Ib Poulsen were actually Nazi-sympathisers, and that Lieutenant Herman Ritter (the German com-

mander captured and taken as a prisoner to Scoresbysund) may have been an imposter, perhaps the Norwegian Captain Sverre Strøm whom they had met in Ivigtut the previous year. This strange story does not seem to have aroused much interest in Denmark, and Bjarne Akre does not make his case more plausible by constantly referring to the leader of the Sledge Patrol as ‘Palle’.

## 1943–44 Operation Bassgeiger

A German meteorological expedition of 27 men aboard their ship *COBURG* was frozen in off Kap Sussi on the outer coast of Shannon in October 1943. The *COBURG* was eventually crushed by the ice and abandoned. The expedition established a subsurface base camp in a snow fan at Kap Sussi, which on 22 April 1944 was attacked by members of Nordøstgrønlands Slædepatrulje. The only casualty was Gerhard Zacher, a German lieutenant, who was buried at Kap Sussi (Fig. 16). The expedition was evacuated by German flying-boat on 3 June 1944. Olsen (1965) describes the events, and also notes nine place names used by the expedition for localities in the immediate vicinity of the base camp. German accounts of this operation include those of Triloff (1948) and Schatz (1951). A recent detailed and well-illustrated account (in Danish) is provided by Frederiksen (2008).



Fig. 16. On 22 April 1944 the Nordøstgrønlands Slædepatrulje (sledge patrol) attacked the German meteorological station established in a large snow drift near Kap Sussi on Shannon. The only casualty was Gerhard Zacher, a German lieutenant, whose grave lies undisturbed at Kap Sussi. Following the attack the German expedition was evacuated by air on 3 June 1944.

Fig. 17. Depot of fuel drums laid out by a German meteorological expedition at Røseløbet, Lille Koldewey, on 1 October 1944. The 12-man landing party was captured on 4 October by troops from the US icebreaker EASTWIND.



### 1944 Operation Edelweiss

An attempt was made by the KEHDINGEN to land a German meteorological expedition in 1944, but it was intercepted by the US patrol boat NORTHLAND near the south point of Store Koldewey, and sunk (Willoughby 1957; Liversidge 1960; Olsen 1965). The crew of 28 was taken prisoner.

### 1944 Goldschmied expedition: Operation Edelweiss II

This 12-man German meteorological expedition reached land on the east side of Lille Koldewey on 1 October 1944 (Fig. 17). The landing party was captured on 4 October by troops from the US icebreaker EASTWIND. The expedition ship EXTERNSTEINE was trapped in the ice and subsequently captured by the EASTWIND and SOUTHWIND; it was unofficially renamed the EASTBREEZE (Willoughby 1957; Liversidge 1960; Olsen 1965), and later became USS CALLO.

### 1945–52 Østgrønlandsk Fangstkompani Nanok A/S (East Greenland Trapping Company Nanok Ltd.)

The Danish hunting company Nanok resumed hunting activities in 1945. Their huts were then in a poor state of repair after the ravages and neglect of the war years, although the Danish government did pay compensation for the use of the huts and provisions during the war years, and continued to pay an annual subsidy until 1951. Between 1945 and 1951 a total of 23 huts were built, as well as new stations at the head

of Loch Fyne and at Germaniahavn. The suspension of subsidies was related to the establishment of Slædepatruljen Sirius in 1950 which was henceforth to be the official Danish presence in East Greenland. By the summer of 1952 only one Danish hunter remained in East Greenland, and 1952 effectively marked the end of Danish trapping. J.G. Jennov had visited East Greenland virtually every summer since the war, and his last visit was after the end of hunting, in 1954, when he rescued Mønstedhus from falling into the sea; it was moved 20 m to safety. Brief accounts of post-war activities are given by Lauritsen (1984) and P.S. Mikkelsen (1994, 2008).

### 1946–59 Arktisk Næringsdrift A/S (Arctic Commercial Enterprise Ltd.)

Arktisk Næringsdrift resumed hunting operations in 1946, with the aid of a Norwegian state subsidy towards hire of the annual relief ship, and an interest-free loan. Many hunting huts and stations were in poor condition, partly due to neglect and partly due to deliberate destruction during the war years. Myggbukta weather station was repaired and weather reports resumed in August 1946. In 1948, a replacement for the destroyed Jónsbu radio station was built. However, the northern stations of *Ottostrand* and *Ny Jónsbu* were given up in 1953, due to poor hunting and difficulties of access. In 1959 the Norwegian state suspended its subsidy to the weather station at Myggbukta, and this, together with falling skin prices and the increasing cost of ship hire led to a cessation of Norwegian hunting.

The POLARBJØRN was the relief ship from 1946 to

1948, the *QUEST* in 1949, and the new *POLARBJØRN* from 1950 to 1957. In 1957, the *POLARBJØRN* was crushed in the ice and lost, the crew and passengers being rescued by the Danish naval cutter *TEISTEN* and flown home from Mestersvig. In addition to the hunters, the Norwegian ships occasionally transported scientific and climbing expeditions to East Greenland, and in the later years a few tourists.

Fox hunting was very poor in 1948–1949 and 1955–1956, and catastrophic in 1956–1957 when hunters at Myggbukta, Hoelsbo and Revet had together a catch of only 36 foxes. Salmon fishing was undertaken in some years, sometimes with success, sometimes with disastrous results. Lønø (1964) describes the post-war Norwegian hunting activities, and reported the total catch of *Arktisk Næringsdrift* from 1946 to 1959 as more than 5000 foxes and 40 bears.

The Danish–Norwegian agreement on East Greenland was terminated in 1967, and in 1969 the Danish state took over the 150 Norwegian hunting huts and stations paying Danish kroner (DKK) 50 000 in compensation.

### 1946–59 Hermann Andresen's expeditions

Hermann Andresen, a Norwegian hunter who had last overwintered in 1938–39, organised a series of expeditions to what Norwegian trappers called the 'Sunnmøring terrain' from 1946 onwards. *Kap Herschell* was the main station in the north, and in the south the stations at Antarctic Havn, *Havna* and *Kap Peterséns* were used. Andresen received a state subsidy in 1946 to repair the old huts and build new, and received further annual subsidies subsequently. Three or four hunters were active each year, altogether 32 men with a total of 42 winters between them. Four hunters in the southern terrain broke their contracts in poor hunting seasons, taking work at the lead mine near Mestersvig. From 1948 Andresen also organised summer salmon (Arctic char) fishing, sending up to five men with the relief ships to fish, mainly in the rivers at Brogetdal, Zackenberg, Dusén Fjord and Loch Fyne. Together with *Arktisk Næringsdrift*, 358 barrels of salmon were taken between 1937 and 1959 (Lønø 1964). Andresen's expeditions were dependent on *Arktisk Næringsdrift* for transport to and from Greenland, and were also obliged to suspend activities in 1959.

### 1947 United States Air Force photogrammetric flights

Photogrammetric flights were made in 1947 over East Greenland, as well as the greater part of the ice-free areas of other parts of Greenland, by the United States Air Force. The oblique and vertical aerial photographs obtained were used to produce the 1:250 000 scale map sheets of the Army Map Service (AMS), the East Greenland sheets being compiled in 1952. The USAF Aeronautical charts at the same scale used the same database, but with altitudes and contours in feet rather than metres.

### 1947–50 Dansk Peary Land Ekspedition (Danish Peary Land expedition)

The main area of activity of this expedition, one of the series of expeditions to Peary Land led by Eigil Knuth, lies in North Greenland, north of the area of interest of this volume (Martens *et al.* 2003). However, a southern base of the expedition was established at Zackenberg Bugt in Young Sund (74°28'N); every year equipment and expedition members were sailed to the base by the *GODTHAAB*. Catalina seaplanes were used to ferry stores and personnel to Peary Land. Eigil Knuth frequently used the incorrect one word name 'Pearyland' when referring to the activities of his expeditions.

Opportunity was taken by some expedition members to carry out archaeological and other work around the southern base. In addition other expeditions took advantage of the transport possibilities of the *GODTHAAB* to reach East Greenland. The latter included the 1948 Leeds University Greenland expedition, the 1949 W.R.B. Battle expedition and the 1951 British North Greenland (reconnaissance) expedition.

### 1947–58 De danske ekspeditioner til Østgrønland (The Danish expeditions to East Greenland): Lauge Koch

Lauge Koch's expeditions to East Greenland resumed in 1947, with government support and on a more regular basis than pre-war, and with an almost entirely geological bias (Koch 1961). Their format was at first similar to the last pre-war expeditions, based on ships with groups of scientists overwintering. However, Catalina flying boats soon replaced ships for transport of personnel, and after 1952 when the airport

was constructed at Mestersvig, DC-4 aircraft were used. In 1948 the expedition acquired its first Norseman seaplane, and in 1949 a second Norseman (Fig. 18). Overwintering was given up in 1953. Koch records that 691 persons took part in his post-war expeditions, but this figure included in addition to scientists, the crews of the boats, and the mining engineers and drilling teams involved in prospecting around Mestersvig. In general six to eleven geological teams were active each year. Compilation of geological maps was begun in 1955 by John Haller, and to complete these maps and fill out gaps, more than 32 000 km of reconnaissance and photographic flying was carried out with the two Norseman aircraft in 1955, 1956 and 1958. John Haller's compilation work continued after the expeditions stopped in 1958, and the geological maps – printed in 1964 – were published in 1971 (Koch & Haller 1971). A major geological account of the East Greenland Caledonides was published the same year (Haller 1971). A brief summary of each year's activities is given below.

1947 – The expedition was based on the GUSTAV HOLM, and comprised 30 members including four geological parties; it was active between latitudes 72° and 74°N.

1948 – GUSTAV HOLM and one Norseman seaplane provided transport for 47 members including eight geological parties. The area of activity was again from 72° to 74°N, and lead and zinc deposits were found near Mestersvig.

1949 – The expedition comprised 97 members including seven geological parties, and was supported by the GUSTAV HOLM with two seaplanes for transport and reconnaissance. Icelandic ponies were used for the last time. Special attention was given to the lead mineralisation near Mestersvig.

1950 – Catalina and Norseman aircraft were used to transport the 120 members of the expedition, which included nine geological parties and 86 prospecting and drilling personnel. The ships GUSTAV HOLM, VESLEKARI and POLARSTJERNE were used to transport equipment and materials for the prospecting group. Erdhardt Fränkl made one of the earliest explorations of the Stauning Alper, and Gerold Styger made ascents in the Werner Bjerger.

1951 – Catalina and Norseman aircraft were used to transport the group of 104 to East Greenland, the numbers including 58 prospecting and drilling personnel. Eight geological parties were active between 70° and 74°N. One party, including Eduard Wenk and John Haller, climbed Petermann Bjerg and other nearby peaks during geological mapping (Wenk & Haller 1953; Buess 1953), and a second party led by Hans R. Katz made a journey to the nunatak region at 74°N in 'weasel' tractors of Paul-Emile Victor's expedition (see '1950–51 Expéditions Polaires Françaises, Missions Paul-Émile Victor'), supported by an air-drop at Cecilia Nunatak (Fig. 19; Katz 1951; Diehl 1953). Fränkl continued his explorations in the northern Stauning Alper, making first ascents of Frihedstinde and Elisabethsminde.

1952 – The expedition numbered 49, including eight geological parties, and was transported by Catalina and Norseman aircraft. Two parties worked from a base at Centrumso in Kronprins Christian Land (80°10'N). A two-man group overwintered at Ella Ø from 1952 to 1953, after which wintering was given up (Fig. 40). West of the bay known as Mesters Vig an airfield was constructed (subsequently known in the one-word form Mestersvig), and the newly formed mining company, Nordisk Mineselskab, began exploitation of the lead deposits.



Fig. 18. Norseman aircraft of Lauge Koch's expedition that was used extensively in the 1950s for aerial photography and geological reconnaissance flights. The John Haller photograph collection, GEUS archive.



Fig. 19. In 1951, H.R. Katz and two companions were transported by weasel snow tractors of Paul Emile Victor's expedition from Cecilia Nunatak westwards and northwards into the nunatak region at about 74°N. After they were dropped off, valuable geological observations were made while making their way eastwards on skis. At Eleonore Sø, at about 1600 m above sea level, the party abandoned their skis due to lack of snow on the glaciers. This depot was found by a GGU expedition in 1975.

1953 – Catalina and Norseman aircraft transported 41 expedition members to Greenland, including seven geological parties. Two parties again worked out of Centrum Sø, one of them flying northwards to Peary Land by Catalina, and traversing the North Greenland fold belt to reach Kap Morris Jesup (the northernmost point of the Greenland mainland). Another party made a long journey to the nunataks west of Goodenough Land, including an ascent of Shackleton Bjerg (Haller 1954), and south of Mestersvig molybdenum was discovered at Malmbjerg.

1954 – Catalina, Norseman and DC4 aircraft transported 39 personnel to Greenland, including nine geological parties (Christensen 1955). One party, including John Haller, Wolfgang Diehl and Fritz Schwarzenbach worked in the Stauning Alper and made several major ascents, including Dansketinden and Norsketinden (Diehl 1956).

1955 – Catalina and Norseman aircraft transported 34 members to East Greenland. There were seven geological parties working over a wide area between 70° and 78°N. Two parties supported by Norseman aircraft worked out of a base at Krumme Langsø (75°03'N). Extensive reconnaissance and photographic flights were made with Norseman aircraft out of satellite bases at Daneborg, Krumme Langsø, Danmark Havn and Britannia Sø.

1956 – Catalina, Norseman and DC-4 aircraft were used to transport the 33 personnel to Greenland. These included eight geological parties, two of which worked between 70° and 72°N. Two Sikorsky helicopters were used in co-operation with Nordisk Mineselskab, and extensive aerial reconnaissance and pho-

tography were carried out with Norseman aircraft between Bessel Fjord and the Stauning Alper.

1957 – Norseman, Catalina and DC-4 aircraft transported 47 expedition members to East Greenland. Five of the 11 geological parties worked between 70° and 72°N.

1958 – Catalina, Norseman and DC-4 aircraft transported 55 members of Lauge Koch's last expedition to East Greenland. Eight of the 11 geological parties worked south of 72°N. Some extended reconnaissance and photographic flights were made.

Expeditions had been planned to complete the mapping of the Scoresby Sund region (70° to 72°N) from a base at Rypefjord, but financing of Lauge Koch's expeditions was unexpectedly brought to an end after the 1958 season.

Lauge Koch's post-war expeditions were responsible for the introduction of about 550 new place names in East Greenland. The minutes of the Place Name Committee for this period are almost complete, and nearly all the names can be attributed to specific geologists. However, the origin of the names is not always apparent.

Peter Bearth worked in the Werner Bjerger region in 1953 and 1954, and gave about 70 names (Bearth 1959). Many were given for the shape and character of features, some for events, some with geological connections, while a few commemorate Swiss geologists.

Heinrich Büttler took part in expeditions in 1948, 1950 and from 1952 to 1957, but appears to have been directly responsible for only two new names.

John W. Cowie took part in expeditions from 1949 to 1954, and gave five names in the Ella Ø region,



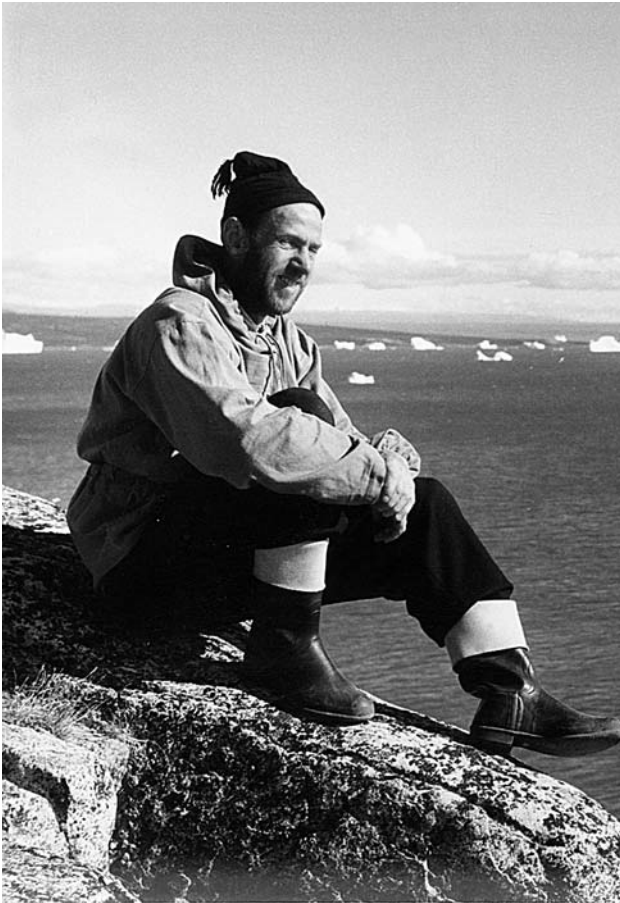


Fig. 20. Ernst Hofer, a photographer from the Swiss Topographical Institute, was employed by Lauge Koch's geological expeditions to East Greenland from 1951–54. Hofer accompanied John Haller on many reconnaissance flights with the expedition's Norseman aircraft, and his photographs illustrate his book "Arctic Riviera" (Hofer 1957).

most of them commemorating persons (Cowie & Adams 1957).

Desmond T. Donovan worked mainly on Traill Ø during five summers between 1947 and 1957. He is credited with 25 names, some with geological connections, two for the English towns of Bath and Bristol, and two for noted British geologists (Donovan 1964).

Silvio Eha took part in expeditions from 1947 to 1949, working mainly on Ymer Ø and in Lyell Land. His 15 place names were mainly given for the shape or character of features, or for events during the expedition (Eha 1953).

Erdhardt Fränkl gave 53 names to features following his work between 1948 and 1953. Of these 11 were at about 80°N, while others were in the Stauning Alper and Andrée Land regions (Fränkl 1953, 1954).

Most were given for characteristics of the features or events during the expeditions.

P. Graeter gave four names to various features on Gauss Halvø following his work in 1950.

John Haller worked throughout northern East Greenland in the years 1949–56 and 1958, and made many geological reconnaissance and photographic flights together with Ernst Hofer (Fig. 20), using Norseman aircraft. He gave 154 names in the region 71°–79°N, including some commemorating Scottish castles, some for Austrian geologists, some for members of the 1906–08 Danmark-Ekspeditionen, a group with geological connections, a few for Swiss mountains and a few for the shapes of features (Haller, 1953a, b, 1955, 1956, 1958; Wenk & Haller 1953).

M.Y. Hassan worked up collections made at Kap Brewster for F.W. Sherrell, and used four new names, three with geological connections (Hassan 1953).

Hans P. Heres worked on south-east Traill Ø in 1956–58, and his 16 names were given mainly for the shape or character of features, with one commemorating Countess Maria-Theresia of Austria.

Hans Kapp took part in expeditions from 1955 to 1958, and gave 27 names to features in northern Scoresby Land (Kapp 1960). Most were given for the shape or character of features, or for geological connections, with a few commemorating incidents during the expedition.

Hans R. Katz mapped areas in Hobbs Land and Strindberg Land in the years 1948, 1949 and 1951, giving 44 names (Katz 1952). Most relate to the shape of features, to geological characteristics or events during the expeditions.

Enrico Kempster took part in the 1956 to 1958 expeditions, and gave 16 names to features north of Sydkap, mainly for natural characteristics of the features and their geology (Kempster 1961).

David Malmquist gave four names to features at c. 79°N, including the Eli Knudsen Øer.

Paul Stern took part in the 1955 to 1958 expeditions, and is credited with five names.

Peter Vogt mapped parts of Hinks Land in the years 1956–58, and gave four names, one of them for Peter Freuchen (Vogt 1965).

Eduard Wenk took part in expeditions in the years 1951 to 1954 and 1957 to 1958. He was responsible for 26 names, a number given for their appearance, a group with Greek connections originating from his Greek assistant, while a few have Swiss origin (Wenk 1961).

Hans Zweifel mapped Nathorst Land in 1954 and

1955, and proposed 21 names (Zweifel 1958). Some record natural characteristics of the features, while a few have Swiss connections.

The prospecting activity near Mestersvig in the years 1949 to 1851 led to preparation of 1:50 000 scale topographic maps, and the introduction of 48 place names. Most of these relate to the prospecting and lead mineralisation, while some record the shape of features, and a few commemorate Danish personalities. [Place Name Committee archive.]

### **1948 Leeds University Greenland expedition: W.R.B. (Ben) Battle**

A four-man expedition from Leeds University led by W.R.B. (Ben) Battle travelled to East Greenland with the Danish Peary Land expedition (see above, '1947–50 Dansk Peary Land Ekspedition') aboard the *GODTHAAB*, arriving at Zackenberg Bugt at the end of July. A base camp was established in Tyrolerdal west of the head of Tyrolerfjord, where the expedition divided into two parties. One group undertook glaciological studies on Pasterz and nearby glaciers (Battle 1952), while the second group made a general geological reconnaissance extending north to Grandjean Fjord (Leedal 1952).

Fourteen new names were proposed for valleys, mountains and glaciers in the valley system of northern Payer Land and A.P. Olsen Land. The names were given mainly for natural features, while a few commemorate Leeds University and Cambridge Colleges (e.g. Ledesia Bjerg, Trinity Gletscher).

### **1948–present Danmarkshavn ICAO weather station**

The International Civil Aviation Organization (ICAO) weather station Danmarkshavn (spelt in one word) was established in 1948 at Danmark Havn. The ship *G.C. AMDRUP* had transported 400 tons of materials and 17 carpenters and radio personnel to the site during the summer, and the *VESLEKARI* brought in more equipment in August the same year. The first station leader was Ib Poulsen (Leader of the Sledge Patrol during the war years). Operations were begun in the autumn of 1948, and the station was to have been completed in 1949; however, the *G.C. AMDRUP* was diverted due to difficult ice conditions to Nordfjord, and exchange of personnel was carried out using Norseman and Catalina aircraft (Thomsen 1966). The weather station is normally supplied in

alternate years by ship from Denmark, although it is not unusual for ice to prevent access. The staff at the station has given a number of place names to local features

### **1949 W.R.B. (Ben) Battle expedition**

Originally planned as a four-man Cambridge University expedition, Battle travelled up alone due to lack of space aboard the *GODTHAAB*, the expedition ship of the Dansk Peary Land Ekspedition (see above, '1947–50 Dansk Peary Land Ekspedition'). Glaciological work was carried out on several of the glaciers on Clavering Ø (Battle 1952), and the work led to formal approval of four Norwegian names for Clavering Ø glaciers (Lacmann 1937), all derived from Norse mythology.

### **1949–54 Geodætisk Institut (Geodetic Institute) aerial photography and surveying**

In 1949 low-level, vertical, aerial photography was carried out in the region around Mestersvig for the Danish Geodetic Institute, with the main purpose of constructing detailed topographic maps in connection with the lead-zinc prospecting.

Oblique aerial photography was also carried out over much of the region between 69° and 81°N between 1950 and 1952.

In 1951 a Geodetic Institute surveying party based on the *OLE RØMER* visited the Scoresby Sund region. This project continued in 1953 and 1954, with larger parties based on the *TYCHO BRAHE* and with helicopter support. In 1953 a helicopter technician was killed in an accident, a tragic incident commemorated by the name *C. Hofmann Halvø*.

### **1950–51 Plankton studies in Scoresby Sund: Peter Digby**

Peter S.B. Digby and his wife Vi, who had travelled to Scoresbysund (70°29'N) with the *JOPETER* in August 1950, made regular plankton hauls in the waters of Scoresby Sund between August 1950 and August 1951 from a small boat and through holes in the ice (Digby & Digby 1954). They lived in Lauge Koch's 'expedition house' at Scoresbysund built in 1926. Digby returned home with the *JOPETER* in August 1951, his wife having flown home in July with their newly born baby.

### 1950–51 Expéditions Polaires Françaises, Missions Paul-Émile Victor (French Polar expeditions)

Paul-Émile Victor embarked in 1948 on a long series of expeditions to investigate the Inland Ice of Greenland, including meteorological, geophysical and glaciological observations. Seismic and gravity surveys were made over an extensive region between 63° and 74°N (Fristrup 1966). In 1950 Victor's 'weasels' (powerful snow tractors) reached Cecilia Nunatak (72°30'N) in East Greenland, and some of the expedition members made their way to Ella Ø and returned to Europe with Lauge Koch's expedition. In the summer of 1951 a group of Lauge Koch's geologists, led by Hans R. Katz, was transported by Victor's 'weasel' tractors from Cecilia Nunatak to the nunatak region near Hobbs Land at 74°N. Katz and his party undertook a strenuous tour by ski and on foot eastwards to the coast of Nordfjord.

### 1950–present: Slædepatruljen Sirius (Sirius Sledge Patrol)

The sledge patrol, which had operated in East Greenland during the war years, was re-established in August 1950. This followed the realisation by NATO (North Atlantic Treaty Organization) of the strategic significance of northern East Greenland in the event of war, and some concern as to whether Denmark was doing enough to uphold its rights of sovereignty over the unoccupied regions of North and East Greenland. The patrol was known at first as 'Operation Resolut', and had a base at Ella Ø. In 1951 it changed its name to 'Slædepatruljen Resolut', and moved to new headquarters at Daneborg. A last name change to 'Slædepatruljen Sirius' (Sirius Sledge Patrol), in common parlance 'Sirius', was made in 1953, the name being given after the brightest star in the constellation Canis Major.

Sirius is a Danish military police force which patrols the uninhabited regions of North and East Greenland, roughly corresponding to the boundaries of the present day North-East Greenland National Park (Nordøstgrønlands Nationalpark). During the winter and spring dog-sledge teams cover a total of 20 000 km on patrol. Occasional use is made of the old Danish and Norwegian hunting stations, but these have largely been replaced by prefabricated bear-proof huts. During the short summers, depots are laid out by aircraft and boat, and damaged huts repaired. Widespread damage to the old hunting huts

by bears in search of food means that few huts now survive in their original form. Small military groups maintain the airfields at Station Nord and Mestersvig.

Recent accounts of the activities of the patrol are given by Bjerre (1980) and P.S. Mikkelsen (1986, 2005).

### 1951 Norwegian climbing expedition

A party of three Norwegians, A.R. Heen, K. Barstad and Ø. Roed, climbed three peaks in the northern Stauning Alper from a base at *Kap Peterséns* (72°25'N). These were the first ascents of Tårnfjeld and Vardefjeld, and the second ascent of Elisabethsminde (Bennet 1972).

### 1951 British North Greenland expedition – reconnaissance: C.J.W. (James) Simpson

As a guest of the Dansk Peary Land expedition in 1950, C.J.W. Simpson had observed from a distance the largely unexplored nunataks of Dronning Louise Land (76°–77°15'N), and considered the region as a suitable goal for a major British Joint Services expedition. A reconnaissance expedition in 1951 to check its possibilities was led by Simpson. In July a depot was air-dropped on Dronning Louise Land and a four-man group was landed by Sunderland flying boat on Sælsøen. Accompanied by a trapper from Hvalrosodden (Orla Jensen), a journey was made across Storstrømmen to Dronning Louise Land where a site for a base was found on the shores of Britannia Sø. After limited exploration, the party recrossed Storstrømmen and was picked up from Sælsøen at the end of August (Simpson 1955, 1957).

