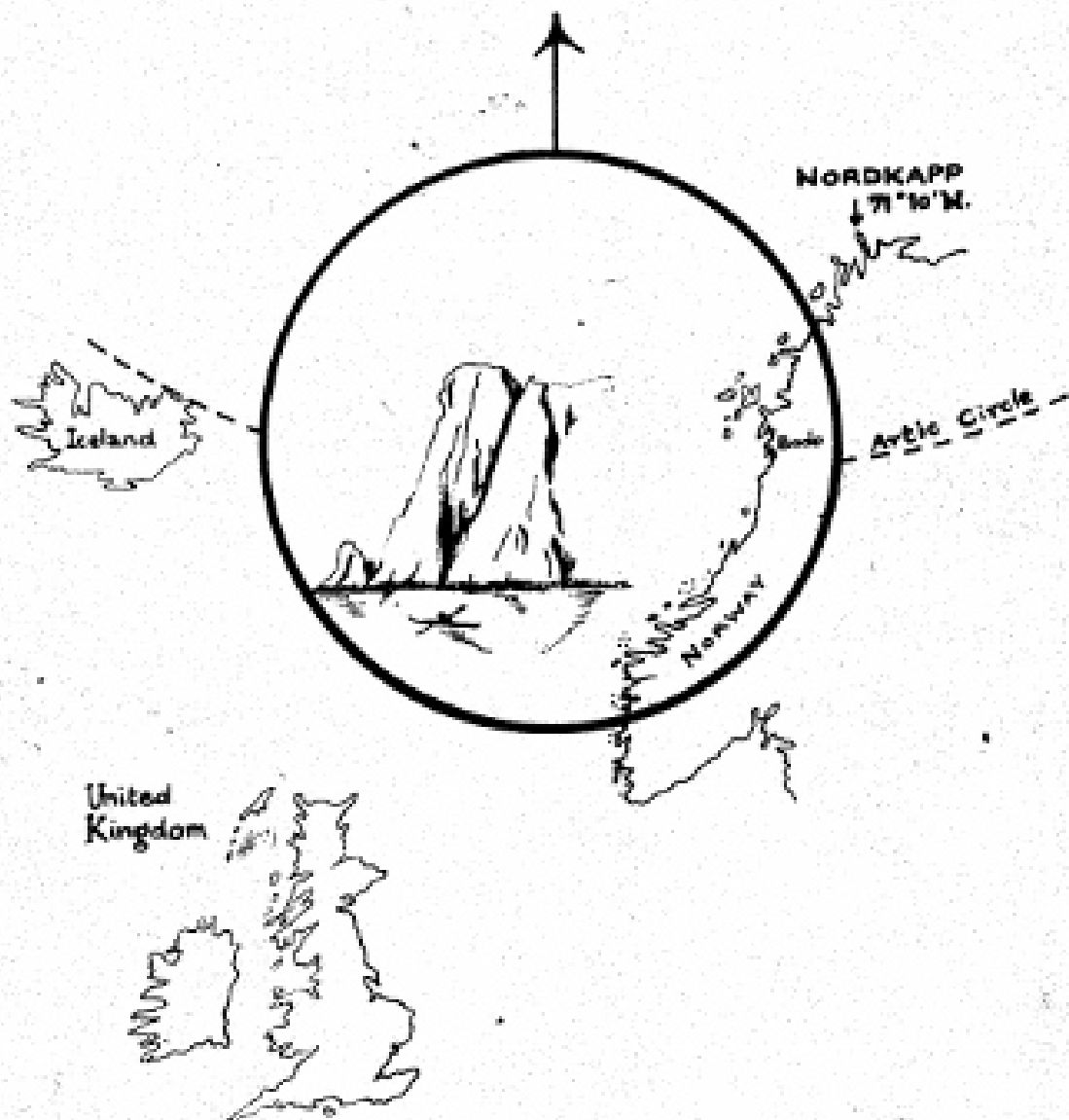


REPORT

BRITISH KAYAK EXPEDITION

TO NORDKAPP



PATRON

THE BRITISH CANOE UNION

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THE CONCEPT

In mountaineering it has long been the tradition to expedition abroad in the big ranges of the world, and like many climbers, I had found great satisfaction in such journeys. Despite enjoying the complex challenges of sea canoeing around British coasts, however, the foreign expedition seemed both a way of solving a personal sense of frustration at the insular nature of my canoeing, and of starting to do justice to the great potential of the sea kayak. After all the sea is surely as big a challenge as the mountains.

Finding a worth-while and attractive objective proved difficult until I remembered a three day kayak journey I had made many years ago in North Norway. Research into maps and the Pilot showed that the 500 mile journey along the North Norway coastline to North Cape was not only a possibility but that, if the Pilot was correct, we could expect a great deal of difficulties and dangers en route. At the same time, as much of this coastline had islands to seaward, we should often be protected from the build up of big seas in bad weather. Finally North Cape seemed appropriate not only because it was discovered by the Englishman Richard Chancellor in 1533, but because it was the most Northerly point of the continent of Europe.

PLANNING

The idea proved attractive to friends and the team was quickly formed in the winter of 1973/74. The workload was organised as follows:-

Sam Cook	- equipment
Colin Litton	- travel, insurance, food
John Anderson	- emergency equipment and repairs
Nigel Matthews	- food, medical, treasurer
Peter Davis	- route planning, meteorology
Colin Mortlock	- finance, publicity, food

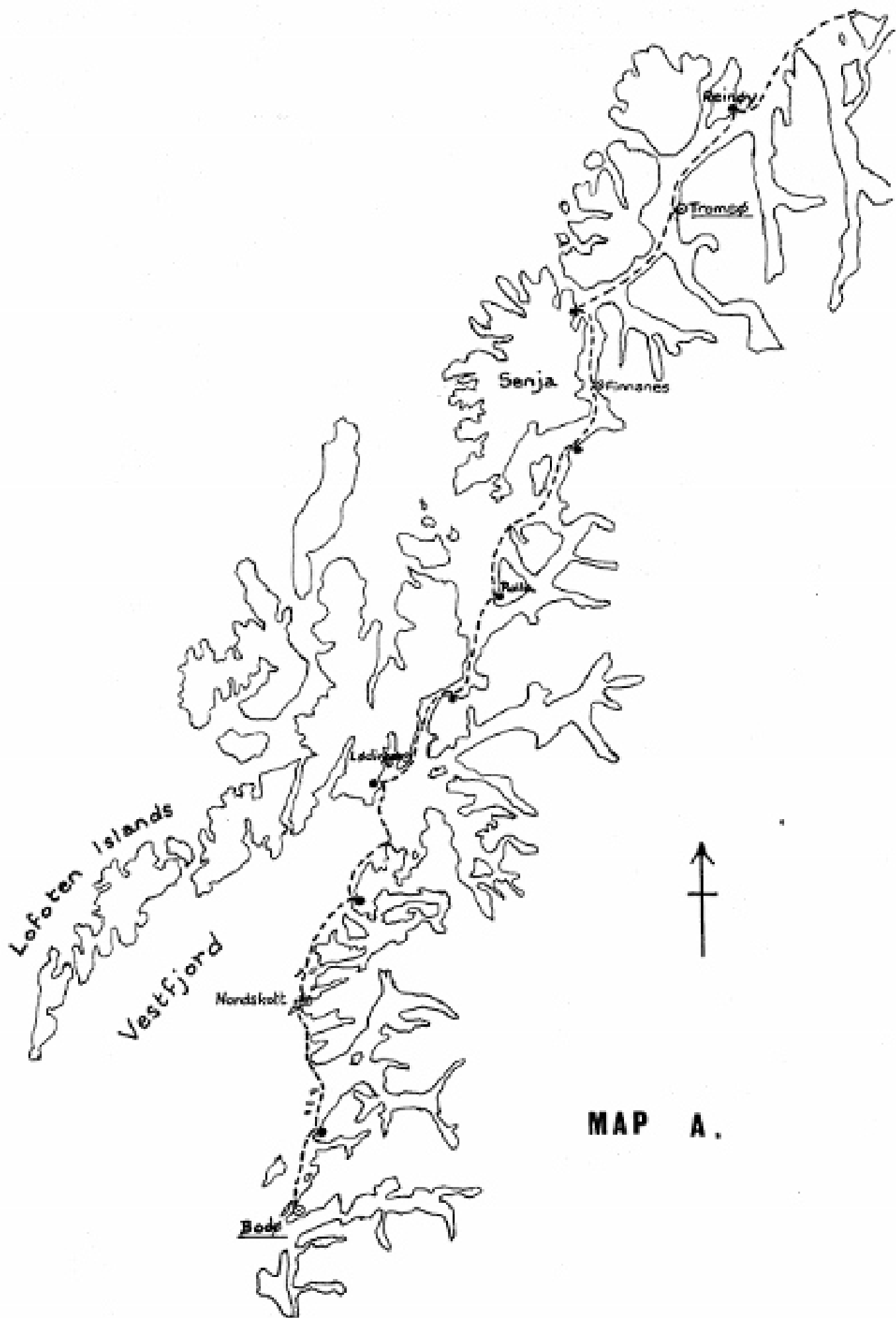
Any expedition requires a great deal of work in planning, organisation, obtaining of suitable equipment, and some financial backing. This journey proved to be no exception. Indeed the workload before we went was generally demanding. Equipment manufacturers, for example, were generally very helpful, but because most of the equipment had to be modified or specially made for the expedition, items had to be tried and tested.

A Year proved very little time in this and other respects.

Summer of 1974 saw the team do a training trip round the island of Skye. Fitness, personal competence, social compatibility, and equipment efficiency were all major factors that we were interested in at this stage. In typically mixed August weather conditions, with winds from force 0 to 7, we made the 180 mile clockwise circuit of the island in eight days, which included one rest day in bad weather. Much was learnt from the trip. In particulars-

- (i) Modifications to the kayaks, both in design and in incorporating bulkheads and hatches, were necessary.
- (ii) Personal fitness for this type of endurance canoeing was essential.
- (iii) Kayak fittings and personal equipment could generally be improved.
- (iv) Sixty miles over three days followed by a rest day should be used as a rough basis for an expedition of six weeks.