### 1952–54 British North Greenland expedition: C.J.W. (James) Simpson

This major expedition to Dronning Louise Land (76°–77°15'N) led by Commander C.J.W. Simpson was a co-operative venture involving all three branches of the British armed forces, the Shell Petroleum Company and civilian scientists. The name of the expedition is a misnomer, as Dronning Louise Land is a long distance from 'North Greenland'. The expedition in the field numbered 30, eight of whom returned home in the summer of 1953, while an additional five members took part only in the second year. The objects of the expedition included a comprehensive scientific programme, as well as providing mem-

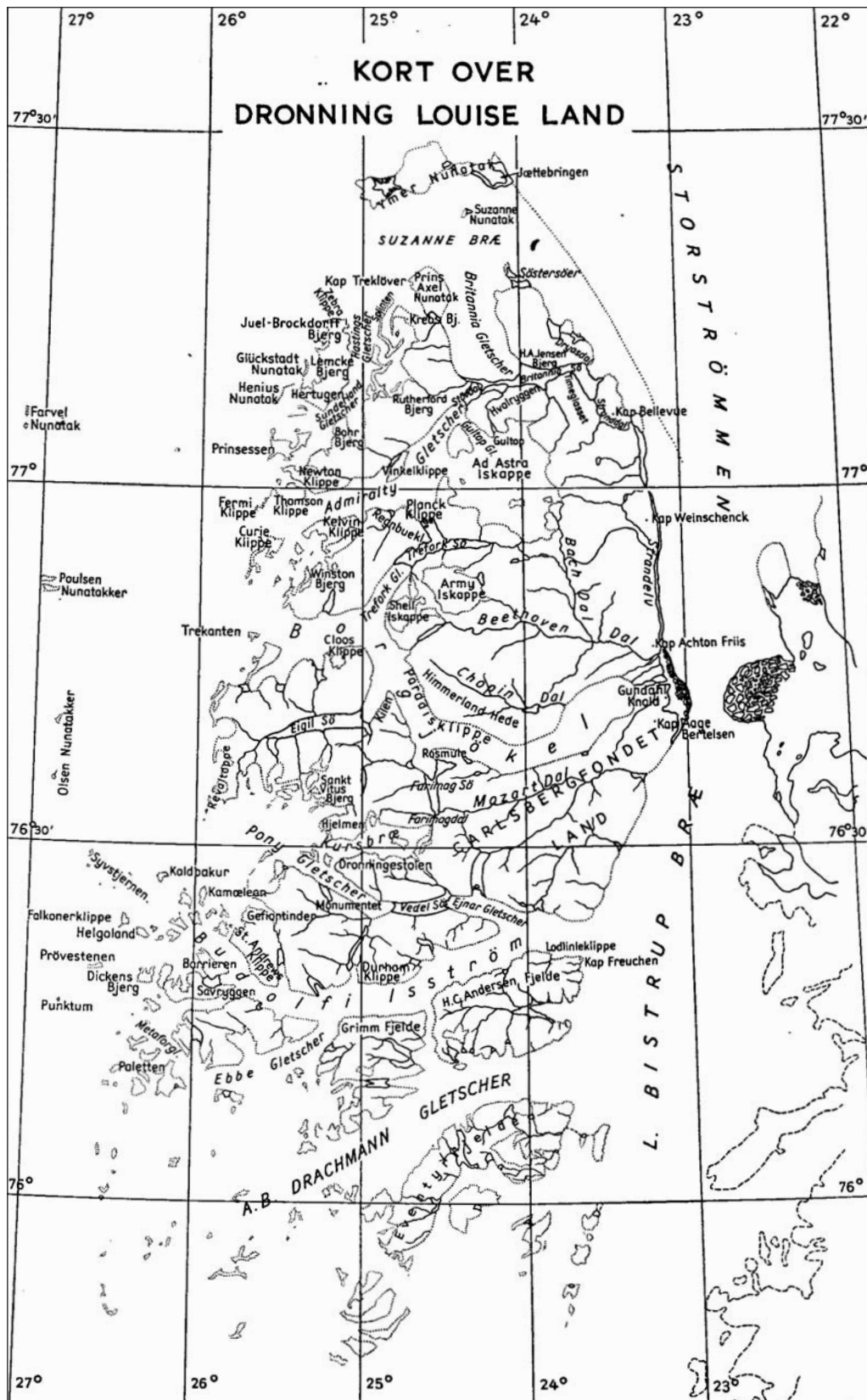


Fig. 21. The British North Greenland Expedition established a base at Britannia Sø, Dronning Louise Land, in 1952. The expedition was supplied by air, and carried out scientific investigations throughout Dronning Louise Land until the summer of 1954. This simplified map shows the new place names given by the expedition as well as earlier names (from: Peacock 1958).

bers of the armed forces with Arctic experience. Glaciological, meteorological, physiological and geophysical studies were carried out (Fig. 21). The meteorological work included establishment of a station, 'Northice', at the centre of the Inland Ice west of Dronning Louise Land, while the geophysical work involved a traverse from Dronning Louise Land across the Inland Ice to Thule in North-West Greenland. Accounts of the expedition include those of Simpson (1955, 1957), Banks (1957) and Hamilton (1958). The British armed forces provided air transport, equipment and many of the expedition members, while financial backing came chiefly from the Shell Petroleum Company and a personal contribution from Sir Winston Churchill.

In July 1952 the Norwegian sealer TOTTAN sailed equipment to the southern base at Zackenberg Bugt in Young Sund, on its first journey sailing via Ivittut (Ivigut) in West Greenland to pick up dogs. In early August most of the expedition members and their equipment were air-lifted to Britannia Sø by Sunderland aircraft, and a main base was established on the north shore of the lake. Eight 'weasel' snow tractors, too bulky to be carried by air, were landed at Kap Rink (75°08'N) by the TOTTAN in late August. While waiting for the ice to freeze, several peaks were climbed in the nearby Barth Bjerge. With assistance from the Danish personnel at Danmarkshavn and members of Sirius, the group with the 'weasel' tractors made the journey to Danmarkshavn in the autumn. Meanwhile 'Northice' had been established with the aid of airdrops from Thule, in the course of which a Hastings aircraft crash-landed.

While surveying in April 1953, the Danish member of the expedition, Hans A. Jensen, was killed in a fall near Kap Niels (76°23'N). The eight 'weasel' tractors made a difficult journey to Britannia Sø via Sæl søen and Storstrømmen, and in May began their journeys on the Inland Ice. New supplies were brought into Young Sund (74°27'N) in early August 1953 by the POLAR SIRKEL, and air-lifted to Britannia Sø together with the five new expedition members replacing those leaving. Surveying and geological exploration was carried out on numerous journeys throughout Dronning Louise Land in 1953 and the first half of 1954. In August 1954 the entire expedition was evacuated from Britannia Sø, apart from members of the gravity team who returned home from Thule, after their crossing of the Inland Ice.

Sixty new place names were proposed as a result of the expedition (Fig. 21), given mainly for notable

physicists, musical composers, and organisations or individuals who had given substantial assistance to the expedition. An additional 12 unapproved variations of names occur in expedition reports.

### 1952–90 Nordisk Mineselskab (Northern Mining Company)

Following discovery of lead and zinc mineralisation in the Mesters Vig region (72°13'N) by geologists of Lauge Koch's expeditions in 1948, the Northern Mining Company (Nordisk Mineselskab) was established in 1952; it was commonly known by the abbreviated name 'Nordmine'. Originally 27.5% of the company was owned by the Danish state, the balance being held by Danish, Swedish and Canadian interests. An exclusive concession covering the region 70° to 74°30'N was granted in 1952 for a period of fifty years.

Detailed studies of the lead-zinc showings were commenced in 1952, and in the following years a mining town was built in Blydal, a road built between the town and the harbour (Nyhavn), and underground workings opened. Production commenced in 1956 and the mine was worked out by 1962. Approximately 545 000 tons of concentrate (9.3% Pb and 9.9% Zn) were shipped out, with expenses roughly balancing earnings (Thomassen 2005a). The airfield known as Mestersvig, which was opened in 1952 to serve the mine, remained open for general use until 1985 – when it was replaced for most purposes by a new airfield built at Constable Pynt (70°44'N).

In 1958 diamond drilling was commenced at a new prospect known as Malmbjerg (71°59'N), where Lauge Koch's geologists had reported molybdenum mineralisation in 1954. Further drilling was carried out in 1959 and 1960, after which the company Arktisk Mineselskab was formed to continue investigations. A concession to exploit molybdenum and related minerals was granted in 1961, originally for a period of fifty years, but following extensive negotiations was relinquished in 1984.

From 1968 to 1972 extensive regional prospecting was carried out throughout the Nordisk Mineselskab concession area (70°–74°30'N), in many years with helicopter support. Preliminary oil exploration studies were carried out in 1971 and 1972 in cooperation with the Atlantic Richfield Company (ARCO), but these were suspended as they appeared to be in breach of the terms of the original concession.

Regional prospecting activities were continued

from 1974 to 1976 and 1979 to 1984. From 1979 to 1982 investigations had financial support from the EEC (European Economic Community), and led to finds of widespread scheelite. Another EEC-supported project in 1983 and 1984, to study tungsten-antimony mineralisation on Ymer Ø, included drilling at two localities in Margerie Dal (73°09'N).

Extensive negotiations in 1983–84 concerning concessions to explore for and exploit oil and gas in the Jameson Land Basin (70°30'–72°N) by Nordisk Mineselskab and ARCO led to granting of an exclusive concession in 1984 (see below). At the same time the original Nordisk Mineselskab concession rights were relinquished, and replaced by six exclusive mineral concessions and one concession for hydrocarbons. However, these concessions lapsed when Nordisk Mineselskab closed down in 1990.

### 1953–64 Grønlands Zoogeografiske Undersøgelse (Zoogeographical investigations in Greenland): Christian Vibe

In 1948 Christian Vibe was appointed head of Grønlands Zoogeografiske Undersøgelse and was based at the Zoological Museum in Copenhagen. His travels to Greenland were directly funded by the Ministry for Greenland, and between 1953 and 1964 he made six visits to East Greenland (Vibe 1967).

1953 – Christian Vibe visited the region around Mestersvig (72°13'N) to study birds and mammals.

1954 – Vibe returned to East Greenland with the specific objective of capturing musk-ox calves that were to be transferred to West Greenland. However, reconnaissance flights in Jameson Land, Andrée Land and Ymer Ø (71°–73°N) revealed very few calves and a very high death rate among musk oxen in the winter of 1953–54.

1956 – Christian Vibe visited the Scoresby Sund region to study the population of musk oxen. Jameson Land and Liverpool Land were traversed on foot, and the interior branches of the fjord system were overflown using Catalina aircraft.

1958 – Christian Vibe and Torben Andersen visited the Scoresby Sund region (70°–72°N) to continue studies of musk oxen. In co-operation with Lauge Koch's expedition, large areas were overflown by Catalina, with landings in Gåseland, Charcot Land and Rypefjord (Andersen 1960).

1961 – Christian Vibe again visited the Scoresby Sund region (70°–72°N) with six assistants and with the purpose of capturing musk-ox calves. Twelve

calves were captured at Rypefjord, and a further two at Daneborg. They were taken back to Copenhagen aboard the KISTA DAN. One died soon after arrival, and in 1962 the surviving 13 calves were transferred to the Søndre Strømfjord region of West Greenland (Nielsen & Küter 2000).

1964 – Christian Vibe assisted by J. van Hauen, J. Højsgaard, C.C. Scavenius and others, captured 16 musk-ox calves and two yearlings in Rypefjord (71°N). These were sailed to Copenhagen with the THALA DAN. Two calves died and two others were sick in early 1965, but the remaining 14 were transferred to Søndre Strømfjord to join the group sent there in 1962. This original 27-strong group of musk oxen bred so successfully that its numbers had risen to 200 by 1980, 1000 in 1985, and the population was estimated at 4000 in 1999 (Nielsen & Küter 2000). In 1986 a number of yearlings from the Søndre Strømfjord population were flown to Inglefield Land, with the intention of forming a new breeding group.

### 1954 Danish–Norwegian expedition to the Stauning Alper

A four-man climbing expedition explored the Vikingebæ region of the Stauning Alper (72°N). Three participants (A.R. Heen, Ø. Roed and E. Jensen) took part in the ascent of their main objective, Norsketinde, which they originally called *Eirik Rødes Tinde* or *Stortoppen* (Hoff 1955; Bennet 1972). Two lesser peaks overlooking Alpefjord (Hellefjeld and Skiferbjerg) were also climbed.

### 1955 Cambridge expedition to East Greenland: J.B. Latter

An ornithological expedition of five led by J.B. Latter visited Antarctic Havn and Fleming Fjord (71°40'–72°N) in late July and early August, and succeeded in ringing 11 pink-footed and 299 barnacle geese (Latter 1956). Three members of the party were from Cambridge University (UK), and one each from Oslo University (Norway) and Birmingham University (UK).

### 1955 Geodætisk Institut (Geodetic Institute) name registration

A party of two from the Danish Geodætisk Institut (Captain J. Balle and E. Laursen) were sent to Scoresbysund / Illoqqortoormiut (*Ittoqqortormiit*) (70°29'N) in 1955 to record place names used by the Greenlandic

population in the region, a procedure also carried out by the Geodætisk Institut in other parts of Greenland. Approximately 190 names were registered, nearly all of them of the typically descriptive type, some of which clearly originated from the earliest days of the settlement and were still in use. A further 10–15 names have been introduced in modern times, reflecting the changing use of the resident Greenlanders. The East Greenland dialect differs from that of West Greenland, and differences are sometimes reflected in the place names. Names are listed in this volume according to the new orthography (spelling reform) that came into use in 1972, but cross-references from the old spelling still found on many published maps are included. [Place Name Committee archive.]

#### **1955–64 Mestersvig geomorphological research: A.L. (Linc) Washburn**

A.L. Washburn embarked in 1955 on a long-term programme of geomorphological studies from a base adjacent to the airport at Mestersvig (72°13'N), in association with H.M. Raup, F. Ugolini and other scientists at different times. Reconnaissance studies in 1955 and 1956 were followed by the main phase of the study which lasted from 1957 to 1961, with follow-up studies in 1964 (Washburn 1965). The headquarters of the expedition was at *Camp Tahoe*, a house north of Tunnelelv on a section of road between Nyhavn and Minebyen; this house has subsequently become known as *Washburn's Hus*.

#### **1956 Cambridge University and Marlborough College expedition to North-East Greenland: G. Thomas Wright**

A party of six led by G. Thomas Wright visited the Hold with Hope area (74°N) in late summer to make observations of pink-footed and barnacle geese. The party travelled up with the POLARBJØRN, and visited many localities between Loch Fyne and Ymer Ø. However, the cold spring and early summer meant that 1956 was a non-breeding year for geese, and only four were ringed. The party was picked up by the POLARBJØRN, that was escorting the salvaged sealer JOPETER back to Europe (Wright 1957; Goodhart & Wright 1958).

#### **1956 Mountaineering in the Werner Bjerger: W.D. Brooker**

A party led by W.D. Brooker is reported to have climbed two peaks in the Werner Bjerger (including Malmbjerg; 72°N), and two peaks in the Stauning Alper 1523 m and 1676 m high (Fantin 1969, p. 71).

#### **1956 'Operation Defrost': S.M. Needleman**

A four-man party led by S.M. Needleman carried out a reconnaissance survey of North Greenland for the Air Force Cambridge Research Center to locate potential aircraft landing sites. The Centrumso region (79°N) of Kronprins Christian Land was visited from 15–18 August (Needleman 1962). Investigations were continued in 1960 as 'Operation Groundhog'.

#### **1957 Austrian East Greenland expedition (Die Österreichische Grönlandexpedition): Hans Gsellman**

A party of eight Austrians, led by Hans Gsellman, visited Furesø and the Stauning Alper region (72°N). The party flew by Catalina directly to the Dammen region of inner Alpefjord. Two men made a boat trip to the west end of Furesø and climbed a peak overlooking Violin Gletscher. Sefström Gletscher was explored and a total of 19 summits were climbed, including 11 first ascents. The latter included Sefström Tinde and *Sefströmsgipfel*, both over 2700 m high. Their nine other first ascents were named mainly for their appearance. The party had difficulty leaving the area, and were eventually transported from Dammen to Mestersvig aboard the small boat the NETTA DAN (also referred to as 'Vippa Dan') owned by the Danish ship-owner Knud Lauritsen (Gsellman 1958a, b; Koglbauer 1965; Bennet 1972).

#### **1958 Scottish East Greenland expedition: C.M.G. (Malcolm) Slesser**

A nine-member climbing expedition led by C.G.M. (Malcolm) Slesser explored the Bersærkerbræ and Sefström Gletscher area of the Stauning Alper (72°N), and made first ascents of Merchiston Tinde, Dunottar Bjerg and Tantallon Spids. A crossing was made of the south Stauning Alper from Alpefjord to Sydkap, and the first traverse of the central Stauning Alper from Gully Gletscher to Bersærkerbræ was completed via *Col Major* (Majorpasset). Limited glaciological

work was carried out on lower Sefström Gletscher. A few climbs were also made west of Alpefjord. Many glaciers and mountains were named, and most names have approved status. Slesser's names were mostly given after Scottish castles (Bennet 1959; Slesser 1959, 1964a, b).

### 1958 Carlsberg Foundation Scoresby Sund expedition

Botanical and biological studies were carried out by two parties, supported financially by the Carlsberg Foundation. Co-operation with Lauge Koch's expedition provided air transport facilities. Parties visited many localities between Gåseland (70°N) in the south, and Geographical Society Ø and Ella Ø (73°N) in the north.

### 1958–59 Grønlands Geologiske Undersøgelse (GGU) expeditions to Kap Stosch

In both 1958 and 1959, small parties, led by Svend E. Bendix-Almgren and with support from Grønlands Geologiske Undersøgelse (GGU), visited the Kap Stosch region (74°03'N). Geological and palaeontological collections were made.

### 1959 'Operation Groundhog': J.M. Hartshorn

An investigation of ice-free sites for emergency aircraft landings was carried out between 70° and 74°N in East Greenland by scientists of the United States Air Force Cambridge Research Center and the United States Geological Survey under US Air Force contract. The six-man scientific party, led by J.M. Hartshorn, was based on the icebreaker USS ATKA and operated in the region from 15 August to 10 September. Of numerous potential sites selected from studies of aerial photographs, many were inspected briefly by helicopter, and a few were mapped and marked out. Special attention was given to sites around Scoresbysund, southern Ymer Ø and Storelv (Hartshorn *et al.* 1961). Helge Larsen accompanied the party and made archaeological observations. No new place names are recorded in their official report.

### 1959–60 Tristan Jones voyage with the yacht CRESSWELL

Tristan Jones made a single-handed sailing voyage to East Greenland via Iceland in his converted wooden

lifeboat CRESSWELL. After reaching Scoresby Sund (70°N) in August 1959, he sailed northwards along the coast almost to Kap Bismarck (76°42'N), but was trapped in the pack ice, and drifted with the ice down to the latitude of Scoresby Sund, where he met the GUSTAV HOLM. Refusing an offer of a lift to Iceland, Tristan Jones with the CRESSWELL overwintered at Sydkap from October 1959 to May 1960. After leaving East Greenland, Jones sailed for Spitsbergen, where he was again caught in pack ice and the CRESSWELL was lost (Jones 1979, 1983).

### 1959–61 American glaciological expeditions

Fred Pessl and Norman P. Lasca carried out glaciological studies around the head of Mesters Vig (72°N) in 1959 and 1961, funded from American sources, and with local help from Nordisk Mineselskab (Pessl 1962).

### 1959–64 Geodætisk Institut (Geodetic Institut) aerial photography

Aerial photography was carried out for the Danish Geodetic Institute over large areas of North and East Greenland from a base at Station Nord (81°36'N) in northern Kronprins Christian Land. Vertical photographs at a scale of 1:50 000 were obtained for the entire region north of 76°N, while a number of oblique routes were flown in the Scoresby Sund region in 1961.

### 1960 'Operation Groundhog': S.M. Needleman

The United States Air Force Cambridge Research Center and the United States Geological Survey under Air Force contract carried out scientific studies and investigations of emergency aircraft landing strips at Centrumso (80°10'N), culminating in test landings by a Canadian Air Force C-119 and a US Air Force C-130 Hercules aircraft. The scientific parties, led by S.M. Needleman, received some support from the US Army 'Operation Lead Dog' working on the ice cap nearby (Needleman 1962). Two new names (Græselv and Grottedal) later came into use in the area covered by this volume. Three of the scientists, led by W.E. Davies, worked for part of the summer in Peary Land, northernmost Greenland.



## 1960 British East Greenland expedition:

### John Hunt

John Hunt led a party of 38, including 21 boys, on a largely climbing expedition to the Stauning Alper (c. 72°N). Several first ascents were made around Bersærkerbræ, including that of the Hjørnespids (Slesser 1961, 1964a, b). From Alpefjord, reached with the motor boat, POLYPEN, the party traversed via Spærregletscher and Duart Gletscher into the southern Stauning Alper, where several mountains were climbed around Bjørnbo Gletscher. About 12 mountains and 14 glaciers were named, and nearly all have approved status. Following the system introduced by Malcolm Slesser in 1958 the mountains were named after Scottish castles, while glaciers were named after planets or constellations of stars (Jackson *et al.* 1961; Hunt & Sugden 1962; Slesser 1964a, b). Some glaciological and ornithological observations were also made.

## 1960 USAF aerial photography

A small number of vertical aerial photography routes were flown by the United States Air Force (USAF) over parts of the Scoresby Sund region (70°–72°N).

## Modern scientific investigations, adventure and sporting expeditions 1961–2008

### 1961 Bangor Junior Mountaineering Club expedition: M.K. Lyon

A nine-man expedition led by M.K. Lyon explored the region around the Schuchert Gletscher and Storgletscher in the southern Stauning Alper (71°55'N), making several first ascents, the most notable being *Royal Peak*. One man had a bad accident and was flown out to Iceland. A brief account of the expedition is given in Bennet (1972). The names given for the peaks climbed show no clear system, and none have acquired approved status.

### 1961 Junior Mountaineering Club of Scotland expedition: James Clarkson

Encouraged by the reports of John Hunt's 1960 expedition, a nine-man group led by James Clarkson explored the Bjørnbo Gletscher system in the south-

ern Stauning Alper (71°40'N) making 24 first ascents. A return crossing of the range from Bjørnbo Gletscher to Alpefjord via Spærregletscher was also made (Clarkson 1962, 1964). Following earlier usage many of the peaks were named after Scottish castles, while other peaks and 12 glaciers were named after heavenly bodies. Proposals to authorise the names were made, but in contrast to its earlier practice the Place Name Committee now declined to accept large numbers of 'foreign-sounding' names within the Stauning Alper. [Place Name Committee archive.]

### 1961 Cambridge East Greenland expedition: Russel Marris

A party of six led by Russel Marris visited the Fleming Fjord and Mestersvig areas (71°30'–72°20'N), making ornithological and biological observations (Marris & Ogilvie 1962; Hall 1964). A total of 569 barnacle geese and six pink-footed geese were ringed.

### 1961–1962 Leicester University East Greenland expeditions: Geoffrey Halliday

These expeditions carried out a varied programme of botanical, geological and zoological work, and flew into Mestersvig from Iceland by chartered aircraft.

1961 – Geoffrey Halliday led a party of 12, mainly from Leicester University (England), to the region west of Mestersvig and between 8 July and 9 September visited Forsblad Fjord, Alpefjord and Furesø (72°N). From the head of Furesø, reached by boat, a traverse was made via Jomfrudal to the coast of Nordvestfjord. Botanical, zoological and geological observations were made. Two members also reached the highest point of the ice cap north of Furesø, approached via Schaffhauserdal (Halliday 1962, 1963). Five unapproved names are recorded.

1962 – Geoffrey Halliday continued his botanical studies in East Greenland from 18 July until 10 September, leading a five-man group to the Kong Oscar Fjord region (72°10'N). Investigations were concentrated in the area around Mestersvig, the coast of the northern Stauning Alper and southern Traill Ø (Halliday 1963).

### 1961–84 Arktisk Minekompagni (Arctic Mining Company)

Arktisk Minekompagni was a consortium with 50% interests held by respectively Nordisk Mineselskab

and AMAX (American Metal Climax Inc.), formed to undertake investigations of the molybdenum deposit at Malmbjerg (72°N). An exclusive concession to mine and ship molybdenum was granted in 1961, but the concession was suspended in 1984 in association with negotiations over oil exploration rights in Jameson Land (see below).

Extensive drilling of the prospect was carried out in 1961 and 1962, the 67 drill holes bringing the total length drilled up to 20 km. Reserves of close to 200 million tons of ore with 0.25% molybdenum sulphide were proven (Thomassen 2005b).

A small mining 'town' of wooden barracks was built for the drilling crews on the moraines just south of the deposit, but the site was cleared in the 1980s.

The situation of the deposit, surrounded by glaciers, and its relatively low grade has so far hindered exploitation, but following dramatic price rises for molybdenum, new investigations were initiated in 2005.

### 1962 Oxford University expedition to East Greenland

An eight-man scientific party led by D.E. Sugden and B.S. John visited Pingodal and Schuchert Dal in Jameson Land, and Oxford Gletscher in the southern Stauning Alper (c. 71°30'N). They undertook geomorphological, ornithological and botanical studies. The party flew in via Mestersvig, and sailed home from Scoresbysund with the KISTA DAN (John & Sugden 1963; Worm 1963). Four new approved names resulted from the expedition's work, including the name Oxford Gletscher, while several unapproved names have appeared in ornithological reports (Hall 1963, 1966).

### 1963 Geodætisk Institut (Geodetic Institute) expedition to Scoresby Sund

Surveying teams from the Danish Geodætisk Institut carried out triangulation in the inner Scoresby Sund region in 1963, supported by the ships TYCHO BRAHE and OLE RØMER. About 10 new names were proposed for various features, all of which are approved.

### 1963 Trinity College East Greenland expedition: K.C. Campbell

A party of 10 led by K.C. Campbell, mainly from Trinity College, Dublin, carried out botanical and

ornithological studies in Hurry Inlet, Carlsberg Fjord and the Jameson Land coast of Hall Bredning (70°30'–71°30'N). Some of their equipment was air-dropped onto Jameson Land from their DC-4 aircraft (Campbell 1964). Elio Pampanini flew a Beechcraft Bonanza aircraft to the region in August to assist in the evacuation of the expedition.

### 1963 Cambridge University East Greenland expedition: Colin F. Knox

This 12-member climbing expedition from Cambridge University (England) was led by Colin F. Knox, and concentrated its activities in the region of Gullygletscher and Sefström Gletscher in the Stauning Alper (72°N). They were assisted by an airdrop of food and equipment onto Sefström Gletscher at the beginning of the season. A total of 25 first ascents were claimed, including C.F. Knox Tinde, Snetoppen, Pembroke Kuppel, Korsspids and Cantabrigia Tinde, all over 2700 m high (Roschnik 1964; Knox 1964a, b). Several long traverses were also made, and the expedition is generally considered to have been one of the most successful to have visited the Stauning Alper (Bennet 1972). Most of their named peaks commemorate Cambridge colleges, or have associations with Cambridge, and were subsequently approved in danicised form. One of their peaks, *Grandes Jorasses*, was subsequently renamed C.F. Knox Tinde following the death of Knox in the French Alps in 1964. Some glaciological work was carried out on the lower Sefström Gletscher.

### 1963 La spedizione Italiana, G.M.'63 (Italian expedition to the Stauning Alper): Guido Monzino

The Italian climber Guido Monzino led a group of 14 Italians to the Bersærkerbræ region of the Stauning Alper (72°N); the group could not reach their original goal around Petermann Bjerg due to the presence of winter ice in the fjords. Five camps were set up on Bersærkerbræ, and the second ascent of Glamis Borg (*Cima di Granito*) was made by a new route (Fantin 1969; Bennet 1972).

### 1963 British East Greenland expedition: Russel Marris

Russel Marris led an eight-man party which visited the Ørsted Dal area (71°47'N) to make ornithological

observations (Hall & Waddingham 1966). One of their main objectives was to ring barnacle geese. Some geological observations were made around Pingel Dal.

#### **1963 Imperial College East Greenland expedition: M.H. Key**

A climbing group from Imperial College (London, England) led by M.H. Key visited the Stauning Alper (72°N), concentrating on the peaks around the Bersærkerbræ. Some glaciological and geological studies were also made. Of the 24 mountains climbed, 15 were first ascents. The names proposed for their peaks were all given after London boroughs, because all the members of the group were from a London college. However, while some attempt was made to seek official approval of their names, the formalities were never concluded. Accounts of the expedition are given by Key (1964) and Watson (1964).

#### **1964 La spedizione Italiana, G.M.'64 (Italian expedition to the Stauning Alper): Guido Monzino**

Guido Monzino returned to the Stauning Alper (72°N) with a party of 20 climbers; from Mestersvig they travelled to Alpefjord by inflatable boat. Two peaks on the south side of Vikingebræ were climbed, *Cima Est* and *Cima Oest*, and the second ascent of Dansketinde was made by a new route (Bennet 1972). A 1550 m peak south of *Kap Peterséns* was also climbed.

#### **1964 Expedition des Akademischen Alpenclubs Zürich in die Stauningsalpen (Academic Alpine Club Zurich expedition to the Stauning Alper): A. Hofmann**

A party of 10 Swiss climbers led by A. Hoffman made five first ascents in the Syltoppene area of the northernmost Stauning Alper, subsequently moving by inflatable boat to the Sefström Gletscher region (72°N) where a further four first ascents were made. Finally they moved to the Spærregletscher area and climbed at least another eight peaks (Meinherz 1965). Some reports record a total of 21 first ascents (Fantin 1969). None of their place names have acquired official status.

#### **1964 Daneborg ornithological expedition**

A Danish three-man ornithological expedition made observations in the Daneborg region (74°18'N) between mid-April and mid-July. From a base at Daneborg weather station, where a landing was made on the sea-ice with a DC-3 on 18 April, journeys were made northwards as far as Germaniahavn and Lindeman Fjord, and westwards to Revet (Christensen 1965, 1967; Rosenberg *et al.* 1970).

#### **1965 Oxford University expedition to East Greenland: J.C. Rucklidge**

A geological expedition of six men from Oxford University (England) led by J.C. Rucklidge sailed to Scoresbysund with the *THALA DAN*, and then crossed Scoresby Sund with the settlement boat *ENTALIK* to reach their working area near Kap Brewster, the basalt region on the south side of Scoresby Sund (70°N). An advance base was established near the front of Torvgletscher, from which journeys were made to the upper reaches of the glacier, and Pindsvinet was climbed (Rucklidge 1966). The expedition was picked up by the *ENTALIK* on 4 September, but because of bad ice conditions was forced to abandon much of their equipment (Rucklidge & Brooks 1966). No new place names are recorded. [RGS report archive.]

#### **1966 Cambridge expedition to East Greenland: Russel Marris**

Russel Marris and A.M.F. Webbe made botanical and ornithological observations in the region between Mestersvig and Daneborg (72°–74°30'N), with especial reference to the barnacle geese (Marris & Webbe 1970).

#### **1966 Deutsche Grönland-Expedition in die Staunings-Alpen (German expedition to the Stauning Alper): Karl M. Herligkoffer**

A six-man party led by Karl M. Herligkoffer had originally intended visiting the Peary Land region of North Greenland, but was frustrated by lack of aircraft fuel at Mestersvig preventing them from continuing their journey. Instead they combined forces with a four-man group from Munich which had sailed to Mestersvig with the *NELLA DAN*, and turned their attention to the nearby Stauning Alper (72°N). About 30 first ascents were claimed in the region around the

heads of Spærregletscher, Roslin Gletscher and Borgbjerg Gletscher (Herligkoffer 1967); some were probably second ascents (Bennet 1972). An attempt was made to gain approval of the names for their peaks, which were mainly given for German towns or localities, but their localities were said at the time not to be sufficiently precise. Most peaks have since been located on modern maps (Bennet 1972); see also Map 5.

### 1967 Grønlands Geologiske Undersøgelse (GGU) international expedition to Kap Stosch

A nine-person group of Danish, Swiss and American geologists, with support from Grønlands Geologiske Undersøgelse (Geological Survey of Greenland, GGU), visited the Kap Stosch region (74°03'N) to undertake geological and palaeontological studies of Permian and Triassic rocks.

### 1967 Ohio State University expedition

A two-man American party, John Gunner and Dave Parrish, made a visit to the inner fjord region of Scoresby Sund (70°N), including a two-week walking trip from inner Føhnfjord along Hjørnedal to the interior of Gåseland around Gnejssø.

### 1967 Lambert Land search expedition

J.L. Christiansen and N. Preben-Andersen visited Lambert Land (79°15'N) by Catalina in mid-August to search for traces of Mylius-Erichsen and Høeg-Hagen, two of the three members of the 1906–08 Danmark-Ekspeditionen who had died in 1907. Nothing significant was found.

### 1967 Berchtesgaden expedition to the Stauning Alper

Four German climbers from Berchtesgaden (Germany), visited the area west of Spærregletscher (72°N), making 13 first ascents. Their highest peak was *Schneekuppel*, 2640 m high. Their names were apparently given for German localities and notable mountaineers, but none have approved status. Summary accounts of the expedition are to be found in Bennet (1972), Fantin (1969) and Hoff (1979).

### 1967 Spedizione sci-alpinistica Italiana in Groenlandia (Italian expedition to the Stauning Alper): Toni Gobbi

This Italian climbing party of 12 led by Toni Gobbi was most interested in ski-mountaineering, and visited the Stauning Alper (72°N) from mid-June. A number of climbs were made from the Bersærkerbræ including Dunottar Bjerg and *Kensington*, and a first ascent was made of *Panoramic Peak* (Fantin 1969; Bennet 1972; Hoff 1979).

### 1967–69 Geodætisk Institut (Geodetic Institute) surveying and aerial photography

Triangulation was carried out in 1967 on the Blossville Kyst (69°N), mainly south of D'Aunay Bugt, based on the motor cutter OLE RØMER.

In 1968 and 1969 a variety of surveying objectives were carried out from the boats OLE RØMER and TYCHO BRAHE, to increase the detailed triangulation network and density of fixed points. The 1968 work included a survey of Schuchert Dal and Malmbjerg. Aerial photography was carried out in 1968 and 1969 of parts of the Scoresby Sund region (70°–72°N), although it was considerably hindered in 1969 by poor weather.

### 1967–72 Grønlands Geologiske Undersøgelse (GGU) Scoresby Sund expeditions

A series of major expeditions by the Geological Survey of Greenland (Grønlands Geologiske Undersøgelse: GGU) to the Scoresby Sund region were led by Niels Henriksen. They had as their principal objective the systematic geological mapping of the region 70°–72°N, to be published as 1:100 000 and 1:500 000 scale map sheets (Henriksen 1986). A two-man reconnaissance expedition in 1967 based on a small cutter JYTTE visited the entire fjord system, and provided a logistical and geological background for planning of the subsequent major expeditions.

1968 – The 31-member expedition sailed to Scoresby Sund aboard the MARTIN KARLSEN (formerly the KISTA DAN), which functioned as a floating base throughout the summer for two helicopters serving 12 geological teams. Activities were concentrated in the inner parts of Nordvestfjord, and in northern Jameson Land.

1969 – The MAGGA DAN was the expedition ship, and carried the party of 38, mainly scientists, to

Fig. 22. The *MAGGA DAN* was a Polar expedition ship built for the J. Lauritsen shipping company. In 1969 it was the expedition ship for GGU's summer expedition to the Scoresby Sund region. Fitted with helicopter platforms at the front and rear it functioned as a floating base. GGU's cutter *JYTTE* seen moored to the ship to the right provided local transport for geological parties.



Scoresby Sund, as well as acting as base ship for the two helicopters (Fig. 22). The 15 geological teams worked in the southern Stauning Alper, Renland, Jameson Land and southern Liverpool Land.

1970 – The expedition numbered 43, including 16 geological teams, and operated with two helicopters from the base ship *PERLA DAN*. The main working areas were in Renland, Milne Land and areas west of Rødefjord, with five groups working on the Mesozoic rocks of eastern Milne Land and Jameson Land.

1971 – This 44-member expedition operated from a tent base camp at the head of Hurry Inlet, the 16 teams of geologists being served by three helicopters. The working areas were Liverpool Land and Jameson Land, with two teams working on the basalts south of Scoresby Sund. The Norwegian sealer *BRANDAL* transported fuel and supplies to the region, and also supported a geophysical group working in Scoresby Sund. A three-man GGU group carried out an aeroradiometric survey of selected areas of east Milne Land and Schuchert Dal using a Dornier 28 aircraft; these studies continued in subsequent years (see '1971–77 GGU/AEK expeditions to East Greenland' below).

1972 – The last year of the Scoresby Sund expeditions worked out of a land base at Hjørnedal in Føn-fjord, the 44 participants being served by three helicopters and a Pilatus Porter STOL (Short Takeoff and Landing) aircraft. Working areas for the 14 teams were on southern Milne Land, Gåseland, and the basalt areas along the south side of Scoresby Sund.

The detailed mapping and exploration in areas only scantily investigated by earlier expeditions led to approval of 70 new place names for large and small features, their derivations being as diverse in character as the numerous geologists who proposed them.

### 1968 Scottish expedition to the Stauning Alper

This seven-man expedition traversed from Mestersvig (72°13'N) overland to the central Stauning Alper, making the first crossings of passes between *Edinbræ* and Schuchert Gletscher, and between Storgletscher and Grantagletscher. Two first ascents were made of peaks on the north side of Sefstrøm Gletscher, as well as the third ascent of Sefstrøm Tinde (Bennet 1969, 1972).

### 1968 Graham Tiso's East Greenland expedition

Graham Tiso led a five-man climbing party to the Gullygletscher region of the Stauning Alper (72°N). The third ascent of Norsketinde was made by a new route, after which the party crossed Alpefjord to climb in eastern Nathorst Land around Trekantgletscher (Hill 1969; Bennet 1972).

### 1968 Nordost Grönland expedition (German North-East Greenland expedition): Hermann Huber

Hermann Huber led a four-man German climbing expedition to the Vikingebræ region of the Stauning Alper (72°N). Several first ascents were made, including *Dreispitze* and *Högspids* (Fantin 1969; Bennet 1972).

### 1968 University of Dundee Scoresby Land expedition: Ian H.M. Smart

Iain H.M. Smart led an eight-man group with climb-

ing and scientific objectives to the southern Stauning Alper and Pingo Dal (71°40'). From Mestersvig the party walked via Mellempas to Malmbjerg, and thence to Pingo Dal where pingos were studied and surveyed until the end of July; pingos are ice-cored conical mounds found on braided river plains (see also Fig. 70). The climbing group found a new route to the peaks at the head of Roslin Gletscher, and made nine first ascents (Bennet 1972). Smart carried out studies of Arctic terns on the Menander Øer. None of the names given for their peaks have been approved. One of these, *Dreverspids*, commemorates the patrons of the expedition, James and Harald Drever. An associated party of six from Edinburgh University and the University of Dundee, including George and Irene Waterston, carried out ornithological and biological studies between Antarctic Havn and Mestersvig (Waterston & Waterston 1969). [RGS report archive.]

#### **1968 Expédition Française au Groenland Nord-Est (French expedition to North-East Greenland): Claude Rey**

A large climbing expedition of 16 men and women led by Claude Rey sailed to the head of Dammen by rubber dinghy, and explored the area around Prinsessegletscher, at the west margin of the Stauning Alper (72°N). Nineteen first ascents were made of the high peaks on both sides of the glacier, including several long climbs and traverses (Georges & Rey 1969; Bennet 1972).

#### **1968 Womens' East Greenland mountaineering expedition: Joan Busby**

A five-member women's expedition led by Joan Busby made a number of climbs in the Bersærkerbræ region of the northern Stauning Alper (Hoff 1979).

#### **1968 Ornithological studies: Russel & David Marris**

The brothers Russel and David Marris visited the Scoresby Sund region (70°–72°N) in 1968, travelling in the fjords by small boat. Their activities led to the approval of four names, mainly with botanical origins. [Place Name Committee archive.]

#### **1968–70 Cambridge Greenland expeditions: Peter F. Friend**

A series of geological expeditions led by Peter F. Friend of Cambridge University (England) visited the region 71°30'–74°30'N, with the main purpose of investigating the Devonian sandstones. Each year the party arrived at Mestersvig by chartered aircraft, continued to Ella Ø by Catalina aircraft or boat, and subsequently used inflatable boats for transport throughout the fjord system. Occasional use was made of chartered helicopters to reach inland areas. The parties numbered 11 in 1968, 10 in 1969 and 12 in 1970. Three new place names were introduced in the course of their studies (Friend *et al.* 1983).

#### **1968–75 East Greenland expeditions: Keith J. Miller**

Keith John Miller [1932–2006] was a mechanical engineer of world standing, and an enthusiastic mountaineer. His expeditions to East Greenland often combined scientific activities with climbing, and were partly used to develop radio echo-sounding techniques for measuring the thickness of ice in glaciers.

1968 – Keith Miller led an eight-man party from Queen Mary College, London (England) to the Bersærkerbræ region of the Stauning Alper (72°N). Climbing groups made the first ascent of Bersærkertinde, the second ascent of Hjørnespids and the third ascent of Dansketinde. Glaciological work was carried out on Bersærkerbræ. Miller fell into a crevasse and was evacuated to Reykjavik for treatment, while another member of the party (Tom Hird) fell into a melt-water stream on the glacier and was lucky to escape with minor injuries (Bennet 1972).

1970 – This ten-man chiefly scientific expedition led by Keith J. Miller of Cambridge University (UK) flew by helicopter from Mestersvig to Roslin Gletscher (71°48'N), where the British Royal Air Force had parachuted in supplies and equipment. Glaciological studies included echo-sounding experiments to determine the thickness of the glacier ice. Three peaks over 2000 m high were climbed, two of them first ascents.

1972–73 – A 12-man party led by Keith J. Miller from Cambridge University continued their studies on the Roslin Gletscher (71°48'N). Their main projects included testing a thermal ice probe, and radio echo-sounding of ice thickness. In 1972 they co-oper-

ated with a two-man Imperial College Greenland expedition and with the Cambridge Schuchert expedition. Six peaks were climbed at the end of the summer, including two first ascents. In 1973 a four-man party continued the work.

1975 – Keith J. Miller led a four-man group from Cambridge University (England) to the Stauning Alper, that made a spectacular and very long (250 km) N–S traverse of the range from *Kap Peterséns* in the north to Sydkap in the south, including crossing two new passes. The return to Mestersvig was made via Schuchert Dal (Miller 1976). [RGS report archive.]

### **1969 Spedizione sci-alpinistica Italiana in Groenlandica (Italian ski-mountaineering expedition to the Stauning Alper): Toni Gobbi**

A 13-member Italian climbing party led by Toni Gobbi visited the Bersærkerbræ region of the Stauning Alper (72°N), making several first ascents (Bennet 1972). Their prime interest was ski-mountaineering; a particularly fine ski traverse was made by one group via Skelgletscher, Schuchert Gletscher and Sefström Gletscher to Alpefjord, returning via Gullygletscher and Majorpasset (*Col Major*).

### **1969 Zoogeographical investigations: Christian Vibe & Ivar Silis**

Christian Vibe and Ivar Silis carried out studies of polar bear and musk ox in the Daneborg and Clave-ring Ø areas (74°20'N).

### **1969 Norwegian musk-ox expedition: John J. Teal**

John J. Teal of the University of Alaska was leader of an expedition aboard the *HARMONI* which visited Kejser Franz Joseph Fjord in search of musk oxen. Twenty-five young musk oxen were captured, and taken back to Norway for release in the Bardu district.

### **1969 Watkins Bjerger expedition: A.J. Allen**

A.J. Allen led a six-man Anglo-Danish expedition to the Scoresby Sund region whose aim was to reach the Watkins Bjerger (69°N) from the north. The party flew into Scoresbysund in early July, but the break-up of the fjord ice frustrated their planned sledge jour-

ney, and they eventually reached Danmark Ø by boat. On 22 July they were lifted by helicopter to Sydbræ. A long journey across Geikie Plateau brought them to within 30 km of their goal, but very poor weather led to a retreat to innermost Gåsefjord, where the party was picked up by the *ENTALIK* on 28 August. [RGS report archive.]

### **1969 International Mount Mikkelsen expedition: Malcolm Slesser**

The objective of this four-man expedition led by C.M.G. (Malcolm) Slesser was to climb Ejnar Mikkelsen Fjeld (69°N), 40 km inland from the Bløseville Kyst. Three of the party flew to Scoresbysund, while the fourth (Carlos Ziebell) reached Gurreholm by air from Mestersvig then walked the rest of the way to Scoresbysund.

The party sailed from Scoresbysund in an open boat southwards to Kap Brewster, and down the Bløseville Kyst as far as the south-east point of Turner Ø. However, because of delays due to storms and difficult ice conditions they succeeded only in climbing a few minor peaks near the coast (Smart 1970; Slesser 1970). Hot springs in Rømer Fjord were investigated.

Six place names, mainly with Scottish associations, were approved. [RGS report archive.]

### **1969–71 Hans Meltofte ornithological observations, Danmarkshavn**

While employed at Danmarkshavn weather station (76°42'N) from April 1969 to April 1971, Hans Meltofte made regular ornithological observations (Meltofte 1975). Observations were concentrated in the vicinity of the station, but sledge journeys were also made northwards to Kap Amélie, and westwards to Annekssøen, Sælsøen, Ålborghus and Rechnitzer Land. More than 500 birds, mostly snow buntings, were ringed. Seven names reported by Meltofte as in use by personnel at the station were subsequently formally approved.

### **1970 British expedition to Ejnar Mikkelsen Fjeld: Andrew Ross**

Andrew Ross led a party of four which made the first successful ascent of Ejnar Mikkelsen Fjeld (68°53'N) in the Watkins Bjerger. The approach was made from Scoresbysund down the Bløseville Kyst in a large open boat. On the return voyage along the coast, the

party was caught in bad weather, lost their fuel supplies, and were rescued by the PERLA DAN (the GGU expedition ship) at Søkongens Bugt (68°40'N; Ross 1971).

### **1970 Scottish expedition to the Stauning Alper**

David Bennet and Malcolm Slesser climbed together in the Stauning Alper (72°N), making a new and easier route on the Bersærkertinde, and the first ascent of a small rock peak to its east (Bennet 1972).

### **1970 St. Andrews University East Greenland expedition: R.M. Nisbet**

This climbing expedition from St. Andrews University (Scotland) was led by R.M. Nisbet, and climbed seven peaks in north-east Nathorst Land around Schaffhuserdalen (72°20'N). Nisbet broke a leg in an accident, and was evacuated by helicopter (Bennet 1972).

### **1970 Münchner Grönland-Fahrt (German climbing expedition to Nathorst Land): Wolfgang Weinzierl**

This German climbing expedition led by Wolfgang Weinzierl visited north-east Nathorst Land (72°N), and made seven first ascents around Trekantgletscher and one in the Stauning Alper (Weinzierl 1971). The brief report is confusing as directions are misleading (e.g. Trekantgletscher is said to be 'east' of Alpefjord whereas it is to the west). The peaks are also very difficult to locate as the report has no map.

### **1970 Ladies' Scottish East Greenland expedition: Helen Steven**

A party of 12 ladies led by Helen Steven climbed in the Stauning Alper and Nathorst Land (72°N). Five ascents were made west of Bersærkerbræ, including a repeat of the Bennet/Slesser route on the Bersærkertinde, and four climbs (three first ascents) in Nathorst Land (Bennet 1972; Hoff 1979).

### **1970 Expédition Française au Groenland Nord-Est (French expedition to the Stauning Alper): Claude Rey**

A climbing group led by Claude Rey sailed from

Mestersvig to Alpefjord and made five climbs in the Vikingebræ region (72°10'N). These included the fourth ascent of Norsketinde, and the first ascent of *Mythotinde* (Bennet 1972).

### **1970 University of Dundee Scoresby Land expedition**

This 14-man University of Dundee (Scotland) expedition to the central and southern Stauning Alper (72°N) was organised as four groups, mainly operating independently. Three groups subsequently combined to carry out glacier exploration and mountaineering in the southern Stauning Alper. Seven or eight peaks were climbed, mainly first ascents, two of which received unofficial names – *Taurobjerg* and *Boulderbjerg* (Bennet 1972). Hydrological and biological studies were also made. A boat journey was made by one party to the Bjerneøer and into Nordvestfjord as far as Nordbugt. [RGS report archive.]

### **1970–73 Swedish expeditions to East Greenland**

These Swedish expeditions were active between Fleming Fjord and Hold with Hope (71°40'–74°N), and were primarily concerned with Quaternary geology and ornithology (Hjort 1976).

1970 – Christian Hjort and three others visited the Kong Oscar Fjord region.

1971 – A party including Christian Hjort visited the area around Mestersvig, Lyell Land, Ella Ø and the east coast of Geographical Society Ø.

1972 – Visits were made to Fleming Fjord, Traill Ø and Kempe Fjord.

1973 – C. Hjort and J. Mikaelsson visited the Hold with Hope and Hudson Land region.

### **1971 Radley College East Greenland expedition: G. Treglown**

A party of six from Radley College (UK) led by G. Treglown flew into Mestersvig by British Royal Air Force Hercules at the end of July. Ornithological studies were made from camps near Mestersvig, on Traill Ø and Ella Ø (72°–73°N; Hardy 1979). [RGS report archive.]



### **1971 Grumman Ecosystems aerial photography**

Vertical aerial photography was carried out by Grumman Ecosystems Corporation for Greenarctic Consortium, over selected areas between 74°N and 76°N in East Greenland. Greenarctic Consortium was a large prospecting company with interests in the Danish and Canadian Arctic.

### **1971 University of Lancaster expedition to the southern Stauning Alper: Harry Pinkerton**

A three-man University of Lancaster (England) expedition led by Harry Pinkerton to the southern Stauning Alper (71°40'N), was later joined by two members of the '1971 Northern Universities East Greenland expedition'. Four ascents were made around Bjørnbo Gletscher, three of them first ascents (Bennet 1972; Pinkerton 1972).

### **1971 Expédition Française au Groenland Nord-Est (French climbing expedition to North-East Greenland): Claude Rey**

A small French climbing group led by Claude Rey visited the Vikingebræ region of the Stauning Alper (72°10'N). Among other climbs, the first ascent was made of a peak north of Helvedespas (Bennet 1972).

### **1971 American East Greenland expedition: George Wallerstein**

George Wallerstein led a party of six American climbers that intended to make an attempt on Ejnar Mikkelsen Fjeld (68°53'N) from the north. The party failed to reach their goal, but made a reconnaissance of Sydbæ (70°N), and climbed three minor peaks in Milne Land (Liska 1972; Hoff 1979). They had great problems returning to Scoresbysund when their boat was trapped by pack ice on the shore of Jameson Land.

### **1971 British expedition to the Roscoe Bjerger, Liverpool Land: Malcolm Slesser**

C.M.G. (Malcolm) Slesser led a party of six to southern Liverpool Land, carrying out ski-mountaineering and making nine first ascents in the Roscoe Bjerger, Liverpool Land (70°39'N; Slesser 1972).

### **1971 Northern Universities East Greenland expedition: Geoffrey Halliday**

A British, largely scientific, party of up to nine members led by Geoffrey Halliday visited the Scoresby Sund region to carry out botanical, ornithological and geological studies. Supplies were air-dropped at Scoresbysund, Gurreholm and Nordbugt. One party flew into Scoresbysund and worked in southern Liverpool Land (70°40'N). A second party flew into Mestersvig and walked to Gurreholm, from where a boat journey was made along Nordvestfjord to Nordbugten and Flyverfjord (71°33'N). Several long walks were made inland from Nordbugt, in Hinks Land and along Edvard Bay Dal. Two members joined a climbing group from the '1971 University of Lancaster expedition' that ascended several peaks in the Bjørnbo Gletscher region, including three first ascents (Bennet 1972; Pinkerton 1972). Five names in the inner reaches of Nordvestfjord, given as botanical reference localities, were subsequently approved. Some are given for plants, two others Leeds and Lancaster Universities. [RGS report archive.]

### **1971–72 Atlantic Richfield Oil Company (ARCO)**

ARCO in association with Nordisk Mineselskab carried out geological studies over an extensive region in East Greenland. Up to three helicopters were used to transport geological teams and equipment, and these gave occasional assistance to the various sports expeditions in the region.

### **1971–77 GGU/AEK expeditions to East Greenland**

Co-operation between Grønlands Geologiske Undersøgelse (Geological Survey of Greenland: GGU) and the Atomenergikommissionen (Danish Atomic Energy Commission: AEK) led to an extended series of activities, including aero-radiometric surveys, uranium prospecting and ground-based studies of radioactive anomalies.

1971 – An aerial gamma spectrometric survey was carried out in July and August between Scoresby Sund (70°N) and Hold with Hope (74°N) using a Dornier 28 twin-engine aircraft. Follow-up ground investigations were initiated.

1972 – Follow-up ground investigations of anomalies were continued (Nielsen & Løvborg 1976).

1973 – A 15-person group was based at Stordal.

This undertook a detailed airborne geophysical programme in the same region as in 1971, and extended coverage to 76°N using a Britten-Norman Islander aircraft. This included radiometric and aeromagnetic surveys with an average ground clearance of 100 m (Nielsen & Larsen 1974).

1974 – A further, large group based at Stordal continued systematic geophysical prospecting using a Britten-Norman Islander. Ground prospecting was carried out of anomalous localities, assisted by a helicopter carrying a scintillometer. A geochemical sampling programme of stream waters and sediments was commenced.

1975 – The uranium prospecting programme based at Stordal was continued, with detailed helicopter-supported geological and radiometric investigation of radioactive anomalies, and geochemical sampling.

1976 – A large group continued detailed investigations of radioactive anomalies, and continued geochemical sampling, assisted by a helicopter.

1977 – The last of the Stordal-based expeditions completed the geochemical water and sediment sampling programme, and follow up studies of the gamma-spectrometer work. Detailed work was carried out on previously detected anomalies (Steenfelt & Nielsen 1978).

From 1974 onwards, small groups of GGU geologists took advantage of the Stordal facilities to carry out general mapping projects – see ‘1974–79 Grønlands Geologiske Undersøelse (GGU) mapping projects in East Greenland’ below.

### 1972 University of Dundee North-East Greenland expedition: R.M.G. O’Brien

R.M.G. O’Brien was leader of an 11-member University of Dundee (UK) expedition which carried out ornithological and zoological observations in Andrée Land, Ymer Ø and the Mestersvig area (72°–74°N; Summers & Green 1974). The expedition was assisted by British Royal Air Force (RAF) air drops made at *Kap Peterséns* and Renbugten. Travel was by inflatable boat and on foot, and a long traverse was made from Renbugten via Djævlekløften to Grejsdalen in Andrée Land. In addition, three peaks were climbed at the head of Haredalen on the west side of Isfjord. [RGS report archive.]

### 1972 H.W. Tilman’s voyage with the SEABREEZE

H.W. (Bill) Tilman took to sailing in 1955 as a means of reaching unclimbed mountains, and made three voyages to West Greenland and two to the Ammassalik region of East Greenland in his Pilot Cutter MISCHIEF. He later made three attempts to reach Scoresby Sund with the SEABREEZE, a 49-foot Bristol Channel Pilot Cutter, the most successful in 1972 when he came to within a few kilometres of Kap Tobin (71°24’N). His earlier voyages in 1969 and 1971 were, as in 1972, frustrated by pack ice at the mouth of Scoresby Sund. The SEABREEZE ran aground and foundered south of Ammassalik in 1972 on her way home (Tilman 1974).

### 1972 Knud Lauritzen, summer cruise

During August of 1972, Knud Lauritzen, owner of the Danish J. Lauritzen shipping company, sailed through parts of the Scoresby Sund fjord system (70°–72°N) in his motor yacht BAMSÅ DAN. This included a circuit of Milne Land and a visit to the GGU base camp at Hjørnedal.

### 1972 Cambridge Schuchert expedition: F. Alayn Street

Six ladies from the Geography Department of the University of Cambridge (England) led by F. Alayne Street undertook botanical and glaciological studies near the terminal moraines of Roslin Gletscher in Schuchert Dal (71°48’N). They were assisted by British Royal Air Force (RAF) air-drops, and an occasional helicopter lift from the Atlantic Richfield Company (ARCO). [RGS report archive.]

### 1972–73 Geodætisk Institut (Geodetic Institute) surveying and aerial photography

The Danish Geodetic Institute (Geodætisk Institut) continued in 1972 their improvement of point control on the Blosseville Kyst with a party based on the OLE RØMER. An attempt to fix the position of the Gronau Nunatak south-west of Gåsefjord was unsuccessful. Vertical aerial photography was flown over large parts of the Scoresby Sund region in 1972. In 1973 aerial photography coverage was extended northwards to 74°30’N, but was brought to an untimely end by the crash of the aircraft at Mestersvig airfield with the death of the pilot and one of the surveyors.

### **1972–73 Imperial College Greenland expedition: Peter W. Chaplin**

1972 – Peter W. Chaplin and Richard A. Carter from Imperial College (London, UK) accompanied the Cambridge Stauning Alper expedition to the Roslin Gletscher region (71°48'N) of the southern Stauning Alper, where they maintained meteorological records and made a plane table survey of the routes of echo-sounding traverses. [RGS report archive.]

1973 – A party of four led by Peter W. Chaplin revisited the Roslin Gletscher (71°48'N), where the stake lines of the 1972 expedition were re-surveyed, despite difficulties with heavy snow. New lines were surveyed at the front of Storgletscher. The party walked south as far as Sydkap, before returning to Mestersvig on foot (Chaplin *et al.* 1976). [RGS report archive.]

### **1973 Sheffield University geological expedition to Mestersvig: Charles Downie**

Charles Downie of Sheffield University (UK) led a four-man geological group to the Mestersvig area (72°N), whose objectives included sampling the Mesozoic sequence at Antarctic Havn and on Traill Ø with particular reference to the oil resource potential.

### **1973–75 Swedish Scoresbysund expedition: Magnus Elander**

Magnus Elander made two summer expeditions to East Greenland to undertake environmental studies of trace amounts of poisons in birds and animals. In 1972 he visited Mestersvig and Scoresbysund. In 1975 work was carried out from bases on Rathbone Ø (70°40'N) and in Hurry Inlet. [DPC report archive.]

### **1973 Hurry Inlet expedition: R.M. Sykes & S.R.A. Kelly**

R.M. Sykes and S.R.A. Kelly visited the Hurry Inlet region (70°40'N), making stratigraphical observations and palaeontological collections (Sykes & Callomon 1979).

### **1973–75 Nederlandse Groenland Expeditie (Dutch Greenland expeditions)**

Two or three-man ornithological expeditions from Dutch universities and research organisations visited

Jameson Land and southern Liverpool Land three years in succession. Their main study was the ecology of the long-tailed skua, and additional studies were made of waders that winter in or migrate through Holland. In 1973 their base camps were on Rathbone Ø and at Kap Stewart, in 1974 at Kap Stewart and near Kærelv, and in 1975 at Kærelv (Korte *et al.* 1981).

### **1973–75 De danske isbjørneekspeditioner (The Danish polar bear expeditions): Christian Vibe**

Christian Vibe led a series of expeditions to East Greenland to study and mark polar bears in their main breeding area, the fjord region between 69° and 78°N latitude, most of which lies within the borders of Nordøstgrønlands Nationalpark established in 1974. The expeditions were supported by the Danish Natural Science Research Council (SNF) and the Ministry for Greenland. Activities took place mainly in the spring, in 1973 using snowscooters and a small Cessna 185 aircraft, in 1974 helicopter and small aircraft, and in 1975 when activities extended into the pack ice off the coast, the Norwegian sealer POLARSTAR and helicopter. Scoresbysund, Mestersvig airfield, Daneborg and Danmarkshavn were used as support bases. The observations suggested there was a resident population of about 200 bears in the region, with regular additions to the population drifting in with the pack ice from Spitsbergen (Vibe 1982).

### **1974 Nordøstgrønlands Nationalpark (North-East Greenland National Park)**

Eske Bruun (1966) had argued strongly for the establishment of a national park in northern East Greenland at a time when the 'Østgrønlands Traktat' was about to expire in 1967. Christian Vibe was an enthusiastic supporter of the idea as a result of his wide-ranging studies of musk oxen and polar bears (Vibe 1967, 1971, 1982, 1984). In 1974 these ideas came to fruition when Greenland's first national park was established; after expansion across North Greenland in 1988 'Nordøstgrønlands Nationalpark' became the largest national park in the World; it has sometimes been referred to as 'Nord- og Nordøstgrønlands Nationalpark' (North and North-East Greenland National Park). The park incorporates the land areas of northern East Greenland with a southern boundary at approximately latitude 71°N, and extends throughout North Greenland. The park area includes the main

breeding area of the polar bear in Greenland, and the greater part of the distribution area of the musk ox. Access to the National Park requires prior permission from the Greenland authorities.

### 1974 Hans Meltofte, ornithological observations at Kap Tobin

Hans Meltofte was employed at Kap Tobin weather station from March to September, during which period he made continuous ornithological observations. These included observations on journeys along the coast of southern Liverpool Land, and southwards across Scoresby Sund to Kap Brewster and Steward Ø (Meltofte 1976).

### 1974 Joint biological expedition to North-East Greenland

This large British expedition comprised two main groups, the 'Wader Study Group North-East Greenland expedition' of 12 members led by G.H. Green, and the 'Dundee University Greenland expedition' of 10 members led by J.J.D. Greenwood. Ornithological and zoological studies were made from base camps at Holm Bugt (Traill Ø), Mestersvig, Ørsted Dal and Antarctic Havn (Ferns & Green 1975; Ferns & Mudge 1976; Fletcher & Webby 1977). The full report (Green & Greenwood 1978) gives positions of many of the numerous unofficial names used by this and earlier expeditions around Mestersvig, in Ørsted Dal and around Holm Bugt in Traill Ø. [RGS and DPC report archives.]