Apart from being very useful training, the Skye circuit proved to be one of the classic journeys on British coasts, with spectacular cliff scenery, exposed headlands, and superb campsites.



MAP A.

LOG OF THE JOURNEY TO NORDKAPP

June 27th

The team met up at Colin Litton's house in Belton Woods, Bradford. Along with helping friends the final breakdown of bulk food into man-day rations was completed - to some detriment to Colin's carpet - and along with packing gear and rations into the kayaks and into two crates for the halfway dump at Skjervoy. A Telegraph photographer took group pictures, as did a photographer of our feet in John White track shoes!

June 28th

Once the local kids had been removed from the trailer, which they used spectacularly for gymnastics, we loaded up the kayaks and set off for Newcastle. We were most grateful to Alec, our driver, and to the Beverley Centre, for the use of their transit and trailer. Equipment and team travelled comfortably to the Bergen Line dock. There was time for last minute shopping in North Shields and an excellent and cheap sausage, egg and chips. We had a feeling that normal English meals were going to be a rarity. By 5.00 p.m. we were sailing out of grimy Newcastle in glorious sunshine.

June 29th

The weather was still superb when we arrived at noon in Bergen. The coastal steamer was at the adjacent quay but was not scheduled to depart until 11.00 p.m. After customs clearance our priority was to get the equipment and new kayaks safely stowed aboard the coastal boat. In practice this was difficult as the kayaks were an awkward shape and the coastal boat has very limited deck stowage space for such items. With the agreement of the only officer on board, however, we worked for two hours and lashed the kayaks in and on a spare small open boat on the upper deck. We then walked into the main town to sample the highly expensive coffee at 25p a cup, and ice cream at 35p. On our return we were amazed to see our kayaks back on the quay and a message to say that the first officer wanted to speak to us. As he told me off for loading the kayaks onto the boat I only just kept my temper. After explanations, however, and a further hour's work, the kayaks were finally loaded in deck areas which were suitable to all concerned.

June 29th to July 2nd

For the next two and a half days we sailed Northward, with stops at major towns. The fine weather persisted at first and we could both sunbathe on deck and enjoy the mountain and fjord scenery, while Colin Litton amazed the tourists by making wetsuit trousers on the deck. A visit to the Captain proved very helpful with advice on the type of weather and sea conditions that we could expect. It was refreshing to meet someone who did not indicate that our intended kayak journey was mad!

By Romsdal a low pressure system replaced the settled weather that had been with us since Newcastle. We finally arrived in Bodo, our expedition start, not only tired after four and a half days travel, but in pouring rain. Our mood, however, contrasted with the weather. Peter Davis, our advance party who had been in Bodo several days, provided the laughs as he cycled along the quay complete with what looked like a porter's hat. The local press took photographs of the group, and Peter's new friends made us feel very welcome. Kayaks and gear were soon installed in a large local wood shed, and packing of gear into the boats was soon relieved by a superb evening meal laid on by the family Johnson. Sleep on the floor of the wood shed, however, was difficult. The hard floor combined with over-active minds. We were almost, at last, about to start.

July 3rd : 19 miles

Up at 7.00 a.m. It was discovered that raisins in the porridge both do little for the porridge and burn the pan as well. Final packing of the kayaks required ingenuity and Peter kept us in good humour by remarking that his gear just would not all go in. Although the sea was only fifty yards away, it was with difficulty that we carried the loaded kayaks down - with two people to each kayak! We estimated they must weigh about 80 kilos. By 10.00 a.m. we were on (under?) the water. Although we smiled as we waved goodbye to our new friends and the press, our mood was less than lighthearted. 500 miles suddenly seemed a long way - especially when the kayaks seemed slow and cumbersome, and the weather poor with a cold wind and rain.

As we slowly passed the town the local coastguard vessel followed us, and then suddenly we were on our own. To the West the impressive Landegoy island peaks disappeared into a grey pall of cloud, and vicious rain squalls kicked up a choppy sea. The sight of Colin Litton's incredible

hat, made that morning from his old neoprene trousers, provided momentary light relief, but the beam seas hour after hour were both trying and frustrating. The kayaks seemed determined to head up into the Westerly wind rather than reduce the 500 miles to the North. The coldness of the wind seemed also very reminiscent of winter canoeing in the UK, and it was with relief that we finally found a comparatively sheltered campsite by a coral beach at Fjaere at 4.00 p.m. The day had probably been too ambitious for the first day, for although 19 miles were covered, two of the team were suffering from shoulder and wrist strains by the evening.

July 4th

The 6.30 a.m. shipping forecast in Norwegian was translated to mean Westerly force 6/7 and, along with rain and complete cloud cover, it was decided to wait until lunchtime before making a decision about continuing the journey that day. Even by evening there was no weather improvement and it was a frustrated team that went to bed that night in the two lightweight tents.

July 5th : 14 miles (33 miles total)

Overnight the wind rose to gale force and my tent, in a more exposed position than the other one, was finally flattened at 7.00 a.m. The three of us, gear carried in a bivvy sack, retreated for a quarter of a mile through the howling wind and torrential rain, to a newly completed wooden boat shed. The owner of the latter not only gave us permission to use it, but allowed us to build a fire in its entrance to dry out damp clothing. No doubt thoughts of the fire burning down his boat shed were tempered by the fact that such a fire would also at the same time destroy all our clothing and equipment! The rest of the day was spent catching cod and saithe in the immediate shelter of the bay, cooking them, and drying gear. Keen to make mileage progress we noted with relief that the gale was gradually blowing itself out, and, despite visibility being under a mile in the rain showers, we decided to leave at 8.30 p.m. At least we could try and make use of the continuous daylight available at this time of year in North Norway.

As we paddled the three miles across the comparatively sheltered sound to Karlsøy the wind decreased to a Westerly force 3, and visibility had extended to five miles. We then followed the sheltered Eastern side of the island, and, after a brief stop in the lee of islets, paddled across the entrance to Folda fjord.

This six mile crossing was open to the West, but the swell was surprisingly small considering that there had been a gale that day. It was, nevertheless, an impressive place to be paddling at midnight, with the dark peaks covered in cloud and a grey sea. Once across we were once more in the lee of islets, but the situation remained impressive. As we approached our intended campsite of a small and open beach at Lottevik, a sea eagle was seen soaring along the huge rock faces above the beach, whilst on the shore a wild cat was spotted. Footprints of the latter were found on the sand when we landed at 1.00 a.m. After a quick meal we were in bed by 2.00 a.m.

July 6th : 12 miles (45 miles total)

We left Lottevik at 1.30 p.m. in overcast conditions and a South Westerly force 3/4. The 1:50,000 land maps proved invaluable through a complex of islands and short crossings. By early evening we had entered the narrow islet strewn sound into Nordskott village. After taking the wrong channel due to difficulty with interpreting the high and low water mark on the land map, we retraced our route for half a mile and got back on route. The weather deteriorated at this point into frequent cold rain squalls, but as we were near to our destination, fishing commenced. Nigel experienced difficulty landing a large cod into his kayak until John assisted him, whilst Peter caught a good salmon in the back of the neck! On arrival at Nordskott Colin Litton searched for a good campsite whilst Peter went into the village and was offered the use of a large house. Although the campsite was poor and a long way from the sea, it was not easy to accept the hospitality of a private house. We had no wish to impose six cold and wet canoeists on anyone. However, it appeared likely that we would upset the owners by not accepting the offer, and therefore finally accepted with grateful thanks.

The evening proved to be most enjoyable. Whilst the now continuous rain and wind lashed the house, we cooked in a proper kitchen, had a welcome hot bath, and talked to our hosts. The latter were delighted at the gift of the two salmon we had caught.

July 7th : 17 miles (62 miles total)

Sun at last! The heavy overnight rain had given way to a very bright day. After taking photographs of our hosts, and thanking them, and watched by what seemed to be the whole village, we departed at 10.00 a.m. All morning we paddled North in the lee of small islands. Although the

wind was a light Northerly, it was bitterly cold, and despite the sun, some of the team wore gloves. Fresh snow on the spectacular mountains East of us emphasized the lack of summer. Lunch was taken by a gleaming coral beach, and, out of the wind, we enjoyed the heat of the sun. Almost too quickly an hour went by, and we set off again, going out of the lee of the small islands into Vestfjord that separates the Lofotens from the mainland. Although still in bright sunshine we could see rain squalls hitting the jagged peaks of Lofoten to the West, and as the wind had backed during lunch, we knew they would hit us. For four miles we contended with white horses and a choppy beam sea, with the majestic cliffs of Engeloysa as a lee shore, until we reached the lee of Brunnvaer. After fishing from the kayaks, a sheltered camp site was found on Lundoya. It had been a good day with an active sea, superb mountain views, and the sighting of three eagles and a porpoise.

July 8th

The rest day happily coincided with bright sunshine, and was spent in photography of equipment, washing and drying of clothing, sorting out of personal equipment, and cooking.

July 9th : 28 miles (90 miles total)

In continuing good weather and light breezes we left at 8.45 a.m. On rounding one islet the view South down Vestfjord looked unusual with what appeared to be icebergs about 10 miles distant. We later discovered that this was an inferior sea mirage in which the land horizon is inverted on top of the land. After three and a half hours we had passed Hamaroy and crossed Oksundet, and we stopped for lunch on the islet of Selsoya. The view was a picture postcard. Vestfjord shimmered like a huge calm lake, complete with an ultra-modern Swedish liner. Behind and to the West the innumerable jagged peaks of Lofoten filled the skyline, complete with extensive snow fields.

We had intended continuing up the East side of Vestfjord for another day and a half before crossing it, but it seemed sensible to take advantage of the ideal conditions and to cross at this point. After lunch, therefore, we made the 12 mile crossing, stripped to the waist making camp at Ytterstad at 5.45 p.m. The dragging of the kayaks through 200 yards of mud to a small campsite seemed superfluous after making such good mileage and crossing Vestfjord without difficulty.

July 10th : 23 miles (113 miles total)

The bright morning was spoilt by John discovering that he had inadvertently left his camera overnight below high tide level in an unsealed container. Despite washing it in stream water it was obvious that it was a write off, although fortunately insured. Leaving at 8.30 a.m. the stiff South Westerly breeze helped us to surf for two and a half hours up to the North end of Vestfjord and the town of Lodingen. After a coffee and pleasant thoughts that the first 100 miles were behind us, we left the town at 2.00 p.m. The scenery had now changed considerably: in place of the open expanse of Vestfjord we now had narrow fjords. By early evening we had paddled North in light breezes up and across Tjeldsundet, and were encamped on a pleasant, narrow sandy spit at Sand.

July 11th : 25 miles (138 miles total)

For the first time it was necessary to make use of the tides, and by chance this meant leaving departure until 12.30 p.m. With maximum tidal assistance we made good progress, including an easy tidal race (straumen), and had lunch at the northern end of Tjeldsundet, close to the superb Steinsand bridge over the fjord. In contrast to the narrow fjord of the morning the afternoon was spent on the nine mile crossing of the open sound of Vagsfjorden to the rugged South Western corner of Rolla island. Leaden skies threatened, but the brisk South Westerly assisted our passage, and we arrived at Hallelvik, making camp on an exposed and deserted beach. During the evening the weather improved and John and Sam went fishing at midnight. Between them they caught 12 saithe as the sun sank over Senja Island. On their return they cooked the fish over an open fire. It was the first campsite where driftwood was plentiful.

July 12th

Rest day. Despite a complete lack of sun and a gusting South Westerly wind, an enjoyable day was spent mainly cooking a continuous selection of delicacies (jam roly-poly, potato cakes, pancakes, etc.) on an open fire.

July 13th : 30 miles (168 miles total)

The noise of the very heavy and prolonged overnight rain kept the team awake much of the night. By 7.30 a.m., however, we were once more on our way with a good sea running and a South Westerly 4/5. After a

brief cold stop at the North end of Andorja we made the seven mile crossing to the South end of Dyroya. A cross wind and sea made steering difficult by preventing rhythmic paddling. In increasing rain squalls and with dramatic views of mist clad Faksfjorden we pushed on up Dyroysundet, arriving at Finnlandnes at 3.30 p.m. A very kind old lady, Frau Nanna, offered us the use of a derelict house for sleeping and cooking, and entertained us in the evening. Strong winds and driving rain during the night were of no concern as we slept peacefully beneath a roof.

July 14th : 29 miles (197 miles total)

Frau Nanna came down to see us off at the tiny harbour. Her expression showed anxiety for us as she shook hands. Unfortunately we could not explain in our very limited Norwegian, that the blustery South Westerly wind and white horses would in fact help us on our journey. For most of the 12 miles up Solbergfjorden we surfed happily. This was followed by a three mile crossing into a headwind, and by lunchtime we were at the town of Finnsnes. Despite the good progress our mood was not enthusiastic. A press interview was conducted with the team huddled behind a building, sheltering from what was rapidly becoming normal weather conditions of wind, rain and cold. In addition the police had asked us to go to the police station! As Peter and I walked to the station, with many peculiar looks from the locals at our wetsuited figures, we wondered what had gone wrong. Fortunately, after a phone call to Bodo Rescue Control, it turned out that there had been a misunderstanding about our phoning in system with the latter, and the problem was quickly resolved. Matters further improved when I managed to make contact with a Mr. Lund whom I had met on a mountain expedition many years previously. This resulted in a superb afternoon of waffles and coffee at his home by an open wood fire, and much discussion about the appalling summer. At 3.30 p.m. we reluctantly waved goodbye and continued North along Gisundet. With tidal help along the narrow and busy sound we were past Gibostad by 6.30 p.m., and in near freezing temperatures we camped at Grunnvag on the North East end of Senja Island.

July 15th : 31 miles (228 miles total)

Overnight rain continued as we struck camp, and it was good to warm up as we set off Eastwards at 8.30 a.m. to cross Gisundet. Once across, we rounded the exposed point of Karvik in a good swell, and continued past good cliff scenery. The light breeze freshened from the South West as we crossed Malangen and rain squalls developed. Lunch was taken at Ansnes, the Eastern entrance to the latter. Despite finding some shelter from the weather in

the lee of rocks and trees, we quickly became very cold. A hastily constructed fire did little to warm us, and the fresh snow on adjacent peaks down to a few 100 metres above sea level, indicated the near-freezing temperatures. We realized only hard paddling was the answer and hurriedly re-entered our kayaks and set off down mist clad Strømsfjorden with white horses and lashing rain following us. The notorious tide race of Rystraumen proved to be little more than a large grade II rapid, although John and Sam enjoyed playing round the whirlpools. Resting below the rapid we watched the coastal express steamer go through the race. It turned out to be the Polarlys, the boat we had travelled in to Bodo from Bergen. Our mode of travel suddenly seemed slow as the latter had been up to North Cape, back to Bergen, and was now well on her way North again! We set off once more, and round the corner of the fjord we could just make out the town of Tromsø in the murky distance. A long and cold 9 mile paddle took us to the city, where we were met by a fast press launch. Pictures were taken, questions asked, and then the launch disappeared into the town. Tired feelings during the final mile under the impressive Tromsø bridge and up the mouth of the Tromsdalen river, were offset by finding that our contact had booked us in, not at a campsite, but at the local guest house. To hell with the lousy weather was an easy reaction after a hot bath and a meal laid on by the courtesy of the local press.

July 16th Rest Day

We awoke to discover we were front page news - a big article and many photographs. The descendants of the Vikings and the land of seafarers were obviously intrigued with our journey in such small craft. The day proved to be a very busy one. After further press interviews we borrowed a garage to lay up skegs for each kayak, as the two that had been brought by John and Sam were obviously an advantage in certain types of seas. Whilst these were going off (a long process because of the cold weather) we were taken by our press friends into the city. The first visit was a formal but friendly meeting with the Mayor, and we felt privileged to sign the official visiting book. We then split up. Peter and Colin accompanied Nigel to the hospital as the latter had a nasty boil on, of all places, his buttock! John, Sam and I were taken to the meteorological station. This proved to be a most useful visit as we both obtained more translations of the many Norwegian weather forecasts available to us on our radio, and were able

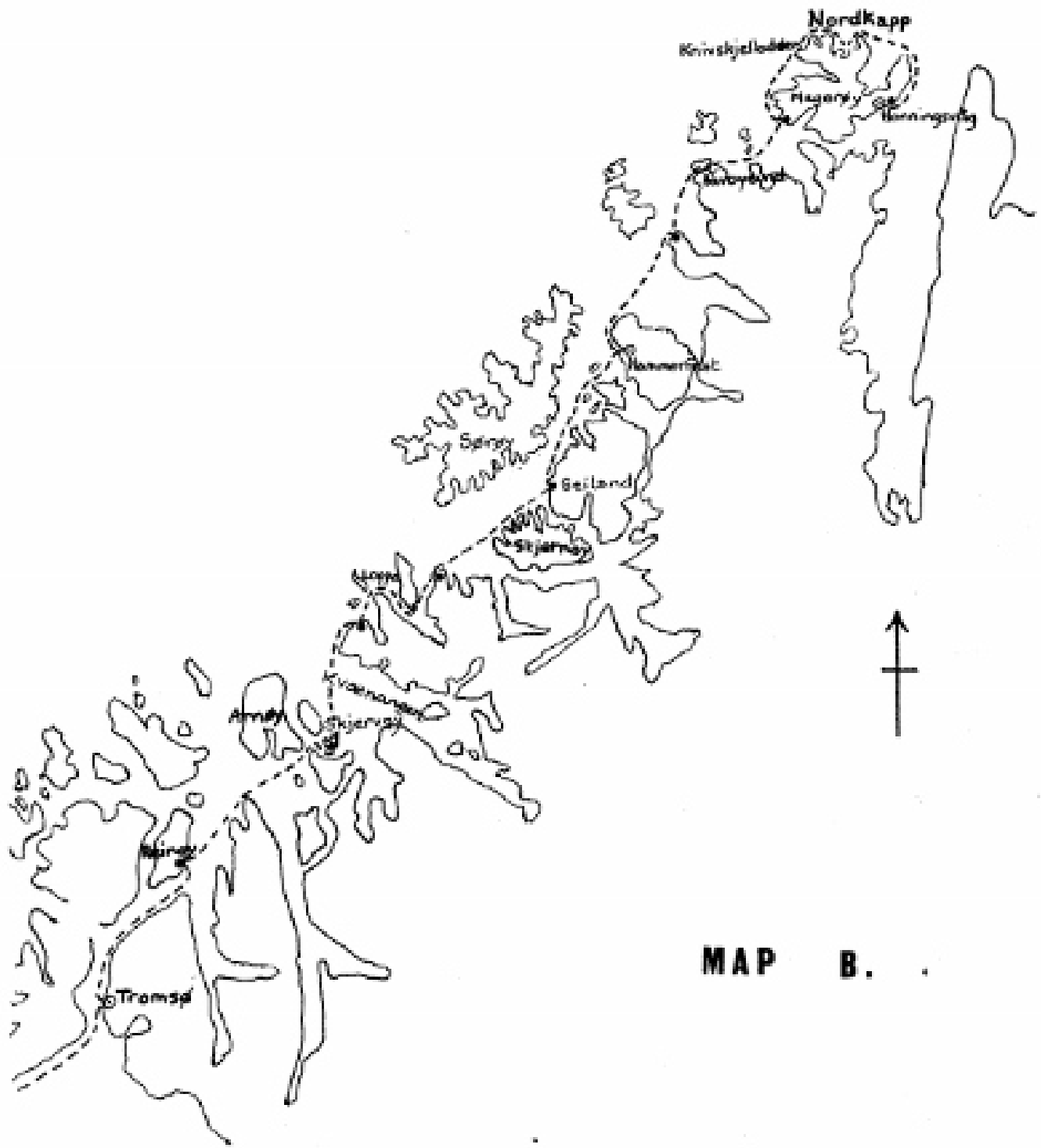
to discuss the weather trends for the second half of our journey. Peter and Colin joined us, and after a tour of the city we returned to our base and worked on the skegs. Nigel finally returned from the hospital and we learnt that the Norwegians are as direct in action as in conversation. The hull had been completely cut out, the one inch hole plugged, and he had been told that he could continue the journey but should not get it wet! Not surprisingly Nigel was very quiet at the party held that night by a resident English climber for our benefit, but we all enjoyed both the home-brewed beer (Norwegian beer is fl a pint) and the magnificent slides of the Lyngen area.