### 1974 Northern Universities East Greenland expedition: Geoffrey Halliday

Geoffrey Halliday led a five-strong group that carried out botanical observations between Mestersvig and Fleming Fjord.

### 1974 Cambridge East Greenland glaciological expedition: S.E. Howarth

A nine-member expedition led by S.E. Howarth followed up the work of earlier Cambridge University (UK) expeditions on Roslin Gletscher, where glaciological objectives included testing of a strain meter and thermal probe, and the surveying of stake lines. Stakes were also surveyed on Schuchert Gletscher and Arcturus Gletscher. The expedition was supported by

air drops by the British Royal Air Force (RAF). [RGS and DPC report archives.]

### 1974 Ice King scientific expedition

The ice-strengthened motor yacht ICE KING, commanded by Michael Tuson, sailed along the Blossville Kyst and into Scoresby Sund. A scientific party of botanists and geologists included R.M. Sykes and S.R.A. Kelly. Geological studies were made in the Kap Leslie area of Milne Land (Sykes & Callomon 1979).

### 1974 Sandhurst Greenland expedition, 'Exercise Snow Goose'

A seven-man expedition from the Royal Military Academy Sandhurst, Surrey, England, led by R.A.L. Anderson, visited the Bersærkerbræ region of the Stauning Alper. They camped at the junction of Bersærkebræ and Harlech Gletscher, and were supported by a parachute drop of supplies by the British Royal Air Force. Due to poor weather only one ascent was made, of *Harlech* on 16 August.

### 1974–79 Grønlands Geologiske Undersøgelse (GGU) mapping projects in East Greenland

The Geological Survey of Greenland (Grønlands Geologiske Undersøgelse, GGU) supported a number of general geological investigations in East Greenland that made use of the base facilities at Stordal set up for the GGU/AEK radiometric investigations until 1977 (see above). Some GGU groups operated independently, using the GGU cutter JYTTE based at Mestersvig, or making use of chartered helicopters stationed at Mestersvig airfield.

1974 – Five mapping groups were active, and studies included a photographic reconnaissance of the Blossville Kyst that clarified the distribution of the coast-parallel dyke swarm (Watt 1975), sedimentological studies of Mesozoic strata, and sampling for isotopic studies between 72° and 74°N (Rex & Gledhill 1981).

1975 – Six groups were in the field, their projects including reconnaissance studies of the crystalline rocks between 72° and 74°N, studies of the Triassic rocks on Jameson Land, and reconnaissance mapping of the Blossville Kyst.

1976 – Four groups carried out reconnaissance studies of the crystalline rocks between 72° and 74°N,

studies of basalts of Hold with Hope, and of Triassic sediments.

1977 – Five parties carried out a variety of studies, including work on Lower Palaeozoic rocks, Tertiary basic rocks, and metamorphic studies in the crystalline complexes.

1978 – Four groups continued work on projects including the basalts of the Blossville Kyst and Gauss Halvø (Upton *et al.* 1980), the crystalline complexes between 72° and 74°N (Higgins *et al.* 1981), and on Permian rocks on Wegener Halvø.

1979 – Only one group was in the field, working on Upper Permian sediments west of Schuchert Flod.

### 1975 Stirling University East Greenland expedition: Andrew Ross

Andrew Ross of Stirling University (UK) flew to Mestersvig and carried out studies in the vicinity and on boat trips to Ella Ø. More wide-ranging activities planned were frustrated by lack of transport.

### 1975 Hans Meltofte, ornithological observations around Danmarkshavn

Hans Meltofte was employed at Danmarkshavn weather station from March to September, and carried out systematic ornithological observations (Meltofte 1977).

### 1975–76 Ship-borne geophysical studies in the North Atlantic

Geophysical investigations were carried out between Jan Mayen and East Greenland using the RV EXPLORA

for the Bundesanstalt für Geowissenschaften und Rohstoffe, Hannover, Germany. One of the legs reached into the mouth of Scoresby Sund. The cruise continued in 1976 with further routes north and south of the mouth of Scoresby Sund. [DPC report archive.]

### 1975–76 Geodætisk Institut (Geodetic Institute) surveying 72°–76°N

Surveying was carried out between 72° and 76°N in 1975 by the Danish Geodetic Institute from the motor cutter OLE RØMER with the aim of expanding a reliable triangulation network. In 1976 a number of the Norwegian trigonometrical stations established by NSIU (Lacmann 1937) were re-surveyed and systematic gravity measurements undertaken.

### 1975–76 Knud Lauritzen, summer cruises

Knud Lauritzen, owner of the Danish J. Lauritsen shipping company, visited many of the fjords between 72°–74°N in his small motor yacht SAGA DAN in both 1975 and 1976 (Fig. 23). Soundings were made in several small harbours and channels, including the sound between the head of Alpefjord and Dammen, and the narrow sound at Strømnæs leading to the interior of Røhss Fjord.

### 1975–76 Scottish Scoresby Land expeditions: E.A.M. Walker

1975 – A four-man expedition led by E.A.M. Walker carried out glaciological and botanical inves-



Fig. 23. Knud Lauritzen, owner of the J. Lauritsen shipping company, cruising in the East Greenland fjords in 1976 with his motor-boat SAGA DAN.

tigations around Oxford Gletscher in the southern Stauning Alper (71°33'N), and also undertook a little climbing. The group had flown into Mestersvig airfield, and walked to Gurreholm, from which a boat trip was made to Scoresbysund to collect their equipment. Many problems with transport were overcome, and the party was eventually flown to Iceland from the rough airstrip in Jættedal near Scoresbysund. [DPC report archive.]

1976 – A party from Edinburgh University (UK) led by E.A.M. Walker carried out botanical and ecological work around Bersærkerbræ and between *Kap Peterséns* and Mestersvig. [DPC report archive.]

### 1976 Karl Herligkoffer climbing expedition

Karl Herligkoffer led a seven-man German expedition to the Spærregletscher region of Scoresby Land (72°N). Ten ascents were made in the area around Spærregletscher.

### 1976 Austrian Greenland expedition: Helmut Seerainer

Helmut Seerainer led a six-man Austrian expedition to East Greenland, which made a number of climbs in Liverpool Land, and in the Syltoppene in the northern Stauning Alper (Hoff 1979).

### 1976 Cambridge East Greenland expedition: Alan J. Colvill

A four-man Cambridge University (UK) expedition led by A.J. Colvill visited Roslin Gletscher (71°48'N) to undertake glaciological studies. These included measurement of a longitudinal profile and re-surveying of stake lines established by previous Cambridge expeditions (see above '1968–75 East Greenland expeditions: Keith J. Miller'). [RGS report archive.]

### 1976 Swedish-Danish North-East Greenland expedition

A party of six made ornithological and Quaternary geological investigations in the region of Hochstetter Forland, Shannon, Kuhn Ø and Sabine Ø (74°30'–75°30'N) between 26 May and 26 August (Melfotte *et al.* 1981). The party was lifted into the area by helicopter, and subsequently made extensive journeys by ski and on foot. The main census area was in the vicinity of the Nanok hunting station in southern

Hochstetter Forland. Two lakes (Peters Bugt Sø and Ailsa Sø) were the subject of Quaternary studies, and were named after nearby features.

### 1977 Joint Services expedition to Liverpool Land

M.P.N. Sessions led a 14-man Joint Services expedition (made up of members of the British armed forces) to Liverpool Land, with the object of making ornithological and botanical studies, and investigating hot springs. The group flew in at the end of May and sledged to Carlsberg Fjord (71°30'N). Four peaks were climbed in northern Liverpool Land, including one unofficially named *Jubilee Peak*. [RGS report archive.]

### 1977 Voyages of the RONDØ and SANTHO

Two sailing ships visited the fjord region north of Mestersvig in 1977, the RONDØ, a barque built by Colin Archer (the noted Norwegian ship builder who built the FRAM), and the SANTHO, a 32-foot pilot boat with a crew of four Norwegians. Both ships became trapped in the pack ice on the way home and were lost. The crews of the two boats were rescued by helicopter.

### 1977 University of Dundee graduate expedition to North-East Greenland: R.M.G. O'Brien

R.M.G. O'Brien led a six-man group which travelled by sea to Ella Ø, and subsequently by inflatable boat in the Kejser Franz Joseph Fjord region. Biological, geomorphological and hydrological studies were made, and the third ascent of Petermann Bjerg was made via Knækdalen (Rotovnik & Søndergaard 1988).

### 1977 Cambridge Womens' expedition to East Greenland: V.M. Haynes

V.M. Haynes led a seven-person group to Roslin Gletscher (71°48'N), to continue the Cambridge University (UK) glaciological and geomorphological studies (see above '1968–75 East Greenland expeditions: Keith J. Miller' and '1976 Cambridge East Greenland expedition: Alan J. Colvill'). They also cooperated with the '1977 Cambridge East Greenland glaciological expedition' led by E.W. Smith (see below). [RGS report archive.]

### **1977 Cambridge East Greenland glaciological expedition: E.W. Smith**

E.W. Smith led a four-man glaciological expedition from Cambridge University (UK) to the Roslin Gletscher area, where they co-operated with the '1977 Cambridge Womens' expedition.'

### **1977 Schwäbische Grönland Kundfahrt, Stauning Alper (German expedition to the Stauning Alper, East Greenland): Winfried Baumgärtner**

This seven-person German expedition was led by Winfried Baumgärtner, and was lifted by helicopter to the Borgbjerg Gletscher area by helicopter. A total of 17 ascents were made around the head of the glacier, 16 of them first ascents (Schloz 1979; Rotovnik & Søndergaard 1988). No names were given in the original report, the peaks being distinguished only by altitude, e.g. P. 2450. However, some names probably given by the expedition appear on the maps of the 1988 and 1992 Scottish Staunings expeditions.

### **1977–80 The British North-Polar expedition: Wally Herbert**

Wally Herbert and Allan Gill had as their aim the first circumnavigation of Greenland by dog sledge and umiak. They left Thule in western North Greenland in January 1978, but frustrated by very difficult ice conditions and non-availability of aircraft 'restarted' their journey from Station Nord in May 1978. By 14 June they had reached Daneborg, and by 22 June Loch Fyne. They were airlifted to Mestersvig airfield, used their umiak to retrace their steps to Stordal, and then attempted to progress south of Mestersvig. The attempt was abandoned in September 1978 due to difficult ice conditions, and a further attempt to resume their journey in 1979 was frustrated, again by ice (Herbert 1979). Further equipment was taken up in 1980, but a planned restart in 1981 was prevented by a telegraphists strike.

### **1978 Army Mountaineering Association expedition, 'Exercise Red Eric I'**

P.D. Breadmore led a six-man expedition from the British Army Mountaineering Association to the inner fjords of the Scoresby Sund region, climbing in the southernmost Stauning Alper, eastern Renland,

the Bjørneøer and the inner part of Vestfjord. Transport in the fjords was by inflatable boat, and included a circuit of Milne Land. One member injured an ankle in a fall, and was flown out to Mestersvig airfield. Sixteen peaks were climbed, of which 12 were reported as first ascents. Some members made several long marches at the end of the expedition, including one from southern Jameson Land via Hurry Inlet to Mestersvig. [RGS report archive.]

### **1978 Familie Journalen expedition**

A group of four led by Jørgen Bjerre, and financed by the Danish magazine 'Familie Journalen', visited Brønlunds Grav (79°09'N) on the 70th anniversary of the return of 1906–08 Danmark-Ekspeditionen. The journey to Lambert Land by helicopter was made in co-operation with the Sirius relief and depot-laying flights. A memorial plaque was erected at the old depot cairn. The body of Brønlund had been 'rediscovered' in April 1963 by Sirius, who had buried the remains beneath a large cairn and erected a brass plate (a gift from Knud Lauritzen) with the inscription 'Brønlund's Grav'.

### **1978–80 Angus Erskine ecological expeditions to North-East Greenland**

Angus Bruce Erskine [1928–2006] led a series of tourist expeditions to the Mestersvig area, each with up to 13 participants. Activities included walking tours, minor climbs, and ornithological and zoological observations. The expeditions continued in 1982 (see '1982–90 Angus Erskine ecological expeditions to North-East Greenland'. [DPC report archive.]

### **1978–80 GI/GGU North Greenland expeditions**

A three-year programme of geological and topographical surveying was carried out by a group from the Geological Survey of Greenland (GGU) led by Niels Henriksen and members of the Geodetic Institute (GI), with a total of about 40 participants each year. The party was supported by three helicopters and a Twin Otter aircraft (Peel & Sønderholm 1991).

In 1978 ground operations were in Peary Land, north of the region covered by this volume. Super wide-angle aerial photography at a scale of 1:150 000 was carried out throughout North Greenland, and also in East Greenland from 76° to 82°N; the super

wide-angle aerial photography of northern East Greenland from 70° to 76°N was carried out in 1987.

In 1979 both groups had limited activity in northern Kronprins Christian Land, but the main activities were further north. A Twin Otter was lost in a refuelling accident at Daneborg.

The GI expedition was based at Centrumso in 1980, and control points were fixed over a large area of East Greenland between 76° and 81°N. GGU field teams were active throughout Kronprins Christian Land in 1980.

### 1979 GGU, 'Project EASTMAR'

'Project EASTMAR' was a Grønlands Geologiske Undersøgelse (GGU) energy research project, funded initially by the Danish State through the Energy Agency, and subsequently included as part of a European Economic Community supported geophysical project ('Project NAD' – see below). The EASTMAR project commenced in 1977, and in 1979 an aeromagnetic survey was flown over the continental margin off East Greenland between 60°N and 80°N. Survey operations were carried out by the Western Geophysical Company of America, using a DC-3 aircraft operating out of Narsarsuaq, Kulusuk, Mestersvig and Reykjavik airports. A total of 63 000 line km of data were acquired (Larsen & Thorning 1980).

### 1979 GGU, 'Project DANA' 79

This project was part of Grønlands Geologiske Undersøgelse (GGU) geophysical investigations of the East Greenland shelf, with special reference to its oil and gas potential. It was sponsored mainly as an energy-related research programme by the Danish Ministry of Trade, Industry and Shipping, with support from the Danish Natural Science Research Council. The survey was carried out by a GGU team of 10 using the DANA, and a total of 10 000 line km of shallow seismic, magnetic and bathymetric profiles were completed between latitudes 60° and 71°30'N, including several lines within Scoresby Sund (Larsen 1980).

### 1979 Swedish North-East Greenland expedition, Myggbukta: Magnus Elander

Magnus Elander and a companion made ornithological studies in the Myggbukta region (73°29'N) of East Greenland. This was a continuation of the studies by

the '1976 Swedish-Danish North-East Greenland expedition' (Elander & Blomqvist 1986).

### 1979 Zoological Museum Hurry Inlet expedition

J.M. Hansen and N.O. Jensen of the Zoological Museum, Copenhagen, visited the head of Hurry Inlet (70°51'N) to carry out ornithological observations. Between mid-May and early August they carried out intensive studies of waders.

### 1979 GREA – Groupe de Recherches en Écologie Arctique (Arctic Ecology Research Group)

A French expedition of four visited Traill Ø from June to August, and from a base camp at Holm Bugt carried out ornithological and ecological observations. This was the first of a long series of GREA expeditions to East Greenland focused on the ecology of the Arctic (GREA 2003). [DPC report archive.]

### 1979 GGU / GDTA, Airborne remote sensing in East Greenland

Grønlands Geologiske Undersøgelse (GGU) and the Groupement pour le Développement de la Télédétection Aérospatiale, Toulouse (GDTA), co-operated to carry out airborne remote sensing over selected areas of East Greenland between 70° and 74°N, with the support of the European Economic Community (EEC) and the Danish Natural Science Research Council. Test areas with known types of mineralisation were overflown at different altitudes in August, using a Boeing B-17 aircraft based at Mestersvig airfield.

### 1979 RAOC Greenland expedition, 'Exercise Icy Mountains V'

A nine-man British Army expedition (Royal Army Ordnance Corps) led by Major A.J. Muston visited the Stauning Alper and Lyell Land. From the head of Dickson Fjord (72°50'N) a traverse was made via Agassiz Dal and Charpentier Fjord to Nordenskiöld Gletscher, originally with the intention of making an ascent of Petermann Bjerg. This proved beyond the resources of the expedition, but ascents were made of several mountains in Lyell Land, including Jeannet Bjerg, Argandhorn and Snehætten (Rotovnik & Søndergaard 1988). [RGS report archive.]



### **1980 Dundee & Milngavie North-East Greenland expedition**

A six-member Scottish group carried out systematic ornithological and botanical studies between Skeldal and Deltadal in the Mestersvig area during August. Their objectives were to expand the ornithological studies of J.J.D. Greenwood (University of Dundee), and contribute to the botanical work of G. Halliday (University of Lancaster). [DPC report archive.]

### **1980 Kaptajn Ejnar Mikkelsens minde-ekspedition (Captain Ejnar Mikkelsen memorial expedition): John Andersen**

This two-man expedition led by John Andersen made a journey from Kap Dalton (69°25'N) southwards to Ammassalik by kayak, to commemorate the centennial of Ejnar Mikkelsen's birth. The kayak journey was made in 59 days. Their main mission was to search for traces of former Inuit habitation (Andersen 1980, 2005). [DPC report archive.]

### **1980 British Army East Greenland expedition, 'Exercise Icy Groove'**

An expedition led by Major H.W. Beaves visited Nathorst Land and the Stauning Alper (Rotovnik & Søndergaard 1988). The party also gave some assistance to Geoffrey Halliday's 'British North-East Greenland expedition'.

### **1980 British army 'Exercise Icy Mountains VI': A.J. Muston**

A two-man British Army group led by Major A.J. Muston formed part of the British North-East Greenland expedition (see below) which visited Hochstetter Forland. Tours were initially made in the Mesters Vig region. Subsequently climbs were made of Wildspitze and Matterhorn in the Barth Bjerger (75°30'N).

### **1980 British North-East Greenland expedition: Geoffrey Halliday**

Geoffrey Halliday led a party to the Bessels Fjord and Wollaston Forland regions (74°20'–76°N), with the main purpose of carrying out ornithological and botanical studies. The group was landed by Twin Otter at the head of Bessel Fjord, where supplies had been dropped earlier by the RAF (British Royal Air Force). The party walked via Langelv to Mønstedhus,

and then southwards. A move was then made to Lindeman Fjord by Twin Otter where further studies were carried out. [RGS and DPC report archives.]

### **1980 'YMER-80'**

In the course of this Swedish expedition with the icebreaker YMER to Spitsbergen and the waters of northern Greenland, observations were made along the coast of northern Kronprins Christian Land. Kilen was visited briefly by the geologist Christian Hjort (Elg *et al.* 1981). [DPC report archive.]

### **1980–82 GGU, 'Project NAD'**

The objectives of 'Project NAD' involved geophysical mapping of the continental margin off East Greenland. The first part of the project, an aeromagnetic survey, was carried out as 'Project EASTMAR' in 1979 (see above). The second part was a marine geophysical programme to collect seismic, gravity and magnetic data, scheduled to last from 1980 to 1982 and to cover the region from 69° to 77°N. The project was financed by the European Economic Community (EEC) and the Danish Ministry of Energy.

The marine survey was contracted in 1980 to Western Geophysical Company Ltd. of America, who acquired 2610 line km of data using the survey vessel WESTERN ARCTIC. In 1981 Seismic Profilers, Oslo, were the contractors, and a further 2388 line km of data were acquired by the NINA PROFILER. In 1982, Western Geophysical Company Ltd., again with the WESTERN ARCTIC, completed the survey with 2794 line km of data (Larsen 1983).

### **1981 Geodætisk Institut (Geodetic Institute) aerial photography**

Super wide-angle aerial photography was carried out in East and South-East Greenland between latitudes 62° and 70°N as part of a Geodætisk Institut project.

### **1981–82 Italian Stauning Alper expedition: Giuseppe Dionisi**

Giuseppe Dionisi led eight-person groups from the Italian Alpine Club to the Stauning Alper in both 1981 and 1982 (Rotovnik & Søndergaard 1988). In 1981 Hjørnespids, Norsketinde and Dansketinde were climbed. In 1982 nine peaks around Vikingebra were climbed, again including Hjørnespids, the first

ascent of Norsketinde by the north ridge and the first traverse of Dansketinde (Dionisi 1983).

### **1981–88 GFM (Grønlands Fiskeri- og Miljøundersøgelser), GBU (Grønlands Botaniske Undersøgelse), Zoologisk Museum, Vildtbiologisk Station Kalø: Jameson Land activities**

A variety of environmental studies on the musk oxen, vegetation and birds of Jameson Land were carried out between 1981 and 1987, with particular reference to possible disturbances associated with intensive field activities during oil exploration.

1981 – Vildtbiologisk Station, Kalø, on contract to Grønlands Fiskeri- og Miljøundersøgelser (GFM), began a survey of musk oxen in the spring, although a summer survey was suspended due to a telegraphists strike.

1982 – An aerial census of musk oxen was carried out by Vildtbiologisk Station, Kalø, in April, and revealed a population of 3500–4000 animals in Jameson Land. Follow-up studies on the ground were made between April and August, noting in particular the reaction of musk ox to helicopters. In July a total of 103 musk oxen were immobilised and tagged. Also in 1982, the Zoologisk Museum, Copenhagen, on contract to GFM, carried out ornithological studies, with particular reference to the goose population. Grønlands Tekniske Organisation (GTO) established an automatic weather station in central Jameson Land in August.

1983 – Grønlands Botaniske Undersøgelse (GBU), on contract to GFM, carried out studies mainly of the distribution of vegetation types. Vildtbiologisk Station, Kalø, continued studies of musk oxen, a further 388 animals being immobilised and tagged.

1984 – Groups from Vildtbiologisk Station, Kalø, GBU and the University of Copenhagen continued studies of musk oxen, vegetation and birds in the Jameson Land region. The Zoologisk Museum continued studies of the goose population, recording in excess of 6000 barnacle geese and 5500 pink-footed geese on the west coast of Jameson Land, Ørsted Dal and Hurry Inlet (Madsen *et al.* 1984). GFM sponsored studies of the catch and distribution of marine mammals and seabirds utilised by the hunters of Scoresbysund, including an aerial census of seals in Kong Oscar Fjord and Scoresby Sund.

1985 – GFM continued studies of musk oxen, vegetation and birds in the Jameson Land area, and

GBU also carried out studies of vegetation. The Zoologisk Museum made a special study of little auks on the coast of Liverpool Land and Volquart Boon Kyst, recording a population of approximately 10 million birds.

1986 – Studies were continued by GFM and GBU in Jameson Land, notably on the effects of human and helicopter disturbance on musk-oxen behaviour in the period January to March; during the summer vegetation studies were continued.

1987 – Studies by GFM included an aerial census of barnacle geese (about 5000) and pink-footed geese (about 4000) in July and August. Ground studies of breeding birds were carried out around Gåseelv and Ulveodde (inner Hurry Inlet).

1988 – Studies of breeding birds were carried out around Ugleelv and on the coast of Hall Bredning around Jyllandselv (Mortensen 2000).

### **1982 Sheffield University North-East Greenland expedition: Bob Andrews**

A seven-man group from Sheffield University (UK) led by R.M. (Bob) Andrews visited the Bersærkerbræ region (72°15'N), where geomorphological and glaciological studies were made, and a few peaks climbed. One party visited Roslin Gletscher to check supply depots left by earlier expeditions. [DPC & RGS report archives.]

### **1982 Swedish North-East Greenland expedition: Magnus Elander**

Magnus Elander led a two-man group to the Myggbukta region (73°29'N) to continue ecological studies of birds, especially ducks and waders.

### **1982 GREA – Groupe de Recherches en Écologie Arctique (Arctic Ecology Research Group) to East Greenland**

Christian Kempf led a seven-person group on a follow-up to the GREA 1979 expedition, visiting Traill Ø and Vega Sund. Ornithological and ecological studies were continued (Kempf 1986; GREA 2003).

### **1982 Skeldal expedition: Keith J. Miller**

Keith J. Miller led a four-man expedition to Skeldal and the Stauning Alper, a follow-up to his previous

expeditions to the region (see '1968–75 East Greenland expeditions: Keith J. Miller').

### **1982 Stauning Alper expedition: C.M. Baker**

C.M. Baker led a four-man climbing expedition to the region around the southern part of Alpefjord.

### **1982 East Greenland expedition: Matti Taponen**

A three-man expedition led by Matti Taponen visited the Scoresby Sund region. A helicopter search and rescue operation was carried out on 3 June after the expedition asked for assistance.

### **1982 GGU / GDTA ground control studies**

The 1979 airborne remote sensing work carried out by Grønlands Geologiske Undersøgelse (GGU) and the Groupement pour le Développement de la Télé-détection Aérospatiale, Toulouse (GDTA) (see above, '1979 GGU / GDTA, Airborne remote sensing in East Greenland'), was followed up by ground control studies in 1982 by a two-man group. Areas in northern Scoresby Land, south-east Traill Ø and Wegener Halvø were visited. [GEUS archive.]

### **1982–83 Nordisk Mineselskab / Atlantic Richfield Company (ARCO)**

Under the terms of a non-exclusive exploration permit, geophysical, geological and technical investigations were carried out in Jameson Land. Exploration was continued in 1984 under the terms of an exclusive concession (see page 86 '1984–90 Nordisk Mineselskab / ARCO oil exploration').

### **1982–83 GGU, Jameson Land hydrocarbon studies**

Grønlands Geologiske Undersøgelse (GGU) initiated a programme of source rock sampling, stratigraphical and sedimentological studies in Jameson Land, related to the planned oil prospecting of Nordisk Mineselskab and ARCO. In 1982 shallow drilling was carried out, and 265 m of core was obtained from 10 holes. In 1983 a further nine holes were drilled, each about 30 m deep (Surlyk *et al.* 1984).

### **1982–83 Henry Dissing fungi expedition**

In 1982 a Danish party of two led by Henry Dissing made studies of fungi in the Mesters Vig region and on Ella Ø. In 1983 the work was extended southwards to Jameson Land (Dissing 1989).

### **1982–83 Marathon Oil Company, Wollaston Forland**

A concession to prospect for oil and gas in parts of Wollaston Forland was granted to Marathon Oil Co., who undertook field work supported by a helicopter in the summer of 1982.

In 1983 a group of geologists made a study of faulting in the Jurassic and Cretaceous sequence, led by Finn Surlyk.

### **1982–83 La Croisiere Glaces (Crossing of the Inland Ice)**

Christian Gallissian had planned an expedition in 1981 to cross the Inland Ice from Scoresby Sund in East Greenland to Ummannaq in West Greenland, from there continuing northwards, ultimately to reach the North Pole. The 1981 plans were abandoned due to the telegraphists strike. In 1982 the expedition reached Scoresby Sund, but no further. In 1983 a renewed attempt met with success with a sledge crossing of the Inland Ice from Scoresby Sund to Ummannaq.

### **1982–87 Archaeological studies by Grønlands Landsmuseum**

In 1982 archaeological studies were made along the coast of Jameson Land between Gurreholm and Hurry Inlet, the region in which oil exploration work was to commence in 1984. Thirty-seven house ruins were registered, the interesting discoveries including a range of carved animal toys.

In 1983 two winter houses were excavated, with amongst other things recovery of a large collection of 'perle', ornaments carved from bone and slate representing seals, birds and bears (Sandell & Sandell 1985). Investigations were also carried out on the east side of Hurry Inlet.

Continued work in 1984 was concentrated on the west side of Hurry Inlet, where a new airfield (Constable Pynt) to support oil exploration was to be constructed in 1985.

In 1985 a party of two carried out archaeological studies in the inland areas of Jameson Land.

Further activities in 1986 included ethnological and archaeological studies in western Jameson Land by a party of two, and preliminary excavations in the Sydkap area by a six-man group, in cooperation with Ilisimatusarfik (Inuit Institute).

1987 saw a continuation of excavations around Sydkap, with reconnaissance activities in northern Jameson Land.

### **1982–90 Angus Erskine ecological expeditions to North-East Greenland**

Angus B. Erskine continued his regular expeditions of 14–22 members to the Mesters Vig region, Traill Ø, Hold with Hope and Hurry Inlet, making walking and scrambling tours, and zoological and botanical observations.

Angus B. Erskine had taken part in the British North Greenland expedition in 1952–54, and also spent time in the Antarctic during his career with the British Navy. After his retirement in 1972 he founded his own small travel company 'Erskine Expeditions' that pioneered 'ecotourism' in the Arctic with trips to Svalbard, the Canadian Arctic and Greenland. The company was taken over by 'Arcturus' that continues to arrange small expeditions to East Greenland and organises Arctic cruises in East Greenland waters.

### **1983 Salford University Mountaineering Club Greenland expedition: Gerry McCulloch**

Gerry McCulloch led a nine-member climbing expedition from the University of Salford (UK) to the Stauning Alper, setting up camp at the junction of Bersærkerbræ and Dunottar Gletscher. Eleven summits were climbed of which six were first ascents (Rotovnik & Søndergaard 1988). Considerable time was spent filming an ascent for the BBC (British Broadcasting Company; Peck 1984).

### **1983 Expédition A.N.S., East Greenland**

Frédéric Elin led a botanical expedition to Scoresbysund on the 50th anniversary of the 1932–1933 International Polar Year Expedition to Scoresbysund. Studies were made in the southern part of Liverpool Land.