July 17th

Departure on the second stage of the journey was postponed for a day by a unanimous team decision that Nigel needed at least another 24 hours before he could either sit in his kayak all day, or give the wound any reasonable chance of healing. In any event the weather, like the previous day, was the usual wind and rain, with near freezing temperatures. With the cooperation of the guest house owner, we reduced the expense of another day at the guest house by using smaller rooms and cooking in the garage. Whilst Nigel revisited the hospital we finished off the skegs and organised equipment for departure.

July 18th : 24 miles (252 miles total)

Two days of guest house comfort were hard to leave as we set off North at 9.00 a.m. Tromsø had seemed a major target of the journey, but it was less than halfway, with the more exposed section still to come, and the weather showing no sign of improvement. Low cloud hung over the fjord and a biting North Westerly wind in our faces was relieved only by sheltering in a fisherman's shed for lunch at Jovik after three and a half hours. Even in the shed we felt cold as we ate the inevitable chocolate. Outside the wind had freshened to force 5, but fortunately funnelled along the fjord and was to be on our backs. Sam wisely suggested that we change our pre-arranged route and cross North to the distant side of Grottsundet, thereby giving opportunity for a weather shore camp that night. For 3 hours we surfed down the waves with John and Sam taking advantage of the dramatic conditions to take action photographs. As luck would have it, they missed the most dramatic moment when Nigel inadvertently rolled during a conversation! He confirmed our thoughts that the water temperatures were not conducive to any length of time in the water. In pouring rain we turned the South East corner of Reyroy, found shelter from the wind and waves,



MAP B.

and paddled 2 miles up the East side of the island to Skavberg. Due to the swell the storm beach proved awkward to land on, and Sam demonstrated the spare paddle landing technique after momentarily losing his blades on the beach. In the foul weather conditions we needed no encouragement to get encamped quickly.

July 19th : 34 miles (288 miles total)

Overnight rain kindly stopped when we struck the tents and we left at 9.00 a.m. By noon we had made the 10 mile crossing of Ullsfjorden under leaden skies and a North Westerly breeze. With barely a pause we then headed North for 3 miles to the tip of the Lyngen peninsula. Known as Lyngenstuva, this turned out to be a desolate rocky headland complete with shipwreck, which was impressive in a gusty wind and heavy swell. Once round the head we landed through the swell on to the boulders of a tiny cove, beneath overhanging cliffs complete with eagle. It was a dramatic lunch place what with the cliffs, swell and white horses, and the inevitable mist and cloud. Cold temperatures, however, kept the break to half an hour and we soon departed. Our route now lay across the long and exposed Lyngenfjord, and with waves over our port beam we headed North East. Occasional shafts of sunlight on the snow high on Arnoy to the North were impressive. Three hours and eleven miles later we had reached the shelter of Kagsundet, the wind funnelled behind us, then lost strength and the sun came out weakly. Feelings of fatigue, as we paddled the few miles through the sound, were relieved by examining the attractive snow routes up the cliffs overlooking us. By 6.00 p.m. the island of Skjervoy was clearly in view and, in the settled conditions, the team split into two threes, and approached the harbour on the distant side of the island, by opposite routes. By 7.00 p.m. we had all arrived at the attractive harbour. We were cold, tired and hungry but very satisfied with the day's progress. Although we had a contact here, it was decided to first make camp and fix a meal before trying to locate him. As luck would have it, a local prawn fisherman and his son came down to the camp, and after changing, I was driven to meet our contact, Mr. Aasund. He was utterly charming, his whisky excellent, and we agreed to meet the following day.

July 20th

Another busy rest day with the weather still wintry. The morning was spent in replacing maps and food from the packing case dumped a month previously by the coastal steamer. Many local people watched this process with fascination, and enjoyed a hand round of English chocolates. In the afternoon

we split into three pairs and were entertained by local people. The day culminated in a superb meal in the new local restaurant as guests of the local shipyard owner.

July 21st : 16 miles (308 miles total)

The delight of a sleep in proper beds was followed by the almost unbelievable view outside of the sun. The barometer seemed to confirm that good weather was at last imminent and after an excellent breakfast with our hosts, we hastily struck the tents and set off at 10.00 a.m. As we paddled North for four hours to the open sound of Kraenangen for 13 miles, the sun became hot, the sea glassy, and the contrast with so many previous days seemed incredible. Almost as a reminder that we were in the Arctic in a hot summer, however, in the final two miles to the North East entrance to the sound, the light Northerly became a force 3/4, the swell increased, and it became very cold. With relief we stopped for lunch in the shelter of the tiny island of Brynlan. After the inevitable but still welcome chocolate and hot drink, we paddled for 1 1/2 hours in a good swell, light North Easterly and bright sunshine, along the exposed North coast of the mainland. Within the bay of Troilvika a superb campsite was found complete with good heather, driftwood and rushing stream. Later that evening as we were enjoying the fine weather and a brew over the log fire, our peace was rudely shattered by the noise of a circling rescue helicopter. It landed nearby and we were met by a plain clothes Lieutenant Commander of the Royal Norwegian Navy. He seemed very interested in what we had seen that day in terms of small boats. After giving him what information we could, and after another helicopter visit at midnight, we eventually got to sleep. We were later to discover that the press featured a story on how we were taken for being a midget submarine!

July 22nd : 19 miles (327 miles total)

We left at 8.45 a.m. in very bright weather and a light North Easterly wind, and soon covered the 7 miles along the Northerly coast of the mainland. The island of Silde now barred our way and we turned South down Sondre Bergsfjorden and paddled for two hours with a quartering sea. Lunch was taken at the South end of Silde in the lee of the wind, and in the early afternoon we turned into North Bergsfjorden. As expected this provided a steep broken shore and strong headwind. A two mile crossing to the Eastern side of the fjord, however, led to easier paddling. By 3.45 p.m. we were pitching tents at the North Eastern entrance to the fjord,

adjacent to a recently wrecked small trawler. Fresh coffee that night seemed to have some link with the latter! During the evening the wind dropped and the mosquitoes increased, leading to a hot and restless night sleeping behind the closed tent doors.

July 23rd : 27 miles (354 miles total)

A brilliant start to the day - bright sun and no wind. By 9.00 a.m. we had begun the 8 mile crossing to Stjernesund to Sternoya. An easy and pleasant crossing seemed at hand. Very quickly, however, a force 5/6 Easterly blew up in our faces and for three and a half hours we had a very wet and demanding paddle to windward. With some relief, we reached Sternoya island and had a prolonged and early lunch. Inexplicably, but thankfully, the wind then proceeded to abate, and in a light and surprisingly warm Easterly breeze we paddled easily for some hours up Soroyasundet, past the impressive narrow fjords dominating the North side of the island. On reaching Kerringfjorden we decided to use the light weather conditions and cross Rognaund. Surprisingly, in the middle of the sound, a small motor boat came towards us and offered us bottles of beer and a tot of whisky! Some of us accepted the offer - a bottle of beer has never tasted so good - and with renewed energy we continued to Bumansfjorden. Sore and tents were up by 5.00 p.m. The site was magnificent: a tiny fjord with the camp on grass amongst huge blocks of granite, the scene dominated by peaks of snow, ice and rock.

July 24th

I was up at 5.00 a.m. to batten down the tent. After breakfast at 10.00 a.m. we spent the rest of the day out of the tents. Although the site was comparatively sheltered, there was plenty of wind, but this was offset by both sun and high temperatures. A check on the stern of my kayak revealed a hole - probably caused the previous morning when dragging the heavy kayaks over large slimy boulders. Sam quickly and easily repaired it - it was the first and only time on the journey a kayak was holed. As with other camp rest days, most of the rest of the time was spent in route planning, reading and cooking food.

July 25th : 24 miles (378 miles total)

A strong and very warm South Easterly wind blew us out of the fjord when we continued our journey at 8.00 a.m. We turned North East along the coastline, expecting wind problems as we crossed the head of the next short fjord. We were not disappointed. The wind funnelled out of it, gusting

force 6/7, and with a steep broken chop on our starboard beam, it proved to be a short but strenuous crossing. As this was the last fjord on this section I thought we had seen the last of these funnelled winds. Lack of thinking led to deception, for although the next steep mountain valley had no fjord, it still funnelled the wind. Blasts of wind, of perhaps force 8 and 9, hit the kayaks and lifted masses of spray off the surface. Only with great care, and strenuous paddling did we manage to cross without rolling. Once across, the gale became a breeze, and we stopped on a small beach. As we sat eating chocolate, the incoming tide and offshore wind combined to take Sam's kayak out into the fjord. Amidst much jesting - after all he is a BCU Coach - he casually and expertly got into John's kayak and effected a rescue. In incredibly warm conditions and stripped to the waist, we then paddled across Henseybyfjorden to lunch on the North point of Seiland. After sunbathing briefly, we turned the corner and paddled across the sound of Straumen to arrive at 3.00 p.m. in Hammarfest, the most Northerly town in the world.

Our contact, Mr. Bernard Hannsen, Director of the local technical College, was soon found and entertained us with ice cream and coffee. Camp was then set up in the squalid surroundings of the tourist campsite.

July 26th Rest Day

Sam, John and Colin had been ill overnight with stomach trouble, perhaps as a result of food packs being in contact with fibreglass mending kits in a kayak or in the food dump at Skjervoy. Colin remained in camp trying to recover, while the rest of us toured the town with Mr. Hannsen. This included an interesting visit to the M.V. Linblad Explorer en route to Spitzbergen. The comfort on this boat seemed incredible, as did the cost to passengers of £100 per day! Back at camp our time was taken up by long interviews with the local press.

July 27th : 26 miles (404 miles total)

After what could only be described as a gargantuan breakfast, provided by our host, we left Hammarfest at 10.00 a.m., accompanied by the local press photographer in his canoe for the first couple of miles. After two hours up Soreysund we stopped on the end of Kvaloya for a quick snack, prior to a 10 mile crossing of Revsbotn. Skies were again leaden but the wind was light and there was a slight swell. The crossing proved uneventful and we made another brief stop on Bjornoya before continuing up through Reincy sound. A force 4 headwind, steep chop and tidal

movement, made the final four miles hard work, until camp was set up on moss strewn slabs at Tarvika at 6.00 p.m. Both the site and evening were superb. Not only did we watch the midnight sun from the camp fire, but we saw a fox on the shore, and reindeer on the hill behind. As we turned in, it was with contented thoughts of both good weather and the knowledge that our goal was very close.

July 28th : 27 miles (431 miles total)

We left at 9.00 a.m. on a bright sunny morning with little wind. We crossed the small sound of Shofjorden to Latoya, continued past the imposing headland of Nipa and then with the help of the tide, paddled into the fishing port of Havoyssund. After lunch John phoned the Rescue Control at Bodo, giving our location and extending the time before we next phoned in. Anxious to use the tide we left at 1.00 p.m. and made the two hour crossing of Masoysundet to the island of Masoya. After a brief rest, another two hour crossing took us on to the final island of Mageroya, and another good campsite in the sandy bay of Vannholmen at 6.00 p.m. An ominous black cloud build up from the West seemed to indicate that bad weather was imminent. Rain that evening, however, was very slight, and the barometer remained rock steady at 1020 mb.

July 29th : 22 miles (453 miles total)

Thoughts that this was to be North Cape day at last, helped us to leave promptly at 8.00 a.m. In broken cloud and a light Easterly wind, we paddled up the West side of Mageroya. After crossing Lyngpollen and rounding Lilleuva, we paddled through a maze of islets and made a four mile crossing with a choppy sea and in bright sunshine. Lunch was taken on sun warmed rocks, and only two miles away to the North we could see Knivskjellodden, the most Northerly point of Europe.

An hour and a half later, in a biggish swell, the six of us rounded the point together. A raft was then formed, photographs taken, and John and Sam produced miniature whiskies to celebrate. Two miles away to the East the majestic North Cape dominated the view. Over the weeks we had worked hard to get to this viewpoint, and we were not disappointed. Massive buttresses plunged a 1000 foot into the sea. In a gusty headwind but flat sea, we paddled to a tiny bay under the Cape itself. A flashing mirror and waving arms from a tiny dot on the summit indicated that Frank Goodman (who had built our kayaks) had managed to see us arrive at our objective.

We then paddled round the impressive headland and, almost as if to

remind us that this was North Cape, the chop and swell became quite rough below the towering cliffs. By 3.30 p.m., however, we were round the Cape and in the shelter of the little bay of Hornvika. Tents were pitched, and after brews and chatter with the press and Frank and his family, we climbed the 1000 feet to the summit restaurant. Amidst throngs of tourists we drank coffee and sent postcards to all who had helped us in Norway, and to our sponsors.

July 30th : 23 miles (476 miles total)

A desire to finish the journey and a forecast of a rising southerly wind of force 5/6 made us decide on an early start. Leaving at 7.00 a.m. we were at last heading South rather than North, and by mid-afternoon we had completed the 23 miles to Hanningssvåg.

At 4.00 a.m. the next morning we boarded the coastal steamer bound for Bergen, and finally arrived back in Newcastle on the 7th August. The long journey back seemed almost as tiring as the canoeing, but we were well pleased that our efforts had been successful, and perhaps in particular that we had shown that the kayak can be efficiently used for long distance sea journeys.

PERSONAL REFLECTIONS ON THE JOURNEY

All the members of the team, to varying degrees, were disappointed at the lack of exciting and challenging sea conditions during the journey. This was an understandable reaction partly because of the tremendous white water experience within the group, and because the Pilot led us to believe that we should have all manner of dangers and difficulties. Paradoxically the undue amount of bad weather was, in general, confined to the fjord sections of the journey where fetch, and thereby wave size, was very limited. The exposed sections of the journey, on the other hand, were made in comparatively easy conditions.

Lack of excitement should not, however, detract from the serious nature of the journey. Sudden onset of bad weather on any one of the many crossings could easily have led to serious consequences due to possible landing difficulties, heavily laden kayaks, and most importantly, sea temperatures that were akin to UK seas in winter. In addition to these factors, particularly toward the end of the expedition, the group were becoming physically tired, and in need of a prolonged rest. The journey was physically demanding, and whilst this varied, of course, with each individual, fatigue is often a contributory cause in an accident. This development of fatigue was by no means just from paddling the kayaks, but from a combination of all the jobs necessary on an expedition. It was comparatively rare, for example, for team members to find any real length of time to completely relax physically on the rest days. Perhaps the schedule of three days paddling followed by a rest day, was not the best one, but it is difficult to be definite about any such schedule. There are so many factors to be taken into account, including fitness of members, weather, and sea conditions.

Some of us found great satisfaction from making such a long journey, carrying food and all our equipment in what are, comparatively, very small boats. It was interesting that the Norwegians were sufficiently attracted by what we were trying to do, to give it maximum publicity, and throughout the journey our progress was front page news. This was perhaps not too surprising as they are, of course, a seafaring nation. They seemed both totally unfamiliar with expedition canoes, and generally very impressed by the length and nature of our route. The very bad summer added to the interest. There did seem to be, however, other reasons. The tremendous pro-British feeling as a result of the British involvement in this area in the last war was one factor, particularly perhaps as British visitors to North Norway are comparatively rare at the moment. This seemed to link to

the factor that we were not tourists in self-contained boxes on wheels. Wherever we went we tended to be welcomed as genuine travellers, and the hospitality we received was tremendous. This was one of the most enjoyable aspects of the expedition, and we made many friends during our journey.

Although as far as we know, we were the first kayaks to round the most Northerly point of Europe, and covered 480 miles carrying all our equipment and a substantial amount of food in the process, the expedition was perhaps much more important in other respects. In particular it is possible that it has made a worthwhile contribution to the sport of sea canoeing in a technical sense. A great deal of the equipment used, was made specifically for the expedition, was well tested, and is now available to the canoe world. One major example of this development was the use of a sea kayak that had bulkheads, strong hatches and a pump. All three factors can add considerably to the safety and efficiency of the laden kayak at sea.

KAYAK EQUIPMENT AND CLOTHING

THE NORDKAPP KAYAK

The kayak chosen for the expedition was newly designed and manufactured by Frank Goodman of Valley Canoe Products Limited. It was known by some of the team that Frank was interested in developing a new sea kayak, and he was approached after the training trip around the Isle of Skye in August 1974. He is to be congratulated for the speed at which he produced the prototype 'Nordkapp', which was ready for testing in February 1975.

The general design of the kayak was based on the Anus Acuta, but certain features were needed in the new boat for the expedition. These were:-

- (i) Increased freeboard to allow for the weight of expedition equipment;
- (ii) More space for stowing equipment;
- (iii) Streamlining to give a faster kayak;
- (iv) A better balance between manoeuvrability and directional stability.

It was hoped to reduce the tendency to turn into windward without impairing the manoeuvrability.

Numerous design features were suggested to Frank before he began work on the prototype. The chines have been removed giving a more streamlined section with a definite increase in the general cruising speed, also producing more buoyancy and increasing the freeboard when loaded. The overall length has been increased by 25 cm making the Nordkapp 545 cm long. In comparison with the Anus all the additional length is in the stern, the seat is therefore nearer the centre of the boat. It was hoped that this would improve the balance of the boat and help to alleviate the problem of turning into wind. This was unsuccessful, but considerably more space is available for packing gear in the stern, also helped by a more buoyant curve to the rear deck. This space allows flexibility with packing, and the handling characteristics of the kayak can be altered depending on the prevailing, or expected, sea conditions. By loading the stern, unwanted turning to windward can be reduced. Carrying an eleven stone canoeist, the waterline length under the same conditions is 425 cm. This should also have some bearing on the improved cruising speed. The waterline length of the Nordkapp, with the canoeist plus 100 lbs weight is 473 cm. The depth of the Nordkapp is 32 cm, an increase of 3 cm, and the V-section of the deck in front of the cockpit makes it a dryer boat to paddle. The cockpit has been recessed and the coaming curved downwards slightly to reduce water entering through the spraydeck. The hull at the bow is flaired out towards the gunwale, streamlining the bow, probably reducing the tendency

to be buried in a wave, and making the Nordkapp hold the surface well. It also helps in displacing water, improving the dry qualities of the kayak. The rocker is similar to the Anus Acuta, but with additional length and a slightly more pronounced fin on the stern. The kayak has a desirable amount of manoeverability, but with the removal of the chines, the keel line is less pronounced and the characteristics have changed accordingly. During the expedition there was a problem with the kayak turning to windward and skegs were produced to alleviate this.

The Nordkapp has aesthetically pleasing lines with the characteristic upturned bow and stern of the Anus Acuta.

THE EXPEDITION KAYAKS

The kayaks produced by Valley Canoe Products for the expedition, were of a high quality, and certainly no weakness in their construction was evident during the expedition. It was expected that they would receive exceptionally hard treatment, and they were constructed accordingly. The basic construction of the kayaks was: two layers of 1½ ounce chopped strand mat, plus one layer of 8 ounce woven cloth on the hull, with reinforcing under the seat; two layers of 1½ ounce chopped strand mat with reinforcing around the cockpit and hatch areas. The kayaks, ex-works weight was between 40 and 50 lbs. They were also painted out on the inside with gelcoat to give them a smooth finish reducing the wear and tear when packing equipment. By the time the kayaks had been made 'seaworthy', they weighed between 60 and 70 lbs. Each member chose the colour of his own kayak. The team took considerable care of the kayaks, and despite their weight when loaded, and the numerous landings on rock-strewn beaches, only one minor repair was necessary during the entire trip. All the kayaks were personalised with knee grips and footrests.

The overall performance of the Nordkapp kayak cannot be commented on to any extent, as the sea conditions encountered were not varied enough to give a balanced picture, and no other type of kayak was present for direct comparison. Most of the team at least, however, would be happy to use the Nordkapp kayak for future expeditions if it were fitted with an adjustable skeg.