### **1983 Nathorst Land reconnaissance expedition: J.L.W. Walton**

J.L.W. Walton led a party of nine to the Furesø region of Nathorst Land (72°N). Hydrographic surveys of Dammen and Furesø were made using inflatable boats. Journeys included a walk via Schaffhauserdal and Violingletscher to the west end of Furesø, and an ascent of Sydgletscher.

### **1983 University of St. Andrews expedition**

Jean Balfour and Robert Burton led a party of seven from the University of St. Andrews (Scotland) to the Wollaston Forland and Sabine Ø region, with climbing, botanical, ornithological and zoological objectives.

### **1983 Dutch natural history expedition to North-East Greenland: H.D. van Bobemen**

H.D. van Bohemen led a 12-member expedition to the Mesters Vig region between 23 July and 10 August, which made botanical and ornithological observations. [DPC report archive.]

### **1983 Brathay Trust North-East Greenland expedition: Steve F. Newton**

A party of eight from the Brathay Trust led by Steve F. Newton made zoological investigations in Ørsted Dal and Coloradodal (71°47'N), including a census of barnacle and pink-footed geese. The Brathay charitable trust is based in the UK, and works with children and young people. It organises adventure training expeditions. [DPC & RGS report archives.]

### **1983 Deutsche Trans-Grönland-expedition auf den Spuren Alfred Wegeners (German trans-Greenland expedition in the tracks of Alfred Wegener): Arved Fuchs**

An expedition led by Arved Fuchs retraced the steps of the 1933 Alfred Wegener expedition on the 50th anniversary of Wegener's death. After leaving Marmorilik in West Greenland on 8 May, the two-man party crossed the Inland Ice on skis, reaching East Greenland at Harefjord (70°55'N) on 15 July. As they were behind schedule the fjord ice had melted, and they were air-lifted to Mestersvig by helicopter (Fuchs 1984).

### **1983 French speleological expedition, 'Centrum 83'**

J.-F. Loubiere led a four-man group, supported by Federation Française de Speleologie and Societe Arctique Française, to the Centrumsø region of Kronprins Christian Land (80°10'N). The French Air Force transported the group to Station Nord, from where they were air-lifted to Centrumsø. A number of long foot traverses were made in the vicinity, including visits to the limestone caves of Grottedalen, and caves south-west of Centrumsø. The largest cave, at *Grottenffjeldet*, has an opening nine metres high and was penetrated horizontally for 70 m (Loubière 1989). [DPC report archive.]

### **1983 Danish Stauning Alper expedition**

A Danish three-man climbing expedition led by Søren P. Eisenhardt visited the Stauning Alper. Their activities were restricted by bad weather to attempts on Glamis Borg and other minor summits (Rotovnik & Søndergaard 1988).

### **1983 Robert Peroni's Inland Ice expedition**

An Italian-German expedition of three led by Robert Peroni made an east to west crossing of the Inland Ice, beginning from Ardencaple Fjord (75°20'N) reached by helicopter on 17 June. They arrived at Kraulshavn (74°07'N) in West Greenland on 9 September (Peroni 1992).

### **1983–84 K.G. Swett geological expedition**

A four-man American geological expedition led by K.G. Swett carried out studies of the Upper Precambrian and Cambro-Ordovician sequence in the fjord region of East Greenland between 72° and 74°N.

### **1983–86 Geodætisk Institut (Geodetic Institute) activities**

The Danish Geodætisk Institut carried out gravity measurements in Jameson Land and on the Blossville Kyst in 1983, as well as doppler-position determinations and gravity measurements north and west of Mestersvig. In 1984 activities were concentrated in the south-west part of the Scoresby Sund fjord complex, and a network of fixed points was established across to the Blossville Kyst. In 1985 super wide-angle aerial photography was flown over a large

region from 70° to 76°N with an aircraft based at Reykjavik. 1986 activities, that were co-ordinated with a Grønlands Geologiske Undersøgelse (GGU) party, included a geodetic survey between Ammassalik and Scoresby Sund.

### **1984 Irish Biological expedition to Jameson Land: David Cabot**

An Irish expedition of four members led by David Cabot visited Ørsted Dal (71°47'N) in June–July with the main aim of studying the breeding ecology of barnacle geese. A total of 644 barnacle geese and 8 pink-footed geese were ringed. Filming of their activities was released as an Irish television film 'Valley of the Geese'. [DPC report archive.]

### **1984 GREA – Groupe de Recherches e Écologie Arctique (Arctic Ecology Research Group) East Greenland expedition**

A French expedition of 14 led by Christian Kempf, sponsored by GREA, continued their studies of 1979 and 1982, visiting Geographical Society Ø and Wollaston Forland to study tundra ecosystems (Kempf 1986; GREA 2003). [DPC report archive.]

### **1984 Bedford College wildlife expedition: Michael Lea**

A four-member expedition from Bedford College (London, UK) led by Michael J. Lea visited the Mestersvig and Scoresbysund areas to make wildlife sound recordings of birds.

### **1984 Swiss geological expedition: Christian Böhm**

Christian Böhm of the University of Bern, with the support of the Schweizerische Naturforschende Gesellschaft, led a three-man expedition to the Jameson Land and Mestersvig region to study stratabound lead-zinc-copper mineralisation. Excursions were made to the northern Stauning Alper, Malmbjerg and south-west Liverpool Land. A minor summit on the north side of Skjoldungebræ was climbed.

### **1984 Italian climbing expedition to the Stauning Alper: Sandro Pucci**

Sandro Pucci led an Italian climbing expedition of

eight persons to the Stauning Alper. Despite bad weather, the expedition claimed 10 first ascents around Gullygletscher that were all given Italian names (Anonymous 1985).

#### **1984 Jørgen Brønlund mindeekspedition (Jørgen Brønlund memorial expedition): Niels Preben-Andersen**

A 12-man Danish expedition led by Niels S. Preben-Andersen searched large areas of Lambert Land, Kronprins Christian Land and Danmark Fjord (79°–81°N) for traces of the diaries and maps of L. Mylius Erichsen, N.P. Høeg-Hagen and Jørgen Brønlund, the three men who died in 1907 during the 1906–08 Danmark-Ekspeditionen. No major discoveries were made. One man was evacuated by helicopter with a broken leg after falling 27 m down a crevasse on the glacier in Nioghalvfjerdingsfjord. [DPC report archive.]

#### **1984 Kayakekspedition Station Nord – Scoresbysund**

John Andersen and Boas Madsen made a journey by kayak and sledge along the coast of East Greenland from Station Nord to Scoresbysund. In the course of their voyage they shot six walrus and two polar bears, and were also rescued by helicopter from a position 55 km east of the Norske Øer after drifting out to sea in the pack ice. A second rescue operation was launched on 14 August after emergency signals were picked up by satellite, but this was a false alarm. They arrived at Scoresbysund on 1 September (Andersen 2005). [DPC report archive.]

#### **1984 American geological expedition**

Gerard C. Bond and Peter A. Nickeson visited the region north of Mestersvig in July. Geological work including two weeks in the rarely visited nunatak region around Eleonore Sø (74°N), which was reached by helicopter.

#### **1984 French Stauning Alper ski-mountaineering expedition: Marc Breuil**

A six-person French expedition led by Marc Breuil made a three-week, ski-mountaineering journey through the Stauning Alper between Alpefjord and Mestersvig in April–May. Eight summits were climb-

ed, all over 2000 m (Rotovnik & Søndergaard 1988).

#### **1984 Swiss East Greenland mountaineering expedition: Alwin Reither**

A group of four led by Alwin Reither made a two-week mountaineering tour in the Mestersvig region.

#### **1984 Österreichischer Alpenverein (Austrian Alpine Association) expedition: Otmar Resch**

Otmar Resch led a group of five on what was planned to be an ambitious mountain walking and skiing tour through the Werner Bjerger, across Jameson Land, and down the axis of southern Liverpool Land. The party arrived in June, but their activities were much hindered by melting snow.

#### **1984–85 Geological expedition to central East Greenland**

A four-man expedition (M.J. Hambrey, A.C.M. Moncrieff, G. Bylund and G. Vidal) visited Ella Ø, Ymer Ø and Suess Land in 1984 to study Precambrian tillites, as part of a North Atlantic Arctic synthesis. In 1985 studies were continued, and included visits to known tillite localities on Charcot Land and in Paul Stern Land (Moncrieff 1989; Manby & Hambrey 1989).

#### **1984–90 Nordisk Mineselskab / ARCO oil exploration**

A consortium formed by Atlantic Richfield Company (ARCO: 63.75%), Arktisk Minekompagni (a subsidiary of Nordisk Mineselskab: 11.25%) and Nunaoil (25%) was granted a 12-year concession to explore for and exploit oil and gas in a 10 000 square kilometre area centred on Jameson Land. The Italian oil company AGIP took over half of ARCO's concession in the spring of 1988. A supply base was set up in Hurry Inlet in 1985 at Constable Pynt where a new airfield was built, and seismic surveys were begun in the winter of 1985–86. Exploration drilling was initially planned for the summers of 1987 and 1988. Seismic operations were suspended in the early spring of 1986 following a drastic fall in oil prices, but resumed in late 1987 after renewed negotiations led to a slightly revised concession. About 1500 km of seismic profiles had been acquired by the end of 1988, at a cost of 100 million dollars. In connection with the concession negotiations in 1984 the existing law governing

Nordisk Mineselskab and Arktisk Minekompagni and their concession rights was suspended. The concession was given up without drilling in 1990.

### 1985 I.M. Marsh College East Greenland expedition: Michael Peckham

Michael Peckham led a six-member expedition from I.M. Marsh College, Liverpool Polytechnic (UK), to study the sedimentology and palaeoecology of raised marine sediments west of Mestersvig from mid-July to early-September. Climbs were made around Bersærkerbræ, and 14 ascents were made, including the first ascent of *D. Eglin Spids*. [DPC & RGS report archives.]

### 1985 Danish Peary Land expedition

Eigil Knuth and Henrik Elling carried out archaeological studies in the region between Frigg Fjord (83°07'N) and Lambert Land (78°30'N), with helicopter support supplied by Peter Rutschman.

### 1985 Ørsted Dal botanical expedition to Greenland

Geoffrey R. Shaw led a four-man expedition to the Ørsted Dal region (71°47'N) with botanical objectives. Several minor mountains were also climbed.

### 1985 'Kilen 85': Eckart Håkansson

A party of six led by Eckart Håkansson carried out geological, botanical and ornithological studies in the Kilen area of Kronprins Christian Land. The party was flown in to Kilen (81°12'N) from Station Nord by Twin Otter aircraft, and used all-terrain motorcycles for local transport (Pedersen 1991).

### 1985 Brathay Trust East Greenland expedition

Steve Newton led a three-member party to the Traill Ø region for the Brathay Trust lasting from mid-June to early August. The Brathay Trust is a UK charitable organisation that arranges adventure holidays for young people. The ornithology studies, especially of geese, begun in 1983 were continued. A total of 117 geese were ringed, of which 85 were subsequently observed at the Isle of Islay, Scotland, in November 1985. [RGS report archive.]

### 1985 GFM / GGU environmental studies

Environmental studies were carried out by Grønlands Fiskeri- og Miljøundersøgelse (GFM) and Grønlands Geologiske Undersøgelse (GGU) around Mestersvig to investigate pollution arising from the mining activities of 1956–63. Collections were made using the ship ADOLF JENSEN in August and September.

### 1985 Belgium expedition to the Stauning Alper

A group of eight climbers sailed with a ketch, via Jan Mayen, to East Greenland. The ship was used as a base from an anchorage in Dammen. Climbs were made of Dunottar Bjerg and Attilaborgen, and some members of the party explored the north shore of Furesø and reached the col south-west of the head of the lake (Borlée 1986).

### 1985 Dundee University Kejser Franz Joseph Fjord expedition

I.H.M. (Ian) Smart of Dundee University (UK) and C.M.G. (Malcolm) Slesser were members of a five-person expedition which made botanical and ornithological studies in western Fränkel Land. The fourth ascent of Petermann Bjerg was made by both east and north-east ridges on 8 August. The south-west peak of Trappebjerg was also climbed and named *Luxembourg Spids*, and one member of the party made a solo climb of Gog (the fourth ascent). During their return to Mestersvig an attempt was made on the highest peak of the Syltoppene, but the party was repulsed by very poor rock (Slesser 1987).

### 1985 Geological excursion to East Greenland

Claus Heinberg and Lars Stemmerik led a party of 10 geologists from the Norwegian oil company Statoil to Milne Land, to make sedimentological studies.

### 1985–86 GREA – Groupe de Recherches en Écologie Arctique (Arctic Ecology Research Group) to East Greenland

Christian Kempf led a party to Ella Ø in 1985 to undertake ornithological and biological studies, a continuation of the 1978 activities by the Groupe de Recherches en Écologie Arctique (GREA). Studies were continued in 1986 in the region between Mes-

tersvig and Myggbukta, with the aid of inflatable boats. [DPC report archive.]

### **1985–1987 Expédition Scientifique Française au Groenland Est (French scientific expedition to East Greenland)**

Two small French expeditions visited the area around Scoresbysund in 1985 and 1987, to carry out botanical and entomological studies.

### **1986 Austrian Alpine Club, UK section, Greenland expedition: John Shrewsbury**

A group of seven led by John Shrewsbury visited the inner Scoresby Sund region, landing by Twin Otter on eastern Milne Land. Several peaks up to 1500 m high were climbed in July–August on the south side of Charcot Gletscher, and two 1200 m peaks west of Bregnepynt (Sales 1987a, b). [RGS report archive.]

### **1986 Remote sensing studies on Ymer Ø**

A party of two led by John L. Pedersen visited a test area on western Ymer Ø, to study the applicability of remote sensing techniques on Landsat data in mineral exploration.

### **1986 Expedition Chamalieroise Groenland (French expedition to Greenland): Bernard Thomas**

A French expedition of nine led by Bernard Thomas visited Strindberg Land (73°50'N), making walking tours and climbs from a base near the mouth of Brogetdal (Rotovnik & Søndergaard 1988).

### **1986 Grønlands Landsmuseum investigations at Sydkap, Scoresby Sund**

Hans Kapel, Henrik Elling and Tina Møbjerg carried out archaeological excavations at a Thule culture site at Sydkap.

### **1986–88 GGU studies of the 'onshore hydrocarbon potential' in East Greenland**

In 1986 a 19-member party from Grønlands Geologiske Undersøgelse (GGU) led by Christian Marcussen and Stefan Piasecki worked out of a base camp at Stordal, with the main activities on Traill Ø

(72°30'N). Source rock studies and shallow core drillings were undertaken in connection with oil exploration. In 1987 studies were continued with 17 participants, and extended northwards to Kuhn Ø (74°50'N) (Marcussen *et al.* 1988).

The 'Devonian basin project' formed part of these studies and involved fieldwork in the period 1986 to 1988, supplemented by stereoscopic studies of vertical aerial photographs in GGU's photogrammetric laboratory (Larsen & Olsen 1991).

### **1987 Irish Expedition to North-East Greenland**

David Cabot organised a three-person expedition to Nordmarken (77°30'N), west of Skærfjorden, lasting from end-May to mid-August. The principle aim was to study barnacle geese and pink-footed geese in their northern area of distribution. Some helicopter assistance was provided by Peter Rutschman. Numerous localities were given reference names in the expedition report (Cabot *et al.* 1988), and a selection of them is included in this volume. [DPC & RGS report archives].

### **1987 Jørgen Brønlund mindeekspedition (Jørgen Brønlund memorial expedition)**

Niels S. Preben-Andersen followed up his 1984 expedition in search of traces of the lost members of the 1906–08 Danmark-Ekspeditionen. The five-man expedition visited southern Kronprins Christian Land (79°45'N).

### **1987 British-Danish palaeontological expedition to East Greenland**

An expedition of five members led by Svend E. Bendix-Almgreen, visited Gauss Halvø (73°26'N). Extensive new collections of Upper Devonian tetrapods were made from around Stensiö Bjerg (Bendix-Almgreen *et al.* 1988).

### **1987 Eric Steen Hansen lichen studies**

Eric Steen Hansen carried out studies of lichen in the vicinity of Scoresbysund, Kap Hope and Kap Tobin in July (Hansen 1995).



### 1987 Liverpool Land expedition: Michael Lea

Michael and Katherine Lea, together with Rob and Sue David, visited the Kalkdal area of Liverpool Land (70°50'N). [DPC report archive.]

### 1987: 2nd Battalion Royal Green Jackets Greenland expedition: 'Exercise Red Eric II'

A British Army training expedition of eight members from The Royal Green Jackets, led by Robert A. Churcher, visited the inner Scoresby Sund region (70°–72°N) from mid-July to late September, using inflatable boats for transport. Climbs were made of two 2000 m peaks north of Stormpynt in the southernmost Stauning Alper, four 2000 m peaks in Paul Stern Land north-east of Arken, and a further two peaks in eastern Paul Stern Land. The summits were all reported as easy, and none were given names. The return to Constable Pynt was made in extremely poor weather conditions. [DPC & RGS report archives.]

### 1987 Geodætisk Institut (Geodetic Institute) aerial photography

The final season of the project to carry out super wide-angle aerial photography of all of Greenland was completed in 1987, with coverage of the region 70° to 76°N in East Greenland. Opportunity was taken to fly supplementary routes to fill out gaps in the coverage of other regions.

### 1987 Stauning Alper expedition: François Wolf

François Wolf led a party of six on a ski and climbing tour in the southern Stauning Alper in April and May. The party covered about 400 km on skis (Rotovnik 1988).

### 1987 Inland Ice mass balance expedition

A 13-man expedition from three German institutes undertook a largely airborne expedition to study the Inland Ice between Ilulisat / Jakobshavn in West Greenland and Cecilia Nunatak in East Greenland. A helicopter visit to Cecilia Nunatak (72°30'N) was made on 10 July. Geophysical flights were made using a specially equipped Dornier research aircraft 'Polar 2' from the Alfred Wegener Institute, Germany.

### 1987–88 Renland glaciological expedition

Niels S. Gundestrup (Geophysical Institute, University of Copenhagen) led a glaciological expedition of four members to the local ice cap on Renland (71°15'N), as a prelude to drilling in 1988. Field work was completed in seven days in early July, and an automatic weather station was erected for the Meteorologisk Institut (Danish Meteorological Institute). A 1988 follow-up expedition with six participants was carried out from 1 to 25 July, and an ice core drilled to bedrock at a depth of 325 m (Johnsen *et al.* 1992).

### 1987–90 Archaeological investigations on Île de France (now Qeqertaq Prins Henrik): Eigil Knuth

In 1987 Claus Andreasen and Henrik Elling from Grønlands Landsmuseum joined up with Eigil Knuth and a student for an investigation of Inuit sites in the Dove Bugt region that Knuth had originally studied during his 1938–39 Mørkefjord expedition. The group of four was provided with helicopter assistance by Peter Rutschman. Sites at Stormnæs, Danmarks-havn, Rosio, Rødeø and Île de France were examined. The visit to Île de France (now Qeqertaq Prins Henrik; 77°43'N) revealed more than 300 Independence II ruins. In 1988, 1989 and 1990 Eigil Knuth returned to Île de France with a few assistants and the support of the Home Rule Authorities to continue his excavations, and the number of registered ruin sites rose to almost 500 (Andreasen 2003).

### 1988 POLARSTERN cruise ARK-V/3 to Scoresby Sund region

The R/V POLARSTERN, research vessel of the Alfred Wegener Institute for Polar and Marine Studies (AWI), sailed to the Scoresby Sund region in August and conducted a combined sea- and land-based programme. Six land-based stations were established. Reflection seismographic profiles were run across the passive continental margin and many geological samples were recovered. A further programme was carried out in 1990.

### 1988 British Schools Exploration Society (BSES) expedition to East Greenland

A 77-member BSES expedition led by Ray Ward and George Downy undertook a variety of scientific stud-

ies in the region south of Mestersvig. This mountaineering training expedition was carried out under the auspices of the Duke of Edinburgh award scheme and the Royal Geographical Society, London. Ski tours were undertaken on Roslin Gletscher, and oil drums and debris from mining operations were collected and tidied. [RGS report archive.]

### **1988 'Exercise Icy Mountains VIII': Milne Land, Greenland**

A nine-member British military expedition led by Lt. Col. A.J. Muston visited Milne Land (70°43'N) in July–August. Travel from Constable Pynt was by rubber boat. Climbing and walking tours were undertaken, while the four civilian members of the expedition also made botanical collections. [RGS report archive.]

### **1988 Scottish Stauning Alper expedition: John Peden**

John S. Peden led an eight-member expedition to the southern Stauning Alper. A planned ski traverse from Sydkap in the south to *Kap Peterséns* in the north was frustrated by bad weather, and reached only as far as Roslin Gletscher. Two new col crossings were made. [RGS report archive.]

### **1988 'Exercise Richmond Circle', First Green Howards Greenland expedition: David Charles Johnson**

A party of eight from the British Army regiment the First Green Howards, led by Captain David Charles Johnson flew into Constable Pynt, with their boats to be used for transport. Their journey from Constable Pynt to Sydkap along the coast of Jameson Land was severely delayed by pack ice and bad weather. Gurreholm was reached, but the party then abandoned their main objective of Renland and retraced their steps; climbing and exploring was carried out in part of Liverpool Land. [DPC & RGS report archives.]

### **1988 BP Wollaston Forland**

A group from the BP (British Petroleum) Oil Company visited Wollaston Forland (74°26'N) to make a geological training film. Geological developments onshore East Greenland are very similar to those in offshore areas of the North Sea.

### **1988 Wildfowl Trust expedition to Hold with Hope**

A group from the Wildfowl Trust, a charitable conservation organisation based in the UK, sent a group to the Hold with Hope area in July and August. In addition to their observations of birds, two wolves with two young cubs were observed; the female wolf was subsequently shot by another visiting group (Turner & Dennis 1989).

### **1988–89 Harvard University palaeontological expeditions to East Greenland: Farish A. Jenkins**

Farish A. Jenkins Jr. of the Museum of Comparative Zoology, Harvard University led expeditions to the Jameson Land area in 1988 and 1989, with the purpose of collecting vertebrate fossils from Late Triassic sediments. Notable tetrapod samples were recovered, and spectacular footprint trails were observed (Jenkins *et al.* 1994). The expeditions continued in 1991–92.

### **1988–90 Grønlands Geologiske Undersøgelse (GGU) East Greenland expedition**

This three-year Grønlands Geologiske Undersøgelse (GGU) expedition led by Niels Henriksen operated from base camps on the west side of Fligely Fjord (1988) and at Hvalrosodden (1989–90). Geological objectives included systematic mapping of the region 75°–78°N (Higgins 1994b; Henriksen & Higgins 2009). Two helicopters and a Twin Otter aircraft provided transport to and within the area of research, and this logistical support was shared with other groups active in the region: the Geodætisk Institut (GI), Alfred Wegener Institute for Polar and Marine Studies (AWI), Grønlands Landsmuseum, the Zoological and Botanical museums in Copenhagen, and Eigil Knuth's archaeological studies.

### **1988–90 Greenland Home Rule Government project: Biologisk–arkæologisk kortlægning af Grønlands østkyst mellem 75°N og 79°30'N (Biological–archaeological mapping of East Greenland between 75° and 79°30'N)**

These investigations, sponsored by the Greenland National Museum in Nuuk, were a co-operative venture between the Zoological and Botanical Museums

in Copenhagen and the Greenland National Museum, and were focused on the North-East Greenland National Park. In 1988 botanical and zoological observations from the air (72°–78°N) were made to select the areas for 1989 ground observations. The 1989 botanical, ornithological and entomological studies were carried out at 14 localities between Bessel Fjord and Zachariae Isstrøm (76°–78°30'N), with particular reference to areas with breeding geese and other birds and the distribution of musk oxen (Boertmann *et al.* 1991). Botanical studies continued in 1990 (Boertmann & Forchhammer 1991). Archaeological studies covering the entire area were carried out in 1989 and 1990 by zodiac rubber boat and helicopter by Claus Andreasen and Henrik Elling. Helicopter transport in 1989 and 1990 was supplied by arrangement with the GGU base camp at Hvalrosodden. The '1989 Danmarks Radio, Nordøstgrønland rejse' (Danish Broadcasting Corporation, North-East Greenland visit) (see below) was an activity under this project.

**1988–1991 GREA – Groupe de Recherches en Écologie Arctique (Arctic Ecology Research Group) to North-East Greenland:  
Benoît Sittler**

A nine-person expedition led by Benoît Sittler visited the Karupelv region of Traill Ø in 1988. This was a follow-up of earlier GREA expeditions. A similar expedition in 1989 visited the same region. In 1990 there were two groups, a group of four led by Benoît Sittler based at Karupelv on Traill Ø, and a second group of four led by Christian Kempf engaged in ornithological studies between Kong Oscar Fjord and Myggbukta. In 1991 Benoît Sittler continued studies of birds, animals and snow-melt patterns in the Karupelv area of Traill Ø with a nine-person party (GREA 2003). [DPC report archive.]

**1989 Newcastle University East Greenland expedition: S.J. Munro**

S.J. Munro was leader of a group of six persons from Newcastle University working in the Mestersvig region in July–August on a study of the impact of the former lead mine on sediments and the floral communities. Four members made climbs in the Stauning Alper. [DPC & RGS report archives.]

**1989 Danmarks Radio, Nordøstgrønland rejse (Danish Broadcasting Corporation, North East Greenland visit)**

Under the 1988–90 Greenland Home Rule Government project (see above) the Danish Broadcasting Corporation (Danmarks Radio: DR) made a summer visit to northern East Greenland to make a series of television films of the activities carried out under the 1988–90 Greenland Home Rule Government's project: Biologisk-arkæologisk kortlægning af Grønlands østkyst mellem 75°N og 79°30'N; they also visited the Sirius headquarters at Daneborg, the Danmarkshavn weather station, the GGU geological activities based at Hvalrosodden (see above), and Eigil Knuth's archaeological excavations on *Île de France* (now Qeqertaq Prins Henrik). Television programmes were later broadcast on DR television and in a number of countries.

**1989 Nordøstgrønlandsekspeditionen (North-East Greenland expedition):  
Jan Juel-Brockdorff**

Jan Juel-Brockdorff and a companion visited the area of Nordostrunden (81°15'N) in a continued search for traces of the lost records of the 1906–08 Danmark-Ekspeditionen. Bad weather in mid-August led to their evacuation by helicopter to Station Nord. [DPC report archive.]

**1989 Mylius-Erichsens mindeekspedition (Mylius-Erichsen memorial expedition):  
Finn Rasmussen**

A six-man group led by Finn Rasmussen working from a base at Marmorvigen (80°05'N), followed the coasts of Holm Land and Hovgaard Ø in a continued search for traces of the lost records of the 1906–08 Danmark-Ekspeditionen. [DPC report archive.]

**1989 Greenland Milne Land expedition:  
Malcolm Sales**

Malcolm Sales led a group of eight on a climbing expedition to Milne Land in August, landing by Twin Otter at the rough airstrip on the coast between Bregnepynt and Charcot Havn. Seven peaks up to 2080 m high were climbed around the glacier-filled valley Korridoren. [DPC & RGS report archives.]

### **1989 'Exercise Snow Dance', British Army expedition to Liverpool Land: M.T. King**

An eight-member British Army expedition led by Major M.T. King took part in adventure training and exploration in southern Liverpool Land. Nine peaks were climbed, including Korsbjerg, where a cairn with a record from 1933 was found. [DPC & RGS report archives.]

### **1989–90 Hvalrosundersøgelser i Nordøstgrønland (Walrus studies in North-East Greenland): Erik Born**

Erik W. Born and Lars Ø. Knutsen undertook studies of walrus at a haul-out location at Lille Snenæs on the south coast of Germania Land in August 1989 and 1990. Their observations indicate that about 52 male walrus used the Lille Snenæs site in 1990, with the maximum number of walrus on a single occasion numbering 48. A total of 12 walrus were equipped with satellite radio transmitters, so that their wanderings, diving frequency and swimming speed could be recorded for up to six months (Born & Knutsen 1991).

### **1989–90 Alfred Wegener Institute, East Greenland expedition**

Three participants from the Alfred Wegener Institute for Polar and Marine Studies (AWI) made glaciological studies at the ice-sheet margin on Storstrømmen (77°N) and west of Dronning Louise Land in July and August. Studies were part of an EU-supported project 'Climate change on a century time scale' and included the present dynamic and climatic conditions, fluctuations of the position of the glacier and velocity variations (Reeh *et al.* 1994; Weidick *et al.* 1996). Logistics were shared with the Grønlands Geologiske Undersøgelse (GGU) expedition based at Hvalrosodden. [GEUS archive.]

### **1990 British North-East Greenland expedition: Geoffrey Halliday**

Geoffrey Halliday led a botanical expedition from the University of Lancaster to the Kuhn Ø and Wollaston Forland areas (74°–75°N). A total of 18 persons divided into two groups were involved in botanical, ornithological and faunal surveys. One group undertook an archaeological survey of Kuhn Ø and eastern Th. Thomsen Land, with a visit to Mågenæs in Grandjean Fjord. [DPC report archive.]

### **1990–1992 PONAM (Polar North Atlantic Margins) project**

The PONAM project was a study of the Late Cenozoic climatic and environmental history of the European Arctic, focusing on the last interglacial/glacial cycle. In East Greenland the main ground-based work was in 1990 on Jameson Land and in 1992 on Hochstetter Forland and Wollaston Foreland. The almost 50 participants in the PONAM project were mainly from the Scandinavian countries, Germany and the UK (Funder *et al.* 1994). In 1990 the investigations on land were complemented by a marine geological survey of Scoresby Sund by the POLARSTERN (see below).

### **1990 The POLARSTERN geophysical cruise ARK-VII/3 in Scoresby Sund**

The POLARSTERN, research vessel of the Alfred Wegener Institute for Polar and Marine Studies (AWI), Bremen, carried out a programme of geophysical work in Scoresby Sund and on the adjacent shelf in September. These marine investigations of the Late Quaternary sedimentary record were a supplement to the onshore studies of the PONAM project (Dowdeswell *et al.* 1994).

### **1990 British Schools Exploring Society (BSES) expedition – Mestersvig region**

Ray Ward again visited the Mestersvig region with a party of 48 young people as a follow-up of the 1988 expedition organised by the British Schools Exploring Society (BSES); see above. Tours in the vicinity of Mestersvig were extended to Deltadal, Schuchert Dal and Roslin Gletscher, where activities included climbing, and biological and glaciological studies. Departure from Mestersvig airfield was delayed by a week due to heavy rain that closed the runway.

### **1990 Hold with Hope insect project**

A Finnish group of two led by Erkki M. Laasonen visited the Hold with Hope region (73°45'N) to study the insect fauna, part of a circum-Arctic project.

### **1990 Bristol University North-East Greenland expedition: Jonathan Rowe**

Jonathan Rowe led a six-member party to the northern Stauning Alper in July and August. Activities

included investigations of meltwater streams on glaciers and studies of atmospheric pollutants. Climbs were made on *Beaumaris*, *Tintagel* and *Spiret* (*Bersærkerspire*). [DPC & RGS report archives.]

#### **1990 CASP East Greenland project: Chrispin Day**

The Cambridge Arctic Shelf Programme (CASP, UK) made studies of Devonian sedimentation and tectonics in the Kong Oscar Fjord and Kejser Franz Joseph Fjord region with a party of four led by Chrispin Day.

#### **1990 'Exercise Green Ice', Royal Military College of Science: Andrew B. Syme**

A British expedition of eight members from the British Royal Military College of Science, Shrivenham, led by Andrew B. Syme visited the Stauning Alper in July and August. Activities included glaciological and meteorological observations, skiing and climbing. On 7 August an ascent was made of an 1800 m high peak on the south-west side of Schuchert Gletscher, which they named *Mt. Shrivenham*. [DPC & RGS report archives.]

#### **1990 Icelandic Greenland expedition: Ingimundur Stefansson**

Ingimundur Stefansson led a five-person expedition from the Icelandic Alpine Club to the Stauning Alper. The group flew into Mestersvig on 21 July, with an air-drop of equipment on Bersærkerbræ on the way. From Mestersvig the party walked in to Bersærkerbræ, and over the next five weeks climbed Tintagel Fjeld, *Kensington*, *Spiret*, *Dunottar Bjerg* and *Blackwall*. A failed attempt was made on Glamis Borg (Rotovnik 1991).

#### **1990 Expedition Greenland: Bernard Thomas**

A nine-person group led by Bernard Thomas attempted to reach Petermann Bjerg via Knækdalen, to which they had been transported by the icebreaker CARI-BOO. The party attempted to ascend Knækdalen on the west bank of Knækvelven, which was in flood and proved uncrossable. The ascent was given up. The party was picked up by members of the French GREA expedition, and after a difficult return journey by rubber boat to Ymer Ø, was flown to Iceland by Twin Otter. [DPC report archive.]

#### **1991 British Schools Exploration Society (BSES) North-East Greenland Expedition: Dave Walker**

A party of 80 persons, made up of 17 leaders and 63 young 'expeditioners', under the overall leadership of Dave Walker, visited the Mestersvig region in July and August. An integrated programme of scientific studies, adventure and personal challenge was undertaken in the Skeldal and Deltadal areas of Scoresby Land. [DPC & RGS report archives.]

#### **1991 Scottish Stauning Alps Expedition: Alex Erskin**

Alex Erskin led a four-man climbing expedition to the Bersærkerbræ area of the northern Stauning Alper. Ascents were made of *Beaumaris*, *Elizabethsminde*, *Spiret* and *Pimlico*. A summit north of *Tintagel* was climbed and called *Bear Peak*. [DPC report archive.]

#### **1991 Nordøstgrønlands Ekspedition (North-East Greenland expedition): Jan Juel-Brockdorff**

Jan Juel-Brockdorff with one companion undertook a thorough search of the coast of Lambert Land and the islands in front of Nioghalvfjerdsfjord, for traces of the lost members of the 1906–08 Danmark-Ekspeditionen between May and August. [DPC report archive.]

#### **1991–1992 Vertebrate palaeontological expedition to Jameson Land: Farish A. Jenkins**

A follow up of the 1988–1989 expeditions, Farish A. Jenkins Jr. led an 11-strong expedition to the Ørsted Dal – Allday Dal region of Jameson Land in July–August 1991. Excellent collections of Triassic vertebrate fossils were made (Jenkins *et al.* 1994). A further eight person expedition in July–August 1992 was somewhat hindered by extensive snow cover. [DPC report archive.]

#### **1991–1998 Greenland wolf research project**

The Danish scientist Ulf Marquard-Petersen began a long-running research project on the ecology of Arctic wolves in Greenland in 1991. Fieldwork was carried out in Nansen Land (North Greenland, 83°N, 1991), Hold with Hope (74°N, 1992–1994), Peary

Land (North Greenland, 83°N, 1995), Wollaston Forland and Hold with Hope (74°N, 1996), Liverpool Land (70°30'N, 1997) and Germania Land (77°N, 1997), Kronprins Christian Land (80°N, 1998) and Hold with Hope (74°N, 1998). Numerous observations of wolves, some with recent young, have been documented (Marquard-Petersen 1994). [DPC report archive.]

### 1991–2003 GREA/CEDME East Greenland expeditions

The Groupe de Recherches en Écologie Arctique (GREA – Arctic Ecology Research Group) continued their studies in East Greenland in 1991, and from 1992 another long-term project was launched by the Centres d'Études et de Documentation sur les Milieux Polaires (CEDME) (GREA 2003).

1991 – GREA again based their activities at Karupelv with a group of six persons.

1992 – GREA continued their routine monitoring studies around Karupelv with a six-person group, and CEDME undertook botanical, ornithological and mammal studies in the fjord region 72°–74°N with a three-person party.

1993 – GREA started their Karupelv studies very early this year, in May, and the seven members experienced problems with a polar bear that destroyed two tents.

1994 – The GREA group of eight was joined in 1994 by a Danish Polar Center participant on their monitoring studies around Karupelv. They were witness to a peak in the lemming population.

1995 – A GREA group of seven again undertook routine monitoring studies around Karupelv, and a CEDME group of four worked in the fjord region 72°–74°N.

1996–2000 The GREA groups of four to eight members continued their monitoring studies around Karupelv. The CEDME group worked mainly in the fjord region 72°–74°N in 1998–2000, on a project mainly focused on lemming predators. In 1999 radio-collars were fitted to 17 lemmings to track distances covered (GREA 2003).

2001–03 The GREA monitoring project based around Karupelv was continued with groups of up to five persons. In 2002 an additional group of five undertook studies around Kejser Franz Joseph Fjord using kayaks for transport. A CEDME four-person group continued their studies of lemming predators in the fjord region 72°–74°N (GREA 2003).

See also '2003 Ecopolaris (GREA) expedition', '2004 Ecopolaris (GREA) TARA 5 expedition' and '2007 GREA Sagax-Revo and Ecopolaris expeditions' below.

### 1991–present: Nanok expeditions

All Danish and Norwegian hunting stations and hunting huts within the National Park were granted preservation status in 1987. After trapping ceased in 1952, the company continued to exist with J.G. Jenov as director until 1976, when he was succeeded by Mogens Graee. The old 'Østgrønlandsk Fangst-kompagni Nanok' was liquidated in November 1990 and the assets passed over to Mogens Graee. In July 1991 six enthusiasts with interests in northern East Greenland met at Graee's cottage in Jutland, and this was followed by a two-man summer expedition in August–September 1991, and a few months later the rebirth of Nanok. On 12 January 1992 the official name of the company was changed to 'Nordøstgrønlandsk Kompagni Nanok' (North-East Greenland Company Nanok), usually known as 'Nanok'. The vision of the new company was to: "*disseminate knowledge of North-East Greenland and its cultural history, and to contribute to maintenance of the cultural relics and buildings of the area...*" (P.S. Mikkelsen 2008, p. 47). From 1991 members and associates of Nanok began a regular programme of repairs and maintenance with between three and 10 persons involved each summer.

1991–1992: During the first two years of the programme, repairs were carried out on the *Zacken-berg* hunting station.

1993: A three-man group restored the *Loch Fyne Station* and *Arvehytten* in July–August.

1994: A two-person party undertook maintenance in July–August of the Sandodden and *Moskusheimen* hunting stations.

1995: A three-member party renovated the hunting station of *Ny Jónsbu* in the Ardencaple Fjord region in July–August.

1996: A group of four persons undertook repairs of *Hochstetter Station*, known also under the approved name Nanok.

1997: The Norwegian hunting stations at Kap Humboldt (known as *Humboldt*), and at *Kap Peterséns* were renovated.

1998: Repairs were continued at *Kap Peterséns* and the hut adjacent to the burnt-down Eskimonæs station was restored.

1999: Maintenance activities were concentrated on the Danish *Germaniahavn* station on Sabine Ø, and the Norwegian stations Hoelsbo in Moskusoksefjord and Myggbukta in Mackenzie Bugt.

2000: Renovation of Hoelsbo was completed, and repairs were made of the hut at Kap Ovibos. A cultural–historical collection of artifacts relating to the hunting period in East Greenland was established in a building (*Hotel Karina*) at Sandodden.

2001: The station at Antarctic Havn was restored, and repairs carried out on the huts at Kongeborgen and Holm Bugt.

2002: Restoration of the Myggbukta station, begun in 1999, was completed, and extensive repairs made of Herschellhus on Wollaston Forland. The *Varghytta* in Blomsterbukten was rebuilt.

2003: Two groups undertook a major programme of registration of the status and exact (GPS) positions of huts and stations between 72° and 75°N.

2004: Registration of the condition and positions of huts was continued, again in two groups, reaching as far north as Hochstetter Forland (75°25'N).

2005: Two groups continued the status programme of registration and photographing of hunting huts, and fixing of their positions.

2006: Two groups continued registration of the status of huts. The northern group also gave special attention to the preservation of *Villaen / Danmarks Minde* at Danmarkshavn.

2007: The programme of registration and repair of huts was continued, with particular attention given to the condition of many huts previously repaired in the period 1991–2002.

2008: Two groups continued the programme of restoration of huts. A southern team restored and repaired the huts *Maristua*, *Arentzhytten*, *Bjørnheimen* and *Noa Sø hytten*. A northern team repaired the huts *Elvsborg*, *Fiskerhytten*, *Bjørnnesstua* and *Leirvågen*. [DPC report archive.]

### 1992 Scottish Bersærkertinde Expedition Greenland: Stan Pearson

A four-member Scottish climbing expedition led by Stan Pearson visited the northern Stauning Alper in June–July, approached from Alpefjord and Sefström Gletscher. Deep fresh snow and high meltwater streams proved considerable hinderances. Failed attempts were made on Bersærkertinde and Attilaborgen. [DPC & RGS report archives.]

### 1992 Scottish Staunings expedition: John Peden

A party of six Scottish and French climbers made a splendid 18-day south-to-north, ski traverse of the Stauning Alper in May. Dropped off by Twin Otter on the sea ice of Nordvestfjord near Stormpynt, the traverse began on 7 May with an ascent of Oxford Gletscher. A total of eight passes were crossed and three summits climbed, ending with a descent of Skjoldungebræ to reach *Kap Peterséns* on 24 May (Peden 1993). [DPC & RGS report archives.]

### 1992 Eclogite expedition to Danmarkshavn: Jane A. Gilotti

Jane A. Gilotti continued her studies of eclogites, begun during the 1988–90 GGU East Greenland expeditions, concentrating her efforts in the vicinity of Danmarkshavn in July. [DPC report archive.]

### 1992 Scottish Mountaineering Club expedition to the Stauning Alps: W. Wallace

A nine-person group led by W. Wallace visited the Stauning Alper in May. They were assisted by an air-drop of equipment and provisions near Gefion Pas. The group split into two parties. One party climbed Harlech Fjeld and minor peaks around Blyklippen. The second party climbed Dunottar Bjerg and Beaumaris Fjeld. Other peaks were attempted, but the climbing parties were repulsed by snow conditions. [DPC report archive.]

### 1992 'High Latitude Astronomers expedition' to East Greenland

This seven-person climbing party comprised two British, four Canadian and one Norwegian climber. They flew into Mestersvig on 24 July, and reached Bersærkerbræ via Skelbræ, Kishmul Gletscher and Glamis Pas. They were frustrated in many of their objectives by poor weather and difficult snow conditions. Ascents were made of *Richmond* and Harlech Fjeld (Aarseth 1993). They flew out from Mestersvig on 8 August. [DPC report archive.]

**1992 DR–Derude til Nordøstgrønland  
(Danish Broadcasting Corporation outside-  
broadcast unit visits North-East Greenland):  
Mogens Guldbrandsen**

Mogens N. 'Gulli' Guldbrandsen, for many years leader of the Sirius sledge patrol, visited northern East Greenland between mid-February and mid-May. The group included a two-person TV film crew, a former Sirius patrol member 'Tavse', two sledges and 22 dogs. The party flew from Iceland to Mestersvig, and after about 10 days of preparation and training sledged from Mestersvig to Daneborg (74°18'N), with periodic stops at various former trapping stations for filming purposes.

After a five-day stopover at Daneborg the group was flown on 23 April by Twin Otter to Kap Stop (76°38'N), with a short stop at Alabamahuset on Shannon on the way. From Kap Stop the sledge journey was continued along the west side of Dove Bugt and the south coast of Germania Land to Danmarkshavn (76°46'N).

A 12-day stopover at Danmarkshavn was followed by a further Twin Otter flight on 18 May, via Brønlunds Grav, to Station Nord and Kap Morris Jesup, the north point of Greenland. The group was later flown back to Mestersvig, where they arrived on 22 May.

As a result of these activities, a series of excellent short film episodes were broadcast on Danish television in 1993. [DPC report archive.]

**1992–2000 British North-East Greenland  
project**

Rob David organised a series of expeditions, surveying archaeological sites, with subsidiary botanical and ornithological observations. Some notes on the archaeological observations were published by David (1995, 1999). Michael J. Lea also organised and led many of the expeditions. [DPC report archive.]

1992 – A seven strong group visited the Clavering Ø region in July–August.

1993 – An eight person group visited the Lyell Land region, documenting archaeological sites on Hammer Ø, Kap Lagerberg and at Kap Harry on Ella Ø.

1994 – A six member group visited the Strindberg Land region, studying archaeological sites at Primulabugt, Nordfjord and Kap Ovibos. Botanical studies were concentrated in Brogetdal.

1995 – Seven persons visited the Bjørneøer region of inner Scoresby Sund. Study areas extended from northern Milne Land, through the islands of the

Bjørneøer to Sydkap.

1996 – A second visit was made to Milne Land in the Scoresby Sund region.

1997 – Kejser Franz Joseph Fjord was visited by a nine-person group led by Michael Lea and an attempt made on Petermann Bjerg, turning back 300 m from the summit due to dangerous ice conditions.

1998 – Rob David led an eight-person group to southern Clavering Ø. Investigations were mainly botanical.

1999 – Michael J. Lea led a group to the region around the southern coast of Clavering Ø, making walking tours and wildlife studies in July–August. Observations of walrus were reported.

2000 – Mountaineering, botanical and wildlife observations were made on Clavering Ø and vicinity, led by Michael J. Lea.

2005–2008 – See 'British North-East Greenland project' below.

**1993 Mylius-Erichsens mindeekspedition  
(Mylius-Erichsen memorial expedition):  
Finn Rasmussen**

A Danish four-man group continued the regular expeditions looking for traces of the lost records of the missing members of 1906–08 Danmark-Ekspeditionen. In July–August areas were visited on the west side of Danmark Fjord, along Skjoldungeelven, and in southern Kronprins Christian Land between Blåso and Kap Bernhoft. No significant new relics were discovered. [DPC report archive.]

**1993–1995 GGU/GEUS Lambert Land and  
Kronprins Christian Land mapping project**

A three-year regional geological mapping project led by Niels Henriksen was commenced in 1993 by GGU, aimed at production of a map sheet in the Survey's 1:500 000 scale series (Sheet 9: Lambert Land) (Fig. 24). The Lambert Land map sheet covers the region between Jökøbugten (78°N) and northern Kronprins Christian Land (81°N). In all three years work was carried out from a base camp at the west end of Centrumso, with the field parties supported by 1–2 helicopters and a Twin Otter aircraft (Henriksen 1996; Fig. 25). In 1995 Grønlands Geologiske Undersøgelse (Geological Survey of Greenland: GGU) was merged with Danmarks Geologiske Undersøgelse (Geological Survey of Denmark: DGU) to form a new institute, the Geological Survey of Denmark and Greenland



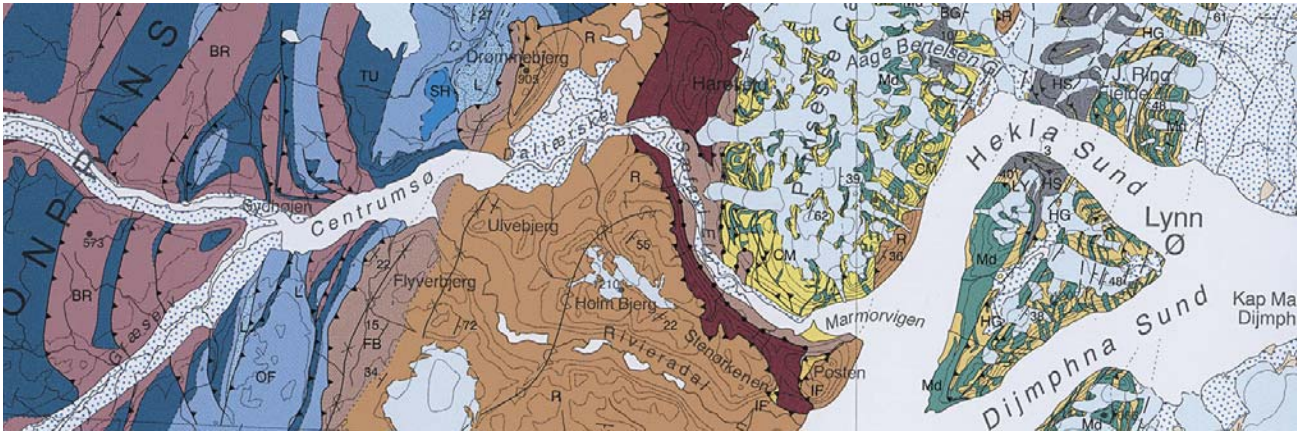


Fig. 24. Segment of the 1:500 000 geological map Lambert Land published by the Geological Survey of Denmark and Greenland (GEUS) after the 1993–1995 mapping project (Jepsen 2000). The segment extends from the west end of Centrumso, where the base camp was located, eastwards to Lynn Ø and Dimphna Sund.

(GEUS), and this and other geological projects were continued as GEUS projects (see Ghisler 1996).

Collaboration was carried out with two German geoscientific institutes, the Alfred Wegener Institute for Polar and Marine Research (AWI – Bremerhaven) and the Federal Institute for Geosciences and Natural Resources (BGR – Hannover).

### 1993–1995 Glaciological research in northern East Greenland

Scientists from the Alfred Wegener Institute for Polar and Marine Research (AWI) continued their studies of 1989–90 on Storstrømmen, setting up and measuring stake lines to determine velocities and establishing a number of automatic climate stations. In 1995 similar studies were made on the margin of the Inland Ice south-west of Centrumso (Henriksen 1996).

### 1993–2003 GGU/GEUS/DLC East Greenland field activities

From 1993 onwards summaries of activities in Greenland were issued each year ('Feltaktiviteter i Grønland') covering the work planned to be carried out by GGU/GEUS/DLC (Grønlands Geologiske Undersøgelse – GGU / Danmarks og Grønlands Geologiske Undersøgelse – GEUS / Danish Lithosphere Centre – DLC). The activities planned in northern East Greenland, extracted from these summaries, are given below. 1993: The main GGU-sponsored activities included the first summer of the 1993–1995 regional geological

mapping programme (see separate entry above). Another large group initiated a planned three-year programme of studies of post-Caledonian sedimentary basins with sequence stratigraphic studies in Jameson Land. A related project on the onshore hydrocarbon potential of East Greenland continued with sampling of Lower Cretaceous sequences for dinoflagellate cysts. Ablation-climate studies were carried out on the margin of the Inland Ice near Kronprins Christian Land, and of glacier outlet dynamics on Storstrømmen, the glacier at the north-east margin of Dronning Louise Land. These were part of joint projects between GGU, the Alfred Wegener Institute for Polar and Marine Research (AWI) and other institutes, related to global climate change.

1994: As part of the GGU/DLC 'East Greenland volcanic rifted margin project', systematic stereophotography was undertaken in August 1994 of the lava plateau basalts and the coastal dyke swarm between 66° and 70°N using a Twin Otter aircraft. A total of 1600 km of mountain sides were photographed. This was part of the DLC (Danish Lithosphere Centre) programme of studies on the opening of the North Atlantic Ocean.

1995: The project 'Resources of the sedimentary basins in North and East Greenland' was a joint project that involved geologists from GEUS (formed in 1995 by a merger of the Geological Survey of Greenland – GGU, and the Geological Survey of Denmark – DGU; Ghisler 1996), the Universities of Copenhagen and Aarhus and the Danish Environmental Research Institute (DMU). Work in 1995 was carried out in the



Fig. 25. The GGU/GEUS base camp at Centrumso, Kronprins Christian Land. Two small helicopters transport two-person geological field teams to new camp sites at about 6–7 day intervals. The Twin Otter aircraft was mainly used for transport of helicopter fuel from Station Nord to Centrumso. The large tent holds supplies for the aircraft, while the small tents at left house base camp staff and geologists. Photo: Jakob Laurrup.

Franklinian Basin of North Greenland and in the East Greenland rift basins (Traill Ø). Studies of the petroleum systems in the Wandel Sea Basin in Kronprins Christian Land were co-ordinated with the GGU/GEUS Lambert Land and Kronprins Christian Land mapping project. A large international field team of 34 scientists carried out fieldwork south of Scoresby Sund (70°N) as part a continuation of the GGU/DLC (now GEUS/DLC) project on the East Greenland volcanic rifted margin. Two helicopters allowed access to areas previously considered inaccessible.

1996: The project ‘Resources of the sedimentary basins in North and East Greenland’ was continued with nine field teams active between 71° and 74°N. Investigations of the Pleistocene sedimentary record of the Falsterelv area of Jameson Land were carried out, a continuation of earlier studies in the same area. A programme of glaciological research was initiated on the Nioghalvfjerdsofjorden glacier, an international project involving GEUS and the Danish Polar Center as Danish partners; this was part of a three-year project studying ice-sheet response to climate change.

1997: The GEUS regional mapping project of the Kong Oscar Fjord region (1997–1998) is described separately below. Petroleum-geological activities were continued by five field teams working particularly on Permian to Cretaceous sedimentary successions. Continued glaciological studies around the Nioghalvfjerdsofjorden glacier revealed several pingos and pingo-like structures, the northernmost known in Greenland. GEUS carried out an airborne electro-

magnetic and magnetic survey over northern Jameson Land (part of project ‘AEM Greenland’; Stemp 1998; Rasmussen *et al.* 2001).

1998: Continued Quaternary studies around the Nioghalvfjerdsofjorden glacier included visits to Søndre Mellemland and *Île de France* / Qeqertaq Prins Henrik. The main GEUS activities were the second and final summer of the Kong Oscar Fjord regional mapping project (see below).

1999: The main GEUS activity in East Greenland was a visit to southern Renland (71°N), to determine the relationships between previously described orogenic deformation and c. 935 Ma magmatic activity. Samples were collected for isotopic age determinations (Leslie & Nutman 2003).

2000: Studies of Vendian–Ordovician stratigraphy were conducted on Ella Ø in association with geologists from the Geological Museum, Copenhagen. In the Mestersvig area activities included an assessment of the changes in periglacial processes since the studies by A.L. (Linc) Washburn in 1955–64. Airborne hyperspectral data were acquired over selected areas of northern East Greenland between 71°30′ and 73°30′N, part of a collaborative venture by nine European research organisations and two mining companies (projects ‘Mineo’ and ‘Hypergreen’).

2001: Activities in northern East Greenland included sample collection from known ore showings on Clavering Ø (project ‘HyperGreen’); fossil collections from the Cambrian successions on Ella Ø and Albert Heim Bjerger; and investigations of the thin sediments at the tops of lava flows in the Kap Dalton

area and the northern Blosseville Kyst, with in particular a search for oil seeps.

2002: GEUS was responsible for leading a field excursion in Jameson Land and Milne Land for a number of oil companies interested in comparisons with the Jurassic–Cretaceous strata offshore the Norwegian coast.

2003: Investigations were concentrated in the Scoresby Sund area, with particular reference to the Cretaceous–Tertiary sediments underlying the Tertiary basalt succession at Bopladsdalen west of Kap Brewster. [GEUS archive.]

2003–present: See ‘2003–present Geocenter Denmark below.

### 1994 Mountain adventure kayak expedition

An eight-person group undertook kayak tours extending from Revet west of Clavering Ø, to Daneborg, Eskimonæs and Loch Fyne.

### 1994 Cardiff University Greenland Expedition: Gary Timms

Gary Timms led a six-strong party from Cardiff University (UK) to the Bersærkerbræ area of the Stauning Alper in July–August. Studies were made of temperature and pore-water pressure on periglacial slopes. Climbs were made on Dunottar Bjerg and Glamis Borg. [RGS report archive.]

### 1995 Botanical studies in Kronprins Christian Land

Six botanists from the University of Copenhagen and the University of Münster, divided into three two-person teams, studied plants, lichens and mosses in Kronprins Christian Land during July and August. They were moved periodically by the helicopters at the GEUS base camp at Centrumso (Henriksen 1996).

### 1995–2007 Arild Andresen Caledonian geological studies East Greenland

Arild Andresen, of the University of Oslo, began a major project in 1995 to study aspects of the collisional and extensional history of the Caledonides, and the post-Caledonian sedimentation linked to orogenic collapse. Geological groups, under the leadership of Arild Andresen, have been active through-

out the region between Scoresby Sund (71°29′N) and Ardencape Fjord (75°30′N), and included participants from Norway, Denmark and the USA. The activities were funded by Statoil and Norwegian research foundations. In the early years activities were mainly in the central fjord zone (72°–75°N).

In 2002 activities were concentrated on the Ardencape Fjord region, reached by Twin Otter with a landing at *Ny Jonsbu*. In 2003 a systematic collection was made of lamprophyres in the central fjord zone, and included visits to Blomsterbugt, Ella Ø and Strindberg Land. In 2004 a party of 20 visited Jameson Land, Milne Land and Kong Oscar Fjord. In 2003, 2004 and 2007 (and probably other years) Arild Andresen assisted a Statoil group of geologists, by arranging a guided Twin Otter excursion. In 2007 activities were mainly on Clavering Ø and Hold with Hope. [DPC report archive.]

### 1996 Stauning Alper, Nordaustgrønland (North-East Greenland): Frode Guldal

A Norwegian expedition of nine persons led by Frode Guldal undertook a ski and climbing traverse of the Stauning Alper in April–May. A ski party was landed by Twin Otter in Nordvestfjord close to the glacier Løberen, and a climbing party on upper Roslin Gletscher. A total of 33 peaks were climbed, of which 16 were claimed to be first ascents. Numerous passes were traversed, several for the first time. [DPC report archive.]

### 1996 Mylius-Erichsens mindeekspedition (Mylius-Erichsen memorial expedition): Finn Rasmussen

A six-member expedition searched southern Hovgaard Ø and the islands and skerries off the front of Nioghalvfjerdsfjord and Lambert Land for traces of the lost members of the Danmark-Ekspeditionen. No new relics were found. [DPC report archive.]

### 1996 The Professor Molchanov East Greenland cruise

The Plancius Foundation organised a cruise in late August with the cruise ship PROFESSOR MOLCHANOV and 32 guests that called at Foster Bugt, Myggbukta, Antarctic Havn, Rypefjord, Nordvestfjord and Scoresbysund. [DPC report archive.]

### 1996 Scottish Mountaineering Club East Greenland expedition: Colwyn Jones

An eight-member expedition led by Colwyn Jones visited the Stauning Alper in July–August. They were landed by Twin Otter aircraft near Majorpasset in the heart of the Stauning Alper. A number of peaks, including Dansketinde and Hjørnespids, were climbed, and several first ascents were claimed including *Jaalspids* (2100 m), *Susan's Peak* (2238 m), *Aliertinde* (2580 m) and *Annesketinde* (2460 m). Climbing was brought to a halt on 1 August by bad weather which forced a retreat to Mestersvig that took eight arduous days (Reid 1997). [DPC & RGS report archives.]

### 1996–98 GEUS studies of ice-sheet response to climate change

In 1996 glaciological research was initiated by the Geological Survey of Denmark and Greenland (GEUS) and the Danish Polar Center (DPC) on the floating glacier tongue filling Nioghalvfjærdsfjord. The research was supported by the European Community Environment and Climate Programme. In 1997 Quaternary field work was carried out around Blåsø, a tidal lake at the margin of the floating glacier. In 1998 supplementary field work was undertaken on Søndre Mellemland and on *Île de France* (now Qaqertaq Prins Henrik; Thomsen *et al.* 1997; Bennike & Weidick 1999).