SKEGS

Prior to the expedition we suspected that there might be a problem with directional stability. In conditions other than a headwind, the kayak will turn upwind. This will occur at any angle of approximately more than 80 degrees off the wind. An increase in wind angle from the bow sternwards, increases the turning tendency. It was possible to hold a desired course, but the continual correction on the upwind side could easily cause strain or injury, something we wished to avoid with the long distance we expected to be paddling. Two skegs were taken on the expedition but due to the shortage of time, they were untested. However, they were found to be a distinct advantage, and at Tromso skegs were made for all the kayaks. These skegs were a detachable overstern type with a vertical dagger shaped fin. When fitted they were approximately 46 cm from the stern, the fins approximately 5 cm wide and 13 cm deep.

THE BULKHEAD-HATCH SYSTEM

Each kayak was fitted with bulkheads behind the seat and immediately in front of the footrest. Hatches were fitted on to the deck to provide access to these compartments. (The deck moulding of the Nordkapp has two recessed hatch areas). A bilge pump was fitted on the deck immediately behind the seat for rescue purposes. This system was evolved after considerable experimentation by Sam and John. The bulkheads were fitted primarily to aid rescue by reducing the amount of water that could enter a capsized kayak. The hatches enabled easier and more economic use to be made of the bow and stern stowage areas which would also keep things dry in the event of a capsized.

Fitting Bulkheads

This is a relatively simple operation, but a leaking bulkhead is almost as bad as an external hole. Most kayaks have a strengthening rib along the keel line. This must be removed or omitted in the construction, as it is a potential leakage area. After fitting, painting with gel-coat will reduce the possibility of leakages. The rear bulkhead was fitted astern of the pump.

Hatches

Finding a suitable watertight hatch caused considerable difficulty, the commercial hatch market being very disappointing. Home-made hatches were designed and made which were successful but were not a practical proposition for the expedition. The hatches finally fitted were "Watertight

Locker Doors", type TCL/2 (plastic coated) manufactured by Henderson Pumps and Engines Limited. They were not entirely satisfactory. Eight out of the ten hatches leaked to varying degrees throughout the expedition, the worst being one pint of water during a day's canoeing. The leakages were isolated to the hatch seals. The hatch operated with a lever pressing on to the central point of the hatch cover, with a rubber 'O' ring producing the seal. At the end of the expedition, considerable wear was evident at the lever pivots and the pressure point on the hatch plate. Considerable care was taken of the hatches, particularly around the rubber seal. The internal diameter of the hatch is 17.8 cm, which accommodates the medium size pan from a nest of billies.

THE PUMP

Considerable investigating and experimenting was undertaken to find a suitable bilge pump for the kayaks, eventually compromising between size, operating practicability and efficiency. The Gusher 8 Whale Pump met these requirements. The pumping action is with a lever moved up and down, which works a rubber bellows. The action of the lever is vulnerable to damage, but not as much as cylinder operating pumps. The pump would still be effective with a shortened handle. All components are easily replaced, and spares were taken on the expedition. The working capacity is 10 gallons per minute and the water capacity of the expedition kayak cockpit, after the canoeist has re-entered, is 20 gallons. The pumps were bolted into a recess in the deck with the handle positioned where it could be used either by the canoeist or a partner. Two of the kayaks had the pump neatly bolted to the underside of the deck, with the handle protruding through, and the join of pump and deck sealed with a rubber washer and glue. Plastic tubing extended the inlet valve to the lowest point of the hull. The outlet valve must remain above the surface of the water, or the pump ceases to function. A piece of tubing, therefore, was used to extend this above the deck. The tubing was then plugged with a removable rubber bung to prevent leakage back through the pump system. When fitted the pump is flush with the deck except for the handle and outlet tube.

DECK FITTINGS

At first sight the kayaks appeared to be adorned like christmas trees, with all their various gadgets. However some ideas may be of use to canoeists in the future. Apart from personal adaptations the kayak fittings were uniform:

Decklines

These were regarded as essential permanent fixtures that were intended only to hold and maintain contact with the kayak in rough conditions. They were fixed to the deck by running freely through short lengths of plastic tubing, fibreglassed to the underside of the deck and flush with the surface. Two lines were fastened running the full length of the kayak on either side of the cockpit. Around the cockpit itself the lines ran through longer lengths of tubing. Care is required when fitting the tubing not to kink it, thus reducing its internal diameter. The minimum size of line used was 9 mm. The expedition considered that most cord marketed for decklines is too thin. Toggles were fitted at the bow and stern, and were found useful when carrying the kayaks.

Towing Line

There is always the possibility of having to tow another kayak, whether it is caused by the incapacity of a colleague, a capsized kayak going adrift, or a capsize occurring in a dangerous position where a kayak must be towed out before a rescue is effected. Basing the towing system on the experience of the expedition members, the following points were incorporated:-

- (i) the towing line should be specifically for this purpose and always ready for immediate use;
- (ii) it must be simple and quick to operate;
- (iii) the towing canoeist should be able to quickly and easily release himself from the system;
- (iv) the line should be sufficiently long to avoid the towed kayak overtaking in a following sea, but be able to be used at any shorter length;
- (v) towing should be possible both through the stern or from the centre of the kayak, as although it is preferable to tow through the stern, certain sea conditions prevent this.

A cam cleat was fitted on the stern deck within easy reach of the canoeist. The fitting had a fairlead to avoid the line accidentally uncleating, thus

quick release from the towing line and easy adjustment of length was allowed. At the other end of the line, a stainless steel snaplink was fitted. The minimum length of line used was 10 metres and the minimum breaking strain 1500 lbs. A loop of cord attached to the stern allowed towing through the stern. Methods of stowing the lines varied from a pocket on the canoeist, to a recess in the deck. One line had a short length of strong shockcord attached to it, to reduce the snatch caused by towing. The lines were also threaded through a polystyrene or rubber ball, as flotation. In practice the only use made of the towing line was as anchors during the lunch breaks on shore:

Recessed Container

Certain items of equipment must be available to the canoeist while on the water without breaking the seal round the cockpit. For these items a recess was made in the deck, immediately behind the canoeist, into which a container fitted, becoming flush with the deck. They were used mainly for cameras, lunches, hats, etc. The containers were made especially for the expedition, from plumbing pipe, by Hunter Plastic Industries Limited. Unfortunately these were not as successful as anticipated, as only one was entirely watertight. A short length of shockcord ensures the container does not fall out if the kayak is inverted.

Steering Compass

Another recess in the foredeck held a compass. See navigational aids.

Paddle Park

At times such as taking a bearing, donning an anorak, landing a fish or in a rescue situation, the canoeist needs to be free of his paddle without actually losing it. The best place for it is in the water. The paddle park was a length of adjustable cord attached to the deck with a snaplink at the other end. The cord passes round the paddle loom and fastens back on itself with the snaplink. The paddle may then be dispensed with. The ability to canoe roll, with the paddle attached to the cord, must determine the length of the cord. The paddle should be placed in the water windward of the kayak, otherwise the kayak will drift over the paddle, and make recovery more difficult. The other important application of the paddle park is during gusty or strong winds, when the paddle may possibly be snatched from the hands. It was necessary only once on the expedition to use the paddle parks in this way.

Other Equipment

Shockcord was attached to the deck to secure other items of equipment such as spare paddles, maps, and fishing gear. It was attached either direct to the deck, or with stainless steel eyelets.

Fluorescent Tape

Fluorescent orange material was used on the kayaks to make them more visible from the air. It was also used on other equipment such as paddle blades. The adhesive qualities of the material used was found to be excellent.

NAVIGATIONAL AIDS

Three types of compass were taken on the expedition:-

- (i) Sestrel Junior Handbearing Compass: this is a gimbaled compass set in a bowl $2\frac{1}{2}'' \times 1''$. The gradations, marked every five degrees, can be read either from the top or the side. This compass was used purely for paddling on a bearing. It was recessed into the deck of the kayak about 50 inches from the canoeist's eye. This allows a clear view of the horizon (if there is one) whilst still reading the compass. It is also well out of the way of other equipment on the foredeck. This compass proved useful in calm conditions, but maintaining an accurate course in rough seas would be difficult. The versatility of the compass would be improved if the gradations were luminous for paddling at night.
- (ii) Suunto Diver's Compass: supplied to the expedition by Newbould and Bulford Limited, this compass is intended to be worn on the wrist when diving. Its major value to the canoeist is its high luminosity, essential for any canoeing in the dark. It can be mounted on the deck immediately in front of the canoeist and read by looking down on to it.
- (iii) Silva Walking Compass: this was used regularly in a conventional mountaineering way to read off bearings from the map mounted on the deck. It was carried either strapped to the map elastics or in the buoyancy aid pocket. Prior to the expedition this compass had been used with reasonable success mounted on velcro in front of the map area on the front deck.

Other navigational aids are dealt with in another section of the report.

FISHING EQUIPMENT

This was mainly purchased in Norway as it was felt desirable to use local equipment. It comprised basically of nylon gut with a variety of different sized hooks, all camouflaged with worm-shaped rubber tubing. The gut was hand wound on to a flat reel of which one end was moulded into a handle, the other having a strip of rubber on to which the hooks were stuck when not in use.

Everyone carried a knife of some description. Sheath knives with blades of approximately six inches were found extremely useful for a variety of purposes, not least of which was gutting and filleting fish. A catch net, a plastic sack or bag, was carried on the deck, and industrial rubber gloves were an invaluable item of fishing gear. When trawling, a weight of at least 1½ pounds was necessary.

REPAIR KITS

Three pounds of resin was carried in a 2 pint liquid container. Catalyst was carried in tube form. Four and a half square yards of 1½ ounce chopped strand mat was sealed in polythene. Also each paddler carried a packet of glassfibre repair kit that cures through the action of ultra-violet rays when exposed. The latter is marketed by Valley Canoe Products.

The bulk resin and mat was used to manufacture the skegs at Tromsø. An equivalent supply of repair equipment was with the food dump at Skjervøy.

CANOE CLOTHING

As it was not possible to carry more than one set of clothes for canoeing, flexibility was essential in their type and design to allow for the contrasts in temperature. We encountered both winter and summer conditions, and often a considerable change within a few hours. The clothing had to have good insulating properties, retain warmth when wet, allow freedom of movement for the upper limbs, and be removable and adjustable while canoeing. There was also the possibility of having to survive in Arctic waters. There is nothing extraordinary about the clothing or materials used, but some of the design features may be of use to other canoeists.