### 1997–1998 GEUS geological mapping of the Kong Oscar Fjord region

The Kong Oscar Fjord region from 72° to 75°N was mapped geologically as part of a regional mapping programme by the Geological Survey of Denmark and Greenland (GEUS) to produce 1:500 000 scale map sheets (Escher 2001). Survey geologists worked with an international group of guest geologists, under the overall leadership of Niels Henriksen (Henriksen 1999). The main base was at Mestersvig, with a secondary base at Krumme Langsø. The mapping teams were supported by two helicopters, while Twin Otter operations were carried out under a charter agreement with the Danish Polar Center that co-ordinated GEUS transport requirements with other expedition groups. This geological mapping project was notable for the first demonstration of large scale (hundreds of km) westward thrust displacement (Higgins & Leslie 2000; Leslie & Higgins 2008).

### 1997–present: Zackenberg Ecological Research Operations (ZERO)

The ecological research station on the north side of Tyrolerfjord, about 5 km north-east of the mountain Zackenberg beside *Zackenbergelv* was officially opened in August 1997 after a two-year building phase. It initially comprised about 10 buildings, including laboratories, and had accommodation for 15 scientists. Discussions on the possibility of establishing a permanent research facility in the North-East Greenland National Park were initiated in 1986 (Meltofte & Thing 1996). A location in the Daneborg–Zackenberg region was considered appropriate as it lies in the transition zone between the lush and snow-rich southern parts of the high Arctic and the more arid northern parts. The building phase was initiated in 1995, and included preparation of a 450 m runway suitable for Twin-Otter aircraft. The first ZERO annual report for 1995 was published in 1996 (Meltofte & Thing 1996). In 1994 a marine studies project was begun, based at the former weather station at Daneborg. Significant enlargements to the main facilities beside *Zackenbergelv* were made in 2006–2007. The station is normally open from 1 June to 1 September, but in 2008 was extended from 13 March to 2 November. The total number of scientific visitors to the station were 81 in 2008, and 2700 overnight stays were recorded.

The research station has a number of major research programmes. The first observations for the 'GeoBasis' and 'BioBasis' programmes were made as early as 1995, during the building phase. In 1998 a 'KlimaBasis' programme was added, and in 2002 the marine studies project started at Daneborg in 1994 became the 'MarinBasis' programme. In 2007 another major programme, 'GlacioBasis', was initiated. In addition to the major research programmes, 10 or more large and small research projects are carried out each year (Meltofte & Rasch 2009).

Zackenberg Ecological Research Operations (ZERO) was organised and operated by the Danish Polar Center (DPC) up to 2008, but with the closure of DPC in early 2009 responsibility has been taken over by the National Environmental Research Institute at Aarhus University. ZERO issues annual reports of activities, and in 2008 issued a thick summary volume recording 10 years of monitoring and research (Meltofte *et al.* 2008).

There are official place names for many of the mountains, rivers and valleys surrounding the research station, but numerous unapproved names have

been introduced by visiting scientists for minor features, such as small lakes and areas of vegetation, and have been used in reports of their observations.

### **1998 British Schools Exploration Society (BSES) expedition to East Greenland: Pat Cannings**

The British Schools Exploration Society carried out a large-scale programme of adventure and exploration in the general Mestersvig area. A total of 68 young adventurers were guided by 17 leaders under the overall leadership of Pat Cannings. [DPC & RGS report archives.]

### **1998–present: Tangent expeditions**

Tangent Expeditions International (Paul H. Walker) began to organise climbing and ski expeditions to East Greenland in 1989, and expanded activities to northern East Greenland in 1998. Expeditions that have given accounts of their activities in accessible reports are individually described under the year of activity below. Those expeditions that were organised by Tangent, or made extensive use of their logistic support, and that reached areas north of 69°N are briefly listed here. Tangent has not deposited full reports of many of their expeditions with the Danish Polar Center, apparently leaving this task to the initiative of individual leaders.

Many of the expeditions organised by Tangent have been specifically aimed at ascents of unclimbed summits. In general, names given to summits where a substantial part of the 'ascent' was achieved by the use of Twin Otter aircraft are not included in this volume.

1998: Three expeditions visited the Petermann Bjerg – Shackleton Bjerg region (73°N), and two the Rigny Bjerg region (69°03'N).

1999: Expeditions were made to the Lindbergh Fjelde (69°07'N), to Louise Boyd Land (73°30'N), and two to the Rigny Bjerg region (60°03'N).

2000: Expeditions visited the Lindbergh Fjelde (69°07'N), Dronning Louise Land (76°30'N), and two the Rigny Bjerg region (69°03'N).

2001: Expeditions were made to the Lindbergh Fjelde (69°07'N), two to the Rigny Bjerg region (69°03'N), and two to the Martin Knudsen Nunatak (73°15'N).

2002: Expeditions visited Nils Holgersen Nunatak (73°20'N) and Louise Boyd Land (73°30'N), and two expeditions were made to both Liverpool Land (71°N) and *Knud Rasmussen Land* (69°30'N);

four expeditions touched on the Gronau Nunatak (69°30'N). Snow conditions in 2002 were reported as unusually poor.

2003: Expeditions were made to Liverpool Land (71°N), the Hvidbjørn Nunatak (73°38'N), the Rigny Bjerg region (69°03'N), and three to various parts of *Knud Rasmussen Land* (69°30'N).

2004: Expeditions visited Liverpool Land (71°N), *Knud Rasmussen Land* (69°30'N), and two reached Milne Land (70°40'N).

2005: Expeditions were made to Liverpool Land (71°N) and two to Milne Land (70°40'N).

2006: Five expeditions visited parts of Milne Land (70°40'N), one Liverpool Land (71°N), two the region around Sortebræ at 69°N, and one part of *Knud Rasmussen Land* (69°30'N).

2007: Two expeditions visited Liverpool Land (71°N), one making a N–S traverse. Three expeditions visited Dronning Louise Land (76°30'N), one went to a part of *Knud Rasmussens Land* (69°30'N), and a large West Lancashire Scouts expedition climbed in Renland (71°10'N; see report below).

2008: Again three expeditions visited parts of Milne Land (70°40'N), two visited Paul Stern Land (70°10'N), and an expedition led by Georg Czak made a ski traverse from near the Watkins Bjerger (69°N) to Paul Stern Land (70°10'N; see report below). [Information from 'Tangent Expeditions/Climb-greenland' website.]

### **1998 Nunatak expedition: Daniel Caise**

A party led by Daniel Caise was landed by Twin Otter on 1 April at the mouth of Knækdalen in inner Kejser Franz Joseph Fjord. They had as their main objectives the ascent of Petermann Bjerg and Shackleton Bjerg in April, but frustrated by poor snow conditions abandoned the Knækdalen route and travelled south to Hisinger Gletscher, from where ascents were made of Verena Horn, Hamlet Bjerg and Våhfreude. In Kjerulf Fjord the expedition observed a total of nine polar bears, including cubs. [DPC report archive.]

### **1998 Ejnar Mikkelsen Fjeld expedition: H.C.F. Sørensen**

An attempt on Ejnar Mikkelsen Fjeld was made by a Danish group led by H.C.F. Sørensen in May–June, starting from Scoresbysund and using skis and pulks to cross Geikie Plateau.

### 1998 Swiss expedition to Gunnbjørn Fjeld: Martin Fischer

A Swiss expedition led by Martin Fischer made several ascents in the Watkins Bjerge in late April to early May. Most activity was south of latitude 69°N, but a few days were spent farther north.

### 1998 Rigny Bjerg expedition: Mark Bailey

A four-member mountaineering expedition led by Mark Bailey visited the Rigny Bjerg region in July. Access was by Twin Otter aircraft. A total of 14 first ascents were claimed between 2000 m and 2600 m high, including an attempt on Rigny Bjerg (their *Mr. Big*) that turned back 183 m below the summit. [RGS report archive.]

### 1998 Suess Land kayak expedition: Hugh Simpson

Hugh Simpson led a four-person expedition whose objective was to circumnavigate Suess Land. The intended portage of their kayaks along the north flank of Hisinger Gletscher proved too difficult, and the party returned to Mestersvig. [DPC report archive.]

### 1998 Scottish Mountaineering Club (SMC) Greenland expedition: Colwyn Jones

Colwyn Jones led an eight-person SMC expedition to the central Stauning Alper in May. The group flew in to Constable Pynt using a ski-equipped Twin Otter and, after refueling, continued to a base camp established on the upper part of Sefström Gletscher. Several first ascents were made, and on 15 May the party began an arduous six day journey through deep snow to reach Mestersvig on 21 May. [DPC & RGS report archives.]

### 1998 Vertebrate Palaeontological expedition to Jameson Land: Farish Jenkins

Farish A. Jenkins Jr. led a 10-person expedition to north-east Jameson Land, continuing his earlier investigations (1988–89 & 1991–92) of vertebrate fossils in Triassic sediments. A further expedition was made in 2001. [DPC report archive.]

### 1998–99 Øfjord expedition: Grundtvigskirken

Grundtvigskirken, a spectacular mountain on the north-west side of Øfjord dominated by a central granite tower 1997 m high, was the objective in 1998 of a four-person climbing group (three Norwegians and one Swedish member) led by Bengt Nilfors. The approach was made using kayaks. A further attempt in 1999 by the same group (but with a different Swedish climber) was successful. The climb by the south ridge took 2½ days, and one of the participants commented that ‘it was the best Alpine rock climb he had done’ (Anonymous 2000 p. 241). A small cairn on the summit recorded an earlier ascent by an easier route, probably the south-west face. In their report the mountain is named *Tsavagattaq*, a Greenlandic name for the tip of a harpoon. In 2010 the mountain was climbed by a ‘National Geographic’-supported climbing party (Hans Ambühl, personal communication 2010).

### 1998–present: Nanu Travel Aps

The Icelandic travel company Nonni Travel founded a branch at Scoresbysund / Illoqqoortoormiut (*Ittoqqortoormiit*) in 1998, later changing its name to Nanu Travel Aps. This company has greatly assisted the promotion of tourism in this part of East Greenland, and in particular has brought the visits of cruise ships to the town into a comfortable routine to the benefit of both the visitors and the resident population.

Cruise ships that visit East Greenland most frequently call at Scoresbysund / Illoqqoortoormiut (*Ittoqqortoormiit*) on their passage from Longyearbyen (Svalbard) to Keflavik (Iceland), or vice-versa. The ships used by the shipping companies have a degree of ice-strengthening to ensure safe passage through the ice-belt, and carry scientific experts who act as guides. In recent years the shipping lines most active have included: Oceanwide, Peregrine Shipping, Aurora Expeditions, Polar Star Expeditions, Albatros, Phoenix and Quark. Depending on ice conditions, the ships may call at historically interesting sites in the North-East Greenland National Park, or localities where musk oxen and other wild life can be viewed safely. Nanu Travel Aps at Scoresbysund / Illoqqoortoormiut (*Ittoqqortoormiit*) have recorded up to 17 visits annually by cruise ships in recent years, carrying an annual total of 800–1000 passengers. [Nanu Travel, personal communication 2008.]

### 1999 Swedish Øfjord expedition

A party of seven Swedish climbers visited the Øfjord region of the inner Scoresby Sund region, and climbed two of the summits of a mountain group about 4 km south-west of Grundtvigskirken. In their report this mountain group is erroneously assumed to be Grundtvigskirken, although it has no resemblance to the church Grundtvigskirken in Copenhagen. A party of four climbed the middle summit by the south-east pillar, and the south face of the southern spire was climbed by two members in 25 pitches (Anonymous 2000).

### 1999 'Arcturus' Clavering Ø expedition: Simon Fraser

An expedition organised by the travel company Arcturus, and led by Simon Fraser, visited Clavering Ø in July–August. Natural history observations of birds and plants and visits to Inuit archaeological sites were made.

### 1999 Tangent Rigny Bjerg expedition

A four-person expedition led by Nigel Edwards, and organised by Tangent Expeditions, visited the Rigny Bjerg region in late May, and claimed 10 first ascents (Gregson 2000a).

### 1999 Greenland Rigny Bjerg mountaineering expedition

A three-man party explored part of the Rigny Bjerg region from 3 to 25 July, and ascended three peaks. A base camp was established by Twin Otter at 69°18'N, in co-operation with Tangent Expeditions. The weather was clear, sunny and calm, with temperatures around minus 20°C. In addition to their three ascents, the party also carried out six two-day exploratory ski tours (Mitchell 2000). [RGS report archive.]

### 1999 Tangent expedition to the Lindbergh Fjelde

Paul Walker of Tangent Expeditions led a nine-person expedition to the Lindbergh Fjelde region (69°N 31°W) from late July to early August. Access was by Twin Otter aircraft. The rock was reported to be of poor quality, but the weather was perfect and 20 ascents between 2600 and 3200 m were made in 16 days (Gregson 2000b).

### 1999 Scoresbysund ecological studies: Hans-Ulrich Peter

Ornithological and associated botanical and biological studies were carried out by a small group in July–August around Scoresbysund; the group was led by Hans-Ulrich Peter.

### 1999 Cambridge North-East Greenland expedition: Mathew Tinsley

A group of five led by Matthew Tinsley visited Louise Boyd Land from 2 July to 26 August. Basecamp was established at 73°30'N 28°00'W, and the climbs around the base were mostly ski ascents with little technical difficulty. North of base a secluded high glacier gave access to more challenging climbs on excellent granite. On their way south to their pick-up point, Petermann Bjerg was climbed by two new routes, thought to be the sixth and seventh ascents. Their descent to the pick-up point at the head of Kjerulf Fjord involved an awkward descent of Hisinger Gletscher and a 5 km hike along Bocksrietdalen (Bostock 2000). [RGS & BMC report archives.]

### 1999 Young Sund walrus studies: Erik W. Born

Erik W. Born (Greenland Fisheries Research Institute) carried out studies of the energy requirements of walrus in Young Sund, East Greenland. Sandøen in Young Sund is one of the regular haul-out localities for walrus (Born *et al.* 1997).

### 1999–2000 Maria Ø expedition: John Thorogood

John Thorogood led three-person expeditions to North-East Greenland in 1999 and 2000, using an inflatable boat for transport in the fjords.

1999 – Boat trips were made in the fjord system east and west of Ella Ø and Maria Ø in July–August. Ascents were made of Angelin Bjerg and Rødebjerg on Ymer Ø. Boat trips were also made to the heads of Rhedin Fjord, Röhss Fjord and Dickson Fjord. An ascent was made of Langenthaler Gletscher, to the col overlooking Concordiaplads.

2000 – Boat visits were made to the inner parts of Alpefjord and Forsblad Fjord in August. [DPC report archive.]

### **2000 Caledonian eclogite studies:**

**Jane Gilotti**

Jane A. Gilotti continued her studies in the northern East Greenland eclogite province in July. Her earlier studies were carried out as part of the GGU geological mapping of the Dove Bugt region in 1988–90, her own expedition to Danmarkshavn in 1992, and as a member of the GGU/GEUS geological mapping group in the Lambert Land region in 1993–1995.

### **2000 Geologfjord expedition: Iain Smart**

A journey by inflatable boat was made from Mestersvig to Geologfjord in August–September, led by Iain Smart, in association with Nanu Travel Aps.

### **2000 Rigny Bjerg – Watkins Bjerger expedition**

An eight-member British party led by Brian Needleman visited the Rigny Bjerg region and made a number of first ascents. Two members of the group skied west to the Watkins Bjerger, and made a successful ascent of Gunnbjørn Fjeld (Gregson 2001a).

### **2000 Scottish Suess Land expedition: Douglas Anderson**

Boat tours in the fjords around Suess Land, Lyell Land and Fränkel Land were made in July–August, by a party led by Douglas Anderson.

### **2000 Hvalrosundersøgelser i Nordøst grønland (Walrus studies in North-East Greenland): Erik W. Born**

Erik W. Born returned to Lille Snenæs (76°53'N) on the south coast of Germania Land to continue his studies of walrus at the same location in 1989–90. This was part of a project 'Changes in Arctic Marine Production' supported by Grønlands Naturinstitut (Greenland Nature Institute) and Grønlands Miljøundersøgelser (Greenland Environmental Investigations). E.W. Born and M. Acquarone were flown to Hvalrosodden by Twin Otter, from where they proceeded to Lille Snenæs; they took blood samples from seven walruses and attached radio senders to six walruses during the summer. On their return to Hvalrossodden in late August the party observed several walruses hauled out on the Hvalrosodden peninsula, site of the massacre of 11 walruses during the 1906–08 Danmark-Ekspeditionen (Born & Acquarone 2001).

### **2000 Graae-Rasmusen Expedition**

Walking tours and visits to Danish hunting huts in Hochstetter Forland were made in August by a two-man party, Jesper Graae and Hans Rasmusen. [DPC report archive.]

### **2000 Lancaster University Hiking Club expedition to Dronning Louise Land**

Ski touring and mountaineering were undertaken in the nunatak region of Dronning Louise Land in May by a nine-person group from Lancaster University Hiking Club. They were delayed for about a week at Constable Pynt due to rescue operations for an expedition that had lost a man down a crevasse. The expedition was eventually flown in to Dronning Louise Land by Twin Otter. Twenty-two summits were climbed, but many of them were small nunataks only a few hundred metres above the surrounding ice cap surface. The rock was mainly of poor quality and ascents presented little difficulty.

### **2000 British Dronning Louise Land expedition**

Scott Umpleby led a climbing group to Dronning Louise Land, but like the Lancaster University expedition (see above) they were delayed at Constable Pynt. When they eventually arrived by Twin Otter at Dronning Louise Land, they set up their base camp at 1870 m, and climbed 34 summits in 10 days (Gregson 2001b).

### **2000 Expedition to Lindbergh Fjelde: Paul Walker**

Paul Walker (Tangent Expeditions) led a 10-person group to the Lindbergh Fjelde, where a base camp was established at 2120 m by Twin Otter aircraft. About 16 summits were climbed, ranging in altitude from 2260 to 3150 m (Keaton 2001).

### **2000 Expedition Sirius**

Teams of the Sirius Sledge Patrol undertook a four-month sledge journey from Thule (Qaanaaq) in North-West Greenland across North Greenland and down the coast of northern East Greenland to Daneborg (Expedition Sirius 2000). This particular journey by Sirius deserves special note only because the members of the patrol included Crown Prince Frede-



rik of Denmark, and the activities were given wide press and television coverage.

### **2000 Late Quaternary history of Jameson Land: Lena Andrielsson**

Lena Andrielsson led a group of four to the Ugleelv area of Jameson Land in July–August, investigating Late Quaternary deposits. Earlier studies in the same area were made during the ‘1990–1992 PONAM (Polar North Atlantic Margins) project’.

### **2000–2004 Sports-Ekspedisjon i Nord Østgrønland (Sports expedition to North-East Greenland): Hans Lapstun**

The Norwegian Hans Lapstun undertook a series of summer sports expeditions to northern East Greenland. [DPC report archive.]

2000 – Walking tours were undertaken in the Mestersvig area with a small group in July and August.

2001 – Boat tours were made with a small group in the fjords north of Mestersvig, visiting Ella Ø, Blomsterbugten and Strindberg Land.

2002 – A zodiac rubber boat was used for transport through the central fjord region, calling at *Kap Peterséns*, Blomsterbugten, Strindberg Land, Ella Ø, Sorte Hjørne and Nyhavn. Lapstun’s report contains information on the condition of the huts he visited, and notes minor repairs he carried out.

2004 – A three-man group led by Hans Lapstun undertook a three week tour on foot between Nat-horst Fjord and Mestersvig in July–August.

### **2001 SMOG in Greenland: Martin Knudsen Nunatakker: Mark Lampard**

An eight-person Slough Mountaineering Group (SMOG) party led by Mark Lampard visited the Martin Knudsen Nunatakker (73°15’N) in June, undertaking ski-touring and climbing. Poor weather meant they were landed by Twin Otter 40 km short of their destination, but this was reached with a three-day sledge trip and 30 summits 2100–2700 m high were climbed. [BMC & RGS report archives.]

### **2001 ‘Quest’ Historisk Expedition (‘Quest’ historical expedition): Jan Brun**

A Norwegian tourist expedition with 43 participants led by Jan Brun sailed with the FOGO ISLE to East

Greenland in August. Landings were made at the former Norwegian and Danish hunting stations at Germaniahavn, Kap Herschell, Revet, *Krogness*, Myggbukta and Ella Ø. [DPC report archive.]

### **2001 Lanchester Greenland expedition: Jonathan White**

Jonathan White led a six-member party on a climbing expedition to the Lindbergh Fjelde. Access was by Twin Otter aircraft, and the landing site on 22 June was at 69°07’N 31°02’W. All six members climbed their first peak, after which the party split into groups of two or three. A total of 28 summits were climbed, ranging from 2270 m to 2935 m in altitude, of which 25 were thought to be first ascents (White 2002). On one summit a survey pin was found drilled into the rock, but this was not, as surmised a relic of Martin Lindsay’s surveying in 1934, but a fixed point established by the Danish Geodætisk Institut (Geodetic Institute) in the mid-1980s (Willy Weng, personal communication 2004). [BMC & RGS report archives.]

### **2001 Vertebrate palaeontological expedition to Jameson Land: Farish A. Jenkins**

Farish A. Jenkins Jr. led a four-person expedition to north-east Jameson Land in June–July, to continue his earlier investigations (1988–89, 1991–92, 1998) of vertebrate fossils in Triassic sediments. [DPC report archive.]

### **2001 Bioteknologisk Institut Østgrønland expedition (Danish Technological Institute, East Greenland expedition): Peter Stougaard**

A three-person group from this institute based in Hørsholm, Denmark, made investigations of the hot springs on Liverpool Land and the northern Blossville Kyst. Nørrefjord, Rømer Fjord and Knighton Bugt were visited. [DPC report archive.]

### **2001 Scottish Mountaineering Club Expedition: Colwyn Jones**

Colwyn Jones led a six-man party to the central Stauning Alper in July–August. From Mestersvig the party was lifted by helicopter to the upper part of Cantabræ. The weather was generally fine and stable, and climbs were made of *Sussex* (2330 m) and first ascents of *Pap of Cumbrae* (1885 m), *Tandlaegetinde*

(2350 m), *Keswicktinde* (2380 m) and *Mears Fjeld* (2100 m) (Read 2002). The return to Mestersvig was also by helicopter. [BMC & RGS report archives.]

### 2002 Øst-Grønland under seil (East Greenland under sail)

The 33-foot sailing boat LODYN with a three-person Norwegian crew sailed from Bergen via Iceland to reach Scoresbysund/Illoqqortoormiut on 2 August. They travelled into the fjord making landings at Sydkap, the Bjørnøer and Bregnepynt before returning to Scoresbysund. On 12 August they left Greenland on their return voyage. [DPC report archive.]

### 2002 Nils Holgersen Nunatakker expedition: Paul Walker

A party of six climbers led by Paul Walker (Tangent Expeditions) left Iceland by Twin Otter on 17 June, and after refueling at Constable Pynt landed in the Nils Holgersen Nunatakker (73°20'N). The weather was perfect, with unexpectedly high temperatures. About 16 peaks ranging from 2061 to 2543 m high were climbed, some involving 7 km long ski journeys on the glaciers. The party departed by Twin Otter on 5 July (Keaton 2003).

### 2002 Gronau Nunatakker British-American expedition

A group of six climbers visited the Gronau Nunatakker in July, establishing a base camp at 69°28'N by Twin Otter aircraft. They skied and climbed in two groups, and made a series of ascents of peaks up to 2900 m high (Burch 2003).

### 2002 With the ARNAK from Mestersvig to Strindberg Land

The ARNAK is a 23-foot motor-cutter built in 1963, and from 1967–1997 used by Sirius to lay out depots in the fjord region of East Greenland. In 1997 it was purchased by two former Sirius members, and is stationed at Mestersvig in the winter. A 2002 voyage in the southern part of the North-East Greenland National Park from Mestersvig to Strindberg Land and return is described by Christensen (2003).

### 2002 Exploration of north-west Watkins Mountains, East Greenland

A two-person group (Al Read and John Hulse) were dropped off on the ice cap in the north-west Watkins Bjerger by Twin Otter, and in June and July explored and climbed four easy summits north of 69°N. The summits appear in their report as *Summit 1* to *Summit 4*.

### 2002 Cambridge Greenland glaciology expedition: Chris Lockyear

A five-person expedition led by Chris Lockyear visited northern Louise Boyd Land in July and August. The expedition was landed at their study area by Twin Otter. Glaciological and geological studies were carried out, and six climbs were made of summits up to 2340 m high (Lockyear 2003). Following completion of the scientific work, a long 17-day ski traverse was made west of Louise Boyd Land, along Victor Madsen Gletscher, west of the heads of Nordenskiöld Gletscher and Hisinger Gletscher, and via Langenthaler Gletscher to Dickson Fjord (72°50'N) where they were picked up by rubber boat. [DPC report archive; BMC report archive.]

### 2002 Belgian expedition aboard the KITTIWAKE

This expedition reached Greenland on 17 August, anchoring at Ella Ø. The ship then sailed into the inner ends of Kejser Franz Joseph Fjord and Kjerulf Fjord, returning via Antarctic Sund and Kong Oscar Fjord to Forsblad Fjord where the ship anchored at the western inner end. A short visit was made to Scoresbysund before leaving for Europe on 3 September. [DPC report archive.]

### 2002 Liverpool Land and *Knud Rasmussens Land*: Tim Mosedal

Tim Mosedal with a small group visited southern Liverpool Land and parts of *Knud Rasmussen Land*. A total of 15 peaks were climbed.

### 2002 Loughborough Grammar School Greenland expedition

An expedition comprising 13 pupils and two teachers from Loughborough Grammar School (UK), and two

leaders from Tangent Expeditions, visited Liverpool Land in July. Six first ascents were claimed of summits west of Bjerring Pedersen Gletscher. [RGS report archive.]

### 2002 Shackleton Bjerg Expedition: John Thorogood

This four-person expedition was led by John Thorogood, and travelled by boat from Mestersvig to the head of Dickson Fjord. They reached the ice cap by ascending Langenthaler Gletscher on Gletscherland and climbed Shackleton Bjerg and several nearby summits including Verena Horn and Guldtinderne. [DPC report archive.]

### 2002 'Explorers Corner' North-East Greenland National Park sea-kayaking trip: Olav Malver

Olav Malver led a 12-member group on a kayaking tour north of Mestersvig in August. The group was flown back to Mestersvig from Strindberg Land. [DPC report archive.]

### 2002 International geological expedition to Jameson Land: Jennifer McElwain

An international group of geologists visited Ranunkeldal and Astartekløft in Jameson Land in July–August. This field work was part of a project 'Fossil floral dynamics across the Triassic-Jurassic boundary of East Greenland' funded by the National Geographic Society of the USA. The expedition was extremely successful. [DPC report archive.]

### 2002 French Literary expedition

A five-person expedition sailed through the central fjord zone using three kayaks and a rubber boat for transport. The objectives were to make a film to celebrate the life of Jørn Riel, a noted Danish author who took part in Lauge Koch's geological expeditions in East Greenland in the early 1950s (Rohan *et al.* 2003). Jørn Riel is noted in particular for his 'skrøner', a series of 'tall stories' or fables loosely based on his Greenland experiences.

### 2002–03 Jónas G. Allanson visit to Scoresbysund

Jónas G. Allanson stayed at Scoresbysund / Illoqortoormiut (*Ittoqqortoormiit*) from September 2002 until the summer of 2003 as part of a research project on the use of marine resources by an isolated community. He took part in local hunting journeys. [DPC report archive.]

### 2002–2007 'Arcturus' expeditions to North-East Greenland

A series of expeditions led by Robert Burton and Kathleen Cartwright, and organised by the travel company Arcturus, visited various parts of northern East Greenland. [DPC report archive.]

2002 – Robert Burton and Kathleen Cartwright led a 12-person expedition to Wollaston Foreland in July–August. The party were landed by Twin Otter at Slettedalen, and made observations on the fauna, flora and archaeological sites. In August Robert Burton led a three-person expedition to the region around Blyklippen near Mestersvig in August, mainly bird-watching and scrambling. *Washburn's hus* west of Mestersvig was used as a base.

2003 – An eight-person expedition with archaeological objectives made observations in the inner fjords of the Scoresby Sund region in August. Amongst other places, Hekla Havn and C. Hofmann Halvø were visited. Another 12-person expedition led by Kathleen Cartwright and Robert Burton, visited the Clavering Ø region in July. They used a Twin Otter aircraft to reach Revet, and a zodiac rubber boat for local transport as far as Eskimonæs. Archaeological and botanical observations were carried out.

2005 – A 15-person expedition, led by Kathleen Cartwright and Robert Burton, was transported to southern Geographical Society Ø in July by Twin Otter. One group surveyed Inuit ruin sites on the shore of Vega Sund.

2006 – This expedition led by Kathleen Cartwright visited the southern part of Dove Bugt in July and August, landing by Twin Otter at the airstrip adjacent to the Sirius hut in Ravnedal, Rechnitzer Land. Botanical observations and registration of sparse Inuit ruins were made in the coastal areas of Rechnitzer Land and on the north coast of Ad. S. Jensen Land to the south-east, reached using inflatable rubber boats.

2007 – An eight-person expedition led by Kath-

leen Cartwright explored the coastal region of eastern Lyell Land in July and early August, landing by Twin Otter on a rough landing strip between Kap Lagerberg and Kirschdalen. Archaeological sites were visited and surveyed, including some on Åkerblom Ø and at Kap Harry on Ella Ø, reached by Zodiac rubber boat.

### 2003 Expedition to *Knud Rasmussen Land*, East Greenland

A six-person expedition visited the northern Watkins Bjerge in the region formerly known as *Knud Rasmussen Land* in July and August, landing by Twin Otter aircraft at 69°08'N. A total of 20 first ascents were claimed. [RGS report archive.]

### 2003 BSES Liverpool Land expedition

The British Schools Exploration Society (BSES) took a large party of young people to Liverpool Land in July and August. The overall leader was John Muston, and 15 deputy leaders were in charge of the 60 young explorers divided into five groups. Access was via Constable Pynt. [RGS report archive.]

### 2003 Ecopolaris (GREA)

This 2003 Ecopolaris expedition, part of the Arctic activities of Groupe de Recherches en Écologie Arctique (GREA – Arctic Ecology Research Group), visited North Greenland and northern East Greenland, and amongst other activities ringed 270 ivory gulls. On Henrik Krøyer Holme Inuit ruins were inspected, and in Dove Bugt new walrus haul-out locations were recorded. [DPC report archive.]

### 2003 Liverpool Land geological studies: Ebbe Hartz

Ebbe Hartz visited Liverpool Land in August, and collected samples for isotopic age determinations around Storefjord and Mariager Fjord. Samples were also collected for Ebbe Hartz at different altitudes on Dansketinden by Stephen Reid's Scottish Mountaineering Club expedition (see entry below), in exchange for helicopter transport. [DPC report archive.]

### 2003 Scottish Mountaineering Club East Greenland Expedition: Stephen Reid

A four-man expedition led by Stephen Reid visited the Stauning Alper, starting with a helicopter lift to Majorpasset (*Col Major*) at the foot of Dansketinden, the central focus of the summer's climbing. Despite periods of poor weather, new spectacular routes were made on the south and south-west ridges of Dansketinden. [BMC, DPC & RGS report archives.]

### 2003 'TUNU-I' expedition: fish fauna North-East Greenland fjords

A ship-based expedition aboard the JAN MAYEN visited the fjord region between 74° and 77°N in October, to study the fish fauna of the fjords. This expedition was planned following a brief visit to Dove Bugt and Godthåb Golf in October 2002, and further expeditions are planned. [DPC report archive.]

### 2003 'Midnight Sun 03' expedition to Rigny Bjerg: Martin Bohl

An eight-person expedition to the Rigny Bjerg area led by Martin Bohl visited the Rigny Bjerg area in July, and claimed to have climbed 38 summits. One of these was the 1971 m high peak wrongly identified as 'Rigny Bjerg' on AMS (American Map Service) maps, but on 19 July 2003 Martin Bohl and Mike Palmer climbed the real Rigny Bjerg, the highest summit in the area. [BMC & RGS report archives.]

### 2003 Nordvestfjord kayak expedition

A small group of kayak enthusiasts visited the inner parts of Nordvestfjord in July–August, reaching as far west as Eskimovig. [DPC report archive.]

### 2003 Nord-Østgrønlandsk kayakekspedition (North-East Greenland kayak expedition)

This four-person expedition visited the fjord region of North-East Greenland in July and August. Starting from Daneborg, they travelled around Clavering Ø to the head of Loch Fyne, made a long portage through Stordal to reach the head of Moskusoksefjord, and continued via Ella Ø to Mestersvig. [DPC report archive.]

### 2003 Geological expedition to Jøkelbugten, North-East Greenland: Jane Gilotti

Jane A. Gilotti led a four-person geological expedition to the Jøkelbugten region to continue her studies of eclogites. Investigations were mainly carried out in Sanddal reached by Twin Otter aircraft, and at *Rabbit ears island* in Jøkelbugten reached by helicopter. This was a continuation of her earlier eclogite studies with GGU/GEUS mapping expeditions (1988–90, 1993–1995) and her own expeditions in 1992 and 2000. [DPC report archive.]

### 2003–present: Geocenter Danmark – East Greenland activities

Geocenter Copenhagen was established in 2003 as a formalised cooperation between the Geological Survey of Denmark and Greenland (GEUS), the Danish Lithosphere Centre (DLC), the Geological Museum and the Geological and Geographical Institutes of the University of Copenhagen. DLC closed down when its funding expired in 2004. In 2008 with the inclusion of the Department of Earth Sciences of the University of Aarhus the name was changed to Geocenter Denmark. Annual summaries of field activities planned in Greenland by the Geocenter partners were issued from 2004 onwards. Many geographers and some geologists have been attached to the ecological projects operated by the Zackenberg Ecological Research Operations – ZERO (see above, ‘1997– present Zackenberg Ecological Research Operations’) and are included in the annual summaries.

Extracts of work planned in northern East Greenland (excluding ZERO projects) are given below.

2004: The Geological Museum continued studies of Cambro-Ordovician sediments on Ella Ø. In south-east Jameson Land studies were made of the Kap Stewart Formation, with special reference to the mass extinction that took place at the Trias/Jurassic boundary.

2005: Ella Ø was again the subject of studies, but of the Eleonore Bay Supergroup and Tillite Group, with collection of material for analyses of stable carbon isotopes. GEUS carried out studies in the Mestersvig region in July and August, a follow-up of hyper-spectral anomalies discovered during airborne surveys in 2000.

2006: Studies of the Neoproterozoic Eleonore Bay Supergroup and Tillite Group were extended to Andrée Land, with collection of material for analyses of stable carbon isotopes to be compared with results

from samples taken in 2005 on Ella Ø. A small group from GEUS undertook sedimentological and stratigraphical studies of late Carboniferous sediments in two coast profiles in eastern Kronprins Christian Land.

2007: Neoproterozoic–Palaeozoic geological studies were continued on Ella Ø, with an extension of the study region to Krumme Langsø. Lower Cretaceous rocks on Wollaston Forland were investigated.

2008: Northern East Greenland was the focus of a variety of studies in 2008. Monitoring of the Inland Ice (DANCEA project; Danish Cooperation for Environment in the Arctic) involved establishment of automatic mass-balance stations on the Inland Ice margin in Kronprins Christian Land, on Violingletscher in Nathorst Land and in A.P. Olsen Land near Zackenberg. Another mass-balance station was established near Malmbjerg by Quadra Mining, in connection with the planned mining project.

2009: The automatic mass-balance stations established in 2008 on the Inland Ice margin in Kronprins Christian Land and on Violingletscher, and on local ice caps in A.P. Olsen Land, were inspected and necessary maintenance carried out. The station erected by Quadra Mining on Schuchert Gletscher was also visited. GEUS undertook a major project, led by Jørgen Bojesen-Koefoed, involving seven field teams working between Jameson Land in the south and Germania Land in the north, aimed at the sedimentology and oil geology of rock sequences related to the offshore sedimentary basins; a special group undertook drill coring of Jurassic and Cretaceous sequences in Wollaston Foreland and Hold with Hope. Ten seismological stations were established along a 250 km E–W cross-section of the Caledonian orogen at about 73°30'N (aimed at the registration of distant natural earthquakes) by a small group from the Department of Earth Sciences at Aarhus University; samples for fission-track analysis were also collected. Trine Dahl-Jensen co-ordinated activities by GEUS and the Institute of Geography and Geology at Copenhagen University, that undertook the establishment of 22 seismometers along a 610 km profile at 70°N; measurements over a period of two years will contribute to new detailed models of the Earth's crust and upper mantle. [GEUS archive.]

### 2004 Sailboat JONATHAN visit to NE Greenland

The sailing boat JONATHAN with a crew of two sailed

from Longyearbyen (Svalbard) to the northern East Greenland fjord region, where they visited Vega Sund, Geologfjord, Ella Ø and Mestersvig. [DPC report archive.]

#### 2004 Liverpool Land ski-mountaineering

A four-person group visited Liverpool Land in April–May. From Scoresbysund/Iloqqortoormiut they reached their starting point by dog sledge, and spent more than three weeks climbing and skiing around Emmanuel Gletscher, Kolding Gletscher and Åge Nielsen Gletscher before returning to Scoresbysund (Thomson 2005). [Climb Magazine Newsletter, November 2005.]

#### 2004 West Lancashire County Scouts Mountaineering Group East Greenland expedition

A large group of scouts from West Lancashire visited Milne Land, reached by Twin Otter aircraft, and climbed numerous peaks on both sides of Korridoren, the large glacier that cuts across the island from east to west. This well-organised expedition led by Dick Griffiths made a number of impressive ascents (Griffiths 2004). A selection of unapproved names given to peaks is included in this volume. [DPC & RGS report archives.]

#### 2004 Chicago Field Museum expedition to Kap Stewart

A three-person expedition from Chicago Field Museum visited Kap Stewart in July–August to collect Triassic–Jurassic fossils. [DPC report archive.]

#### 2004 British expedition to *Knud Rasmussen Land*

A four-person British expedition flew by Twin Otter into the region south of Scoresby Sund formerly known as *Knud Rasmussen Land*, and established a base camp at 69°10'N. A total of nine first ascents were made, up to 2884 m high (Windsor 2005). [Climb Magazine Newsletter, November 2005.]

#### 2004 Rando aux Alpes de Stauning (French climbing expedition to the Stauning Alper)

A seven-member expedition led by Yves Dupont visit-

ed Borgbjerg Gletscher in the south-west Stauning Alper in April. They made slow progress in deep and sticky snow, abandoned attempts at climbing and returned to Constable Pynt. [DPC report archive.]

#### 2004 Ecopolaris (GREA) TARA 5 expedition to NE Greenland

This was a more ambitious and wide-ranging tour than the usual land-based Groupe de Recherches en Écologie Arctique expeditions (GREA – Arctic Ecology Research Group). The TARA 5 is a 36-metre ice-class schooner built in 1989, with a crew of five and space for about 15 scientists and their equipment. The expedition carried out investigations between the Blosseville Kyst (69°N) and Danmarkshavn (76°46'N) between 8 July and early September, before sailing eastwards to Jan Mayen and south to Iceland. Akureyri was reached on 7 September. [DPC report archive.]

#### 2005 Greenpeace ship expedition: Project Thin Ice: Martina Krüger

Martina Krüger led an expedition on the ship ARCTIC SUNRISE that visited the inner part of Nordvestfjord. A survey was made of parts of Daugaard-Jensen Gletscher and F. Graae Gletscher, and an iceberg survey was conducted in Scoresby Sund. A short visit was also made to the Zackenberg research station. [DPC report archive.]

#### 2005 Cruise of Grigoriy Mikheev: Dennis Schmitt discovers new island in Liverpool Land

In 2005 Dennis Schmitt was aboard a cruise with the GRIGORIY MIKHEEV and in early September reported sailing around an island in northern Liverpool Land that was not marked on the map and was unknown to the residents in Scoresbysund. This island has been unofficially named *Uunartoq Qeqertaq / Warming Island*. The new island was widely reported in the international press as dramatic evidence of climate warming, but is in fact the result of slow melting of a small ice cap over a period of 10–15 years. [DPC report archive.]

#### 2005 East Greenland ship visits

In addition to the 17 visits by regular cruise ships,

Nuna Travel Aps recorded visits by several small ships to Scoresbysund / Illoqqortoormiut (*Ittoqqortoormiit*) in 2005. These included the COELAN, VAGABOND and VAMOS. [Nanu Travel Aps personal communication 2008.]

### **2005 'TUNU-II' expedition: fish fauna of North-East Greenland fjords**

This continuation of the 2003 'TUNU-I' investigations had been planned for the region between Bredefjord (75°33'N) and Carlsberg Fjord (71°26'N), but the heavy pack ice in late September prevented access, and activities were diverted to Scoresby Sund. Trawling was carried out by the ship JAN MAYEN at nine locations, and hydrographic stations were established in Føhnfjord and at Kap Stephenson. [DPC report archive.]

### **2005 East Milne Land expedition: Barry Roberts**

Barry Roberts led a group to Milne Land for Tangent Expeditions. The snout of Charcot Gletscher was reached after a seven hour journey across the sea ice from Constable Pynt. About 20 ascents were made, mainly by ski. The expedition flew out by Twin Otter aircraft. Some of the climbs made were repeated by the '2006 Milne Land expedition' led by Phil Poole (Editors comments in Poole 2007).

### **2005 Comer scientific studies of glacial features and relative sea-level changes the past 12 000 years**

An expedition aboard the R/V TURMOIL, equipped with a helicopter, visited the Scoresby Sund region in August. Two field parties were set out in the Schuchert Dal area, and visits were made by helicopter to Milne Land and the Stauning Alper. [DPC report archive.]

### **2005–06 Trekking expeditions to Milne Land: Jim Gregson**

Jim Gregson led trekking expeditions to Milne Land for Tangent Expeditions in both 2005 and 2006. In 2005 a group visited the Arabertoppen area of south-east Milne Land. In 2006 a group visited south-west Milne Land where a number of easy ascents were made at about 70°25'N 27°49'W. Access required an

uncomfortable trip of 200 km in an open boat through heavy pack ice (Gregson 2007a).

### **2005–08 Malmbjerg new exploration phase**

Quadra Mining Ltd. initiated a new phase of exploration and drilling at the molybdenum prospect at Malmbjerg, following a dramatic increase in metal prices. This major activity undertook extensive new drill-coring. The project was put 'on hold' in 2008 when prices collapsed at the beginning of the financial crisis.

### **2005–present: British North-East Greenland project**

In a continuation of the earlier project of the same name, small expeditions visited areas for walking tours and natural history observations, using inflatable boats for local transport.

2005 – Visit to Krumme Langsø and the Menander Øer.

2006 – Alpefjord was visited.

2007 – A small group led by Michael J. Lea flew to Krumme Langsø by Twin Otter, and visited surrounding areas using a rubber boat for local transport.

2008 – Vega Sund. A seven-person expedition led by Michael J. Lea visited the Vega Sund region in July and August, flying in and out with Twin Otter and using rubber boats for local transport. Numerous musk oxen were seen on Geographical Society Ø and single, non-aggressive polar bears were encountered. [DPC report archive.]

### **2006 Scoresby Sund late glacial ice advances: Meredith A. Kelly**

A seven-person group from several USA universities made investigations of glacial advances in the Scoresby Sund region in western Jameson Land and on eastern Milne Land in August 2006. Camps were set out and moved by the helicopter based at Constable Pynt. [DPC report archive.]

### **2006 Oxford University Greenland expedition to Gronau Nunatak: Hauke Engel**

A three-person expedition flew by Twin Otter from Iceland direct to their target area at around 69°30'N in the Gronau Nunatak on 6 August. They claimed

12 first ascents. They flew back to Iceland on 29 August, on a shared charter with the Anglo-Scottish expedition (Engel 2007). [RGS report archive; Climb Magazine Newsletter, January 2008; BMC report archive.]

### 2006 Milne Land circumnavigation by kayak

A three-person group flew into Constable Pynt and chartered a boat to carry them and their kayaks to south-east Milne Land. From here they travelled along Føhn Fjord and on south-west Milne Land climbed a rock route to Hermelintop (called 'Hergentitop' in their report). After completing their tour around Milne Land they paddled their kayaks back to Scoresbysund/Iloqortoormiut (*Ittoqortoormiit*) (Sanders 2007). [Climb Magazine Newsletter, January 2008.]

### 2006 Tangent Expeditions visits to *Knud Rasmussen Land*, *Sortebræ* mountains

Two groups from Tangent Expeditions were active in the *Sortebræ* region in May 2006. A Rosie Goolden group arrived in early May and spent 20 days in the region, making a number of first ascents at the margin of the ice cap. The group was lifted out on 27 May by the Twin Otter that brought in a six-person party led by Jim Gregson. This group established a base camp at 69°05'N, and made six first ascents up to 2405 m high (Gregson 2007b).

### 2006 'Brathay' expedition to *Knud Rasmussen Land*: Paul Williams

An eight-person expedition from Brathay Exploration Group, led by Paul Williams, made a visit to a group of nunataks in the western part of Geikie Plateau from 17 July to 7 August. Four peaks were climbed ranging from 1950 m to 2350 m high. Ten rock samples with lichen were collected for the University of Copenhagen (Griffin 2007). [Climb Magazine Newsletter, January 2008.]

### 2006 Milne Land expedition: Phil Poole

Phil Poole led a three-person expedition to Milne Land from 8 to 16 May, reached by skidoo from Constable Pynt. A base camp was established about 10 km up Charcot Gletscher, and ski ascents were made of seven peaks from 1254 m to 1770 m high. The expe-

dition was lifted back to Constable Pynt by helicopter because of the melt (Poole 2007).

### 2006 BSES Liverpool Land expedition

The British Schools Exploration Society (BSES) again organised a trip to Liverpool Land. The 14 leaders and 54 young explorers were landed at Constable Pynt, and used local boats to reach a base camp established near the head of Hurry Inlet at Kalkdal. The five groups of young explorers ranged northwards as far as Carlsberg Fjord and south to Sødal carrying out a variety of scientific projects. [DPC report archive.]

### 2006 Glasgow Academy expedition to *Milne Land*: Neal Gwynne

A 16-member expedition of four leaders and 12 pupils from Glasgow Academy (Scotland) visited Milne Land in July. The group, led by Neal Gwynne, was landed by Twin Otter on eastern Milne Land, and walked south and west to reach the upper reaches of Charcot Gletscher. A series of peaks up to 1800 m high were climbed. Two first ascents were claimed, while many other summits were reported to have previously been climbed by a ski-tour expedition. [DPC & RGS report archives.]

### 2006 Anglo-Scottish expedition to the *Wager Nunatak* and *Watkins Bjerge*

This four-person expedition was dropped off in the *Wager Nunatak* at 69°39'N 27°44'W by the Twin Otter taking out the 'Brathay' expedition. Over the next two weeks the group undertook ski-mountaineering and alpine mountaineering. After a long ice-cap crossing, they were picked up in the northern *Watkins Bjerge*, together with the three members of the Oxford University expedition. A total of 16 summits were climbed, mostly first ascents, but few of the peaks were more than a few hundred metres above the ice-cap surface; while providing spectacular views in a very isolated region none of the climbs were apparently of great difficulty. [BMC, DPC & RGS report archives.]

### 2007 SMC East Greenland expedition: Colwyn Jones

An eight-member expedition from the Scottish Mountaineering Club (SMC) led by Colwyn Jones



visited the Stauning Alper in April and May. After landing by Twin Otter on the upper part of Storgletscher, a series of first ascents were made on both the west and east sides of the glacier. The expedition then moved northwards, climbing several summits around the upper Gullygletscher, then crossed Majorpasset (*Col Major*) and descended Bersærkerbræ to eventually reach Mestersvig. Many of their peaks were given danicised names, 'spids', 'tinde' and 'bjerge', although the singular form 'bjerg' would have been more accurate. [RGS report archive.]

### 2007 West Lancashire County Scouts Mountaineering Group East Greenland expedition

A large group of scouts from West Lancashire visited Renland, established a base camp on Edward Bailey Gletscher, and made numerous climbs of peaks and high points on the ice caps to the north, south and west (Griffiths 2007). Access was by Twin Otter to an established rough airstrip on eastern Milne Land, from which speedboats were hired to ferry the group to the coast of Renland. Some helicopter transport was also necessary. Like the earlier 2004 expedition to Milne Land, this was a well-organised and successful expedition that achieved all its objectives. Unapproved names were given to 34 summits climbed; only a selection of names are included in this volume. [BMC, DPC & RGS report archives.]

### 2007 Army Mountaineering Association: 'Boreal Zenith' expedition to Andrée Land: Sam Marshall

Mountaineering was carried out in July by a party led by Sam Marshall from a base camp established in central Grejsdalen, reached by Twin Otter aircraft. The members of the party made numerous climbs of summits to the north and south of the valley, most claimed as first ascents. The expedition made use of Geodætisk Institut 1:250 000 scale topographic maps compiled in 1932 being unaware of the existence of modern topographic maps. Of the 25 summits climbed and named by the Boreal Zenith Expedition, only selected names are included in this volume. [BMC & DPC report archives.]

### 2007 British Dronning Louise Land expedition

This three-member expedition led by Gavin Booth

visited Dronning Louise Land in May–June. Ten nunataks were climbed, of which eight were thought to be first ascents. A Twin Otter aircraft was used for transport. [RGS report archive.]

### 2007 Japanese Milne Land expedition: Yasushi Yamanoi

The Japanese mountaineer Yasushi Yamanoi made an aerial reconnaissance of Milne Land looking for a suitable mountain wall to climb. He returned in July with his wife Taeko and two others, one a TV producer with the Japan Broadcasting Company. The party took a helicopter from Constable Pynt to *Ittoqqortoormiit* from where they hired a boat to take them and their climbing and film equipment on an eight hour journey to east Milne Land. Another helicopter lift on 27 July took them to the foot of a 1250 m vertical wall, that they named *Orca*, at the west end of the glacier Korridoren. The climb took them 17 days to complete, after which they were lifted by helicopter back to Constable Pynt. [Climb Magazine Newsletter, January 2009.]

### 2007 North Liverpool Land expedition: Jimi Gregson

Jim Gregson led a party of six that visited north Liverpool Land from 7 to 21 April. From Constable Pynt they travelled by skidoo to the head of Carlsberg Fjord. A total of seven climbs were made, the highest 770 m. [Climb Magazine Newsletter, January 2009.]

### 2007 N–S traverse of Liverpool Land: Phil Poole

Phil Poole led a party on a north to south ski traverse of Liverpool Land. They travelled with Jimi Gregson's skidoo party to Carlsberg Fjord, from where the traverse was to begin. The traverse was successful, with the last stage to *Ittoqqortoormiit* being completed by dog sledge. Both Phil Poole's party and James Gregson's group flew back to Europe from Constable Pynt on 21 April. [Climb Magazine Newsletter, January 2009.]

### 2007 South Liverpool Land: Eduard Birnbacher

A German climber, Eduard Birnbacher, travelled about 15 km north of Scoresbysund/Illoqortoormiut

(*Ittoqqortoormiit*) with a Greenlandic assistant, and made two solo ascents between 13 and 23 April; the north-east pillar of Kronen and an 800 m high summit south of Kronen. [Climb Magazine Newsletter, January 2009.]

### 2007 GREA Sagax-Revo and Ecopolaris expeditions to East Greenland

These expeditions were organised by Groupe de Recherches en Écologie Arctique (GREA – Arctic Ecology Research Group). The Sagax-Revo party carried out ivory gull censuses and botanical sampling on the ice cap south of Scoresby Sund (69°45'N 28°23'W) in June 2007, before flying to Station Nord to carry out further studies. The Ecopolaris group carried out studies around Holm Bugt on Traill Ø in July and August, a continuation of a long-running GREA research project (see GREA 2003). Visits were also made to areas on Ymer Ø and around Forsblad Fjord. [DPC report archive.]

### 2007 East Greenland Sortebræ expedition: David Jakulis

The first group of this 8-person expedition flew by Twin Otter via Constable Pynt arriving in the area west of Sortebræ (69°01'N 27°51'W) on 9 June. The plane buried its nose in soft snow on landing, and took some time to dig out, helped by extra personnel landed by helicopter. The second party was flown out on 11 June, but due to snow conditions was landed some 40 km away from the first group. Despite these problems, the two groups were reunited and attempted or climbed a number of peaks. Four of these were north of 69°N latitude. The party flew back to Iceland on 29 June. [BMC report archive.]

### 2007 Ogwen Valley Dronning Louise Land expedition: Russ Hoar

A three-person expedition comprising members of the Ogwen Valley Mountain Rescue Organisation visited the nunatak region of south-west Dronning Louise Land in May–June. Travel to and from the region was by Twin Otter. The constant strong katabatic winds were a problem, as it was bitterly cold. Numerous minor nunataks from 1900 to 2240 m high were climbed and claimed as first ascents. However, as the ice-cap surface is at *c.* 1800 m, none of the climbs involved ascents of more than a few hundred

metres, and none were difficult. [BMC & RGS report archives.]

### 2008 Arctic summits expedition

In April and May 2008 Georg Czak and Dominik Rind made a long ski journey to the Watkins Bjerger, and via the Gronau Nunatak to Paul Stern Land. A total of six first ascents were made, as well as climbs of the four highest mountains in Greenland (south of 69°N) around and including Gunnbjørn Fjeld. They had been set out by helicopter high on the ice cap and were picked up by Twin Otter from Paul Stern Land. [DPC report archive.]

### 2008 Paul Stern Land

Three British climbers (Geoff Bonney, Jim and Sandy Gregson) were dropped off by Twin Otter in south-west Paul Stern Land on 24 May. From their landing point they moved to northern Paul Stern Land where they set up a base camp at 1800 m. The group suffered from strong katabatic winds but five first ascents were made, the highest being Ararat. On 7 July the party was picked up by a Twin Otter bringing in a Nigel Edwards climbing group (see below). [Climb Magazine Newsletter, January 2010.]

### 2008 Nunataks north of Paul Stern Land: Nigel Edwards

Nigel Edwards led a six-person group of climbers that explored the nunatak region north of Paul Stern Land. Over the next 2½ weeks a total of 11 first and second ascents were made. The rock was reported as very poor, and none of the ascents involved more than about 500 m of vertical gain. [Climb Magazine Newsletter, January 2010.]

### 2008 Greenland Renland expedition: Nat Spring

A three-member British expedition led by Nat Spring visited Renland in June and July. The party flew into Constable Pynt airfield and on 27 June was lifted by helicopter to their base camp established on the lower part of Edward Bailey Gletscher. Three new peaks were climbed, and in the course of the expedition the party travelled the full length of Edward Bailey Gletscher. A helicopter lifted them back to Constable Pynt on 21 July. [BMC & RGS report archives.]

### **2008 Queens University Belfast Mountaineering Club expedition: Anthony Garvey**

This six-person expedition led by Anthony Garvey visited Renland in June. From Constable Pynt the party was lifted by two helicopter flights to a base camp set up on Edward Bailey Gletscher. Snow conditions were worse than in 2007 (West Lancashire Scouts expedition), and planned climbing routes had to be modified. The party climbed two summits by ski, and two impressive peaks on rock and ice. Return to Constable Pynt was made by helicopter in a single flight. [BMC & RGS report archives.]

### **2008 The AKTIV celebrates the centenary of the 1906–08 Danmark-Ekspeditionen**

The ice-strengthened wooden schooner AKTIV visited northern East Greenland as part of the centenary commemoration of the 1906–08 Danmark-Ekspeditionen. The ship provided a working platform for geological investigations by GEUS (Geological Survey of Denmark and Greenland) in connection with the 2008 International Polar Year. Leaving Copenhagen on 3 July, the AKTIV carried out a number of geological tasks and called at several historical localities, including Hekla Havn, Ella Ø, Mestersvig, Daneborg and Kap Sussi, and arrived at Danmarks-havn on 23 August. The ship arrived back in Copenhagen on 10 September (N. Mikkelsen 2009).

### **2008 Expedition Blosseville Kyst: Pascal Hémon**

A six-person expedition led by Pascal Hémon visited the Blosseville Kyst in July–August, using the 16 m aluminum yacht MIO PALMO for transport. A trip was also made along the Liverpool Land coast to the mouth of Kong Oscar Fjord. An attempt was made to photograph Rigny Bjerg from the sea, first seen during the 1833 voyage of Jules de Blosseville, but poor weather hindered observations. [DPC report archive.]

### **2008 Dresden University R/V POLARSTERN voyage**

Mirko Scheinert led a four-man team aboard the R/V POLARSTERN with the objective of setting up new GPS stations at ice-free locations on the northern East Greenland coast. In June and July a total of 16 new

stations were established between 74° and 81°N, and 10 stations of the KMS (Kort- & Matrikelstyrelsen: National Survey and Cadastra) geodetic network were re-observed. [DPC report archive.]

### **2008 Odder Museum and Danish Arktisk Institut**

Eight curators from Odder Museum and Danish Arktisk Institut joined 48 paying participants aboard the Russian cruise ship ALEKSEY MARISHEV for a maritime archaeological cruise organised by the travel company Oceanwide. This voyage in September 2008 was part of a series of initiatives to commemorate the 100th anniversary of the 1906–08 Danmark-Ekspeditionen.

In Danmark Havn part of the telephone cable that had connected the ship DANMARK with the buildings on shore in 1906–08 was observed, as well as an abandoned iron pot. At Snenæs a search was made for the motor vehicle that sank through the ice here in 1907, but no trace was found. Off the north-east coast of Shannon a search was made for the wreck of the ALABAMA that had sunk off Alabama Havn in March 1910, but only the anchor was found. [DPC report archive.]

### **2008 ‘Norfra’ winter expedition to North-East Greenland: Hans Lapstun**

This three-person expedition led by the Norwegian Hans Lapstun visited the region around Nyhavn and Mestersvig airfield in April and May. A month was spent at *Washburn’s Hus*, and for the last few weeks Nyhavn was used as a base. [DPC report archive.]

### **2008 Kayak expedition Daneborg to Ella Ø**

Two Greenlanders from Aasiaat in West Greenland made a kayak tour through the fjords of northern East Greenland between 28 July and 30 August. Due to ice conditions their route was from Daneborg, west of Clavering Ø, through Loch Fyne, a portage to the head of Muskusoksefjord, and via Ymer Ø to Ella Ø. Transport to Daneborg and from Ella Ø was with Twin Otter. [DPC report archive.]

### **2008 The PROFESSOR MOLCHANOV visit to the North-East Greenland National Park**

A group from ‘Foreningen af Danske Biologer’ (So-

ciety of Danish Biologists) took advantage of a cruise by the PROFESSOR MOLCHANOV to visit sites in the North-East Greenland National Park that relate to Danish-Norwegian expeditions and whaling activities. Between 8 and 11 September the group visited Danmarkshavn, Germaniahavn, Ella Ø, Alpefjord and Scoresbysund. [DPC report archive.]

### **2008 Eastern Liverpool Land**

Simon Burke and Olly Sanders undertook a kayak tour along the outer coast of southern Liverpool Land, and made stops at Raffles Ø, Rathbone Ø and

Kap Høegh. Some short climbs were made, and the party experienced problems with curious polar bears on several occasions. [Climb Magazine Newsletter, January 2010.]

### **2008 Kayak expedition Mestersvig to Ella Ø: Morten Asklund**

A four-man expedition led by Morten Asklund made a problem-free kayak trip from Mestersvig to Ella Ø, and return, between 28 July and 12 August. [DPC report archive.]