The sequence of dressing is important, woollen sweaters were worn next to the skin, the number varying on their type, weather conditions, and personal differences. Next a neoprene spraydeck/vest followed by a

buoyancy aid, worn either over, or under, a waterproof nylon anorak. Swimming trunks, neoprene trousers, neoprene socks and shoes were the basic clothes worn on the lower half of the body.

Woollen Sweaters

Considerable differences occur in the insulating properties of different types of knits of woollens. For canoeing, when the garment often becomes saturated either with water or perspiration, we found closely knit medium weight, fluffy wool sweaters especially, gave superior warmth if worn snugly against the body. The warmth is in the air trapped in the fibres of the wool.

Spraydeck-Vest

This is a very versatile garment designed by Sam and John, and made professionally for the expedition under the guidance of Frank Goodman. Made of 3 mm nylon-backed neoprene, the conventionally shaped spraydeck is extended into a vest with shoulder straps fastened with Velcro. The neoprene spraydeck fits snugly over the cockpit coaming, reducing the amount of water likely to seep through this join, especially if the skin side of the neoprene fits next to the coaming. Neoprene thicker than 3 mm makes this join bulky. This flexible material gives when hit by a wave and is unlikely to be pulled off. The extension of the spraydeck into a vest keeps the canoeist drier in a choppy sea, and reduces the need to wear an anorak. Being close fitting, though not restricting, the vest ensures that a woollen sweater fits snugly, thus trapping a layer of warm air. The vest protects the back up to the neck, gives complete freedom of arm movement, and can easily be rolled down or worn by itself in warmer conditions. Colin Nortlock found a nylon pocket, attached to the flat area of the spraydeck, useful for carrying such items as neoprene gloves. The spraydecks wore considerably during the expedition, due to the stitching in the area where most stretching occurs, around the cockpit. Nylon spraydecks were taken on the expedition as spares.

Anorak

A variety of canoeing anoraks were used, four being home-made. All were made from 6 ounce neoprene-backed nylon material, except for one of 4 ounce. No significant difference was found between the two materials, except the heavier was bulkier, and would presumably wear longer. The advantage of home-made anoraks, was in their ease of putting on and taking off. Two had front opening zips and Velcro flaps. The sleeves and back

were cut large to reduce the restriction that such garments often cause. Conventional Velcro fastened collar and cuffs were used.

Buoyancy Aid - Lifejacket

Designed by Sam and produced for the expedition by Chris Hawksworth Limited, this garment provided a balance between adequate buoyancy and a survival lifejacket. The Hawksworth short buoyancy aid was used as the basic garment, this providing a minimum of 15 lbs buoyancy. A pocket on the back of the jacket carried an Avon B.S.I. 3595 orally inflatable lifejacket, easily accessible when needed, but comfortably out of the way otherwise. Together these gave a buoyancy of 50 lbs which does not include the additional buoyancy of neoprene garments. In fact the lifejackets were not used on the expedition, but like all the safety equipment they could have proved vital for survival. A front, full length zip made the garment easy to take on and off, and two pockets, fitting between the buoyancy chambers on one side of the zip, were specially made to hold flares. Thus the flares were always easily available. On the other side of the zip, there was a large pocket for odds and ends, and a loop of elastic designed to carry a whistle. The buoyancy garments were found to be serviceable and comfortable to wear. They also gave considerable warmth, especially when worn under an anorak.

Neoprene Trousers

The home-made trousers used on the expedition had two design features which proved exceptionally useful. A 'fly' zip was invaluable on long sea crossings, and the high cut back gave extra warmth and comfort. The only member of the expedition not to take full length neoprene trousers suffered considerably from the cold.

Footwear

Most of the team wore neoprene socks under a type of training shoe supplied by John White Branded Footwear Limited. The best feature of the shoe was the commando-type cleated sole, useful for the landings on rocky beaches we experienced. The P.V.C.-type uppers withstood the continuously wet conditions remarkably well.

Gloves and Hats

Numb hands were a continual problem on the expedition, for once cold, they tended not to warm up quickly. At times neoprene gloves, with both open and closed palms, were worn, and neoprene wristbands

improved the blood circulation to the hands whilst at the same time reducing the water leaking through the anorak cuffs.

Woollen hats were found invaluable, as also occasionally were sunhats and sunglasses. Although crash helmets were carried on the rear deck of the kayaks, in anticipation of rocky landing, they were not used.

CANOE BAGS

As well as the container in the recess of the stern, each canoeist carried a 'bum-bag' for equipment needed outside the kayak. Their main purpose was to hold survival kits, but they were also used for small items that would not be affected by sea water, as the bags were not waterproof. Five of the bags used were supplied by Karrimor, and were not designed specifically for canoeists. Colin Mortlock designed his own, incorporating several important features. These included:-

- (i) Drainage holes in the bottom, as it is not possible to make a waterproof bag.
- (ii) A zip opening that cannot be opened accidentally. The zip should be non-corrodable and have big open teeth to prevent salt from accumulating between the teeth and runner.
- (iii) The bag is opened most easily by being brought round to the front of the body. The zip should then face you so the contents can easily be seen. A Velcro fastened flap over the zip helps to keep out some of the water.
- (iv) Containers are fastened in individually to prevent losing any when the bag is open.

In a survival situation, where it is vital that the canoeist remains in contact with his kayak, he may need both hands free. The belt of the bag could provide this link. A substantial belt used as a waist harness and fitted with a 'D' ring could secure a line to the kayak. The buckle of the belt should be non-corrodable, easily fastened with cold hands, and remain secure even when only loosely fastened.

LAND CLOTHING

Temperatures when camping were difficult to predict and hence, as with the canoe clothing, extremes had to be catered for. Normal clothes were supplemented with either Damart underwear or Helly Hensen Polar clothing. Training type shoes were again supplied by John White Branded Footwear Limited, the cleated sole being very useful but the synthetic uppers causing considerable perspiration. Each person had a set of land waterproof clothes.

Fortunately mosquitoes were not a major problem, although mosquito nets were useful. These were mostly home-made from chiffon or curtain netting. White netting is not recommended as light reflection makes it more difficult to see through. Sheet sleeping bags were useful as the nylon tents, when closed against mosquitoes, were very hot.

EQUIPMENT BAGS

The seven inch hatch openings presented some problems for packing of equipment. In theory the hatch compartments should remain free from water, but sleeping bags and clothing especially, needed the additional waterproofing of bags. Each team member made his own bags from crown-proofed nylon cloth, the seams being sealed with strips of the same material, using neoprene glue. The bags were made to exactly fit the opening, and the tops were fastened with bands cut from inner-tube from a tyre. The system worked well, the only difficulty being in stuffing a sleeping bag into the seven inch opening of an air-tight bag!

CANOE PADDLES

There are many paddle types on the market at this time, and both type and construction vary enormously. Those chosen by all expedition team members were Lendal Pacemasters: asymmetrical, feathered blades having both a curved and spooned face, with a fibreglass shaft, and nylon finger grips for both hands. Two members of the team had used this type of paddle on the sea prior to the expedition: an Irish sea crossing in 1974, and also on the training trip round the island of Skye. They had numerous advantages and a number of disadvantages, which are discussed below.

The blade had a great 'biting' quality, being designed for sprint and long distance racing. The blade face was spooned and included a central rib. These two factors gave the blade a good quality, i.e. when placed in the water it did not have the tendency to judder. Blades which were made as thin as this 'pressed veneer' blade without the spooning and rib had a tendency to judder.

The blade was also asymmetrical. There are schools of thought that favour paddles that are not asymmetrical, with reference to sprinting in canoes. However, based on the experience of the members who had used asymmetrical blades before the expedition, the latter blade was selected. The entry of the blade into the water seemed to be greatly affected by the shape of the end of the blade, and it was felt by the team that the

response of the blade to the pulling action, was improved with the asymmetrical blade. The paddle was inserted into a fibreglass tube and glued. Each shaft had a metal ring at both ends to strengthen the junction of the two materials of glass and wood. Each member of the expedition had moulded grips for both hands. They were twelve inch grips, larger than the conventional grips made by Lendals. This was requested to facilitate some scope for shuffling the hands either side of the mid-point when cross winds were prevailing.

Alisdair Wilson of Lendal Products appreciated the needs of the expedition with regard to the strength of the paddles, and felt that there was no need to be concerned about the strength of the paddles that were chosen. Although light in weight they were not constructed so light as to forfeit strength. The back of the blade was considered to be rather vulnerable, with using the paddles in a range of sea conditions. Any 'stern rudder action', for example, put a great deal of stress on the back rib, and with previous blades, there was tendency for the blade to separate from the rib. The cold pressed veneer blade was made thicker than the usual number of laminations, and the bottom tip was reinforced on the back with a fibreglass layer. The blade shaft joint was reinforced and the finished item appeared very strong. The flexibility of the shaft appeared to give the paddle strength, and as protection, the veneer edges were carefully taped. This prevented the varnish from being chipped and so stopped water from entering between the layers of wood.

Post-expedition assessment of the blades can be summed up as excellent. In cross wind situations, the feathered blade was difficult to hold, although it was greatly improved by the addition of the 'grips'. In head winds, the blades performed well, and in relatively calm conditions, the head wind created by the forward paddling action, had no appreciable adverse affect on the paddling. The grips on the shaft were very useful, not least in katabatic winds of gale force.

The split-paddles, taken as spares by each member, were of the same type as the Pacemasters, but without a central rib in the face of the blade. They were made in wood and had a brass ferrule at the centre. An attempt was made to prevent the ferrules from corrosion by frequently cleaning the brass with a pan scourer and a little grease. Initially it was a problem to fit the spare blades on to the stern deck, as the curved surface of the blade was not ideally suited to the deck. However, this was a small problem, and the blades were not used on the trip for any paddling. It was

thought that the spare blades might be of some use, if any member experienced wrist trouble. A 'de-feathering' of the paddles could perhaps exclude the wrist cocking action that seems to be largely responsible for causing teno-synovitis.

SAFETY ASPECTS

RESCUES WITHIN THE GROUP

At the level of experience of the group, it was expected that, apart from unforeseen circumstances or very bad sea conditions, the members would eskimo roll in the event of a capsize. Each member was convinced that the ability to roll was of crucial importance in a dangerous situation.

Nevertheless it was obviously vital to presume that a complete capsize could occur, and to plan accordingly. Apart from being ejected in very bad seas, there was a possibility that we might be attacked by some mammal in the sea. The first practical problem was to consider how to perform a deep water rescue of a capsized canoe with a weight in excess of 200 pounds (including equipment and sea water). If a stern had developed and caused the capsize in the first instance, then it was unlikely to be a simple job of performing any of the rescue techniques that are standard practice at this time. Current group rescues are based on the idea that with a gradual removal of water, the canoe becomes manageable. This factor was not going to apply with a canoe laden with three week's food, plus camping equipment. A different technique would have to be developed to cope with such a heavy load, along with the awkward 'rescue shape' of the sea kayak and all its deck fittings. Bulkheads, therefore, were fitted in front of the foot bar, and behind the seat, so as to reduce the amount of water entering the kayak in a capsize. It is partly because the sea kayaks are so long, that the rescues are difficult. With weight at the extremities especially water, considerable leverage is required to 'see-saw' the kayak. With water-tight compartments in the bow and stern, the area likely to fill up in a capsize is greatly reduced. If a compartment in the front or back was holed, then the amount of water entering the space would be reduced by the equipment packed in waterproof bags. The equipment would act as buoyancy, and the kayak could still be paddled with water in one of the compartments, with little chance of the kayak standing on end. In the event of a capsize, assuming water-tight bulkheads, water would only enter the cockpit area. If a pump was fitted, then the capsized paddler could enter the canoe in any fashion (the best way was found to be sideways) with or without assistance, roll up on either a paddle or another kayak, and the kayak could be paddled without the spraydeck being fitted. This was the last resort, and what was perhaps a better procedure,

was to raft up with another paddler, having returned to the kayak and rolled up, and obtain assistance with fitting the spraydeck. Once this had been done, it would be a relatively simple matter to have the water pumped out by the other paddler, and the journey could continue.

This rescue technique was thought to have considerable value. It allowed an individual to return to his kayak at will, in at least all sea conditions in which other rescue methods are used. And yet it required only one rescuer; it involved comparatively little physical effort compared to other methods; and it worked easily with heavily laden sea kayaks where other methods would tend to fail. As a bonus the pump also allowed a lone canoeist, who inadvertantly came out of his boat in easy conditions, to move off again with the minimum of time and effort. And, as happened on the expedition, it allowed members who fell out of their kayaks when entering or exiting from a beach, to pump out the water without help from others.

The system also had possibilities in the event of the group being capsized by a violent storm. Even if the party were split up, providing each member could combat the exposure problem and stay with their canoe (each member had rope ready to link themselves to their canoe), then at the end of the storm, they could return to their canoe and self bale.

In practice the expedition experienced weather that was North Norway's worst summer for a century. The water was very cold and unlikely to permit a paddler to survive for much more than two hours at most. Speed, therefore, was vital, and this rescue technique was definitely faster than other methods, in view of the weight of the boats and the conditions likely to prevail during which a rescue was going to have to be performed.

In tests that were done with the pump, it was found that with vigorous pumping, a vacuum was created with certain home-made spraydecks which were stuck and not sewn. The efficiency of the pump was thus lessened until air was allowed into the cockpit area. This was a simple matter of opening the seal between the body and the spraydeck. The pump, set in the recess, was found to work best if the exit pipe was above the water level. Therefore, with the unit recessed in the stern deck, the exit pipe had to protrude above the deck.

The development of the pump, bulkheads and hatches, insured that the kayak would not sink, and therefore, the rescue within the group was a fairly straight forward procedure. However, if the group could not execute a self-rescue then external help had to be summoned.

RESCUE EQUIPMENT FOR REQUESTING PROFESSIONAL AID

Flares seemed to be one immediate answer. Having said this, it is perhaps worth remembering that all flares have one or two common drawbacks. One weakness is that most people are most likely to see them only if they are looking for them in the first place; a situation which could not have been guaranteed in the area of the expedition. Secondly, in our case, the situation where a flare might be needed, might very well be the situation where it is almost impossible to ignite the unit, i.e. a rough and frightening sea. Perhaps one of the most frustrating aspects of flare is the uncertainty of ignition when the flare is needed. There is no way of being sure that a flare is going to work. In an attempt to give our flares maximum protection, they were all wrapped in clear fablon, firing mechanisms and rocket ends were greased, and the caps were taped firmly on to the casings.

Each member carried on his person three flares: one 2000 foot parachute Schermully flare; a waterproof Day and Night hand flare; and an 800 foot two star rocket flare of military type. On return from the expedition all the flares were carefully checked. All except one were found to be in first class condition with no evidence of salt corrosion. The affected 2000 foot Parachute Flare appeared intact, but when the bottom cap was removed, the firing pin appeared to be heavily rusted. When the pin was removed there was no response. One 800 foot military rocket was ignited and lasted about 7 seconds. There was a little recoil and the firing hand was singed by the ignition. One Day and Night flare was also ignited. Each end lasted about 10 seconds.

Two members carried Sarbe beacons, consisting of a small battery and a transmitter box. This unit transmits a radio frequency, having a duration of about 36 hours and a range of 60 miles. The units are made by Burndept. in Erith, Kent, and there are various types. They transmit on either military or civil frequencies, depending on the type specified, the cost being around £200. The unit has a self-erecting aerial, and also an on/off button. If these units are checked weekly, then they have a lot to commend them. The battery and transmitter have to be thoroughly inspected, and this was impossible on the expedition. However, this type of unit might very well be the unit to advise sea canoeists to carry when undertaking committing sea trips.

Other items carried were:-

- (i) Air Horns: these seemed much superior to whistles for audibility;
- (ii) Miniflares: green and white: for identification, especially if other boats seemed to be on a crash course;
- (iii) Fluorescent dye markers: to aid air search and carried by each member;
- (iv) Drogue: one was carried for possible use if we had to lie out bad weather at sea.

NAVIGATION

The route chosen was the most direct for North Cape, only deviating slightly here and there to either visit the larger towns, or cut down the longer crossings. Some alternatives were plotted in case of prolonged bad weather but these were not used.

In May 1974 the first plot was made on the 1:250,000 map. The mileage was 493. Details of tides, currents and hazards, etc., were taken from the Norway Pilot Volume 3, No. 38. The details were then noted on the master map, e.g., "Stream flows North + Q234 Narvik; strong overfalls with flood". When the master map was completed the following sets of maps were prepared:-

- 2 sets of 1:50,000
- 4 sets of 1:250,000
- 1 set of Admiralty Charts 1:300,000

In order to prepare these sets a large number of maps were needed. These came to 140 sheets of the 1:50,000; 24 sheets of the 1:250,000; 6 charts; and three rolls of clear Fablon. On these maps the following information was placed:-

- Proposed route and alternatives
- Tidal information
- Express Coastal Steamer calling points
- Linear mileage scale along the route line
- Approximate camp sites

The maps were then cut, and joined where necessary, to convenient deck size. They were then waterproofed on both sides with clear fablon. Each map was numbered and each set marked in different colours. One set of 1:50,000 contained 30 sheets, was fairly bulky, and weighed about 9 lbs! The waterproofing was very successful with only a few maps becoming slightly damp, despite constant immersion and hard treatment. There was an overlap of about $\frac{1}{2}$ inch of fablon around each map.

The route itinerary was worked out on the basis of being able to paddle about 20-25 miles each day. Three days of paddling was to be followed by a rest day.

Weather and tidal movement were not taken into consideration when drawing up the plan. The tidal influence was only slight in some places, and non-existent for most of the journey. There was one race of note in a narrow

fjord just South of Tronso. This was going with us at about six knots, and resembled the Swellies.

The route plan worked out very well indeed. We departed Bodo one day later than intended; arrived Tronso and Hammarfest on the planned dates; rounded North Cape two days early; and completed the journey to Honningsvag four days early.

This was achieved by going in a straight line wherever possible, omitting a visit to Harstad, and paddling the last four days without a rest day.

During the journey we made 12 crossings of more than 8 miles, the longest being 15 miles. Numerous smaller crossings were made. Navigation was never difficult. Twenty-four hours of daylight, generally good visibility, and excellent maps, tended to make route finding easy. The 1:50,000 maps were used for selecting lunch stops and camp sites, and the 1:250,000 scale was used as general route planners, and for identifying surrounding peaks. All of the maps seemed very accurate.

WEATHER

With experienced sea canoeists, there is probably no single factor concerning safety as important as a sensible assessment of weather conditions for the journey he intends to take. The rugged nature of the coastline for the latter half of our journey, the icy seas, the heavily laden kayaks, coupled to the frightening descriptions of unpredictable and violent weather described in the Pilot, ensured that we tried to take all precautions about not being caught out in something with which we perhaps could not cope. These precautions were of three types:-

- (i) Weather Forecasts: a small radio receiver was used to obtain Norwegian forecasts. These were available more frequently than in the U.K. and, in general, contained more detail. Lists of English translations of the words used in the forecasts proved indispensable, as did our knowledge of their breakdown of sea areas, order of giving the forecast, etc. The latter knowledge was much improved by a useful visit to the meteorological office at Tromsø. An attempt to get a special forecast in English for the expedition unfortunately failed.
- (ii) Visual Forecasts: as in U.K. these can be invaluable. At times bad weather was obvious. Hence on one of the early days it was noted that, over lunch, the light wind had backed. This was coupled to the sight of squalls hitting the Lofoten peaks 30 miles away, leading to the prediction that these squalls would hit us within the hour - as they proceeded to do. At other times, however, weather predictions were inaccurate. The day preceding the rounding of North Cape had all the signs of a big depression building up in the West. Such a build up of weather off the West coast of U.K. would have heralded the arrival of a low pressure system and consequent bad weather. At latitude 70 degrees North, the cloud build up passed over with hardly a change in the weather pattern - as predicted by local fishermen! Prediction of strong local winds in the fjords and sounds seemed extremely difficult. Whilst they were reasonably obvious in bad weather, low pressure periods, they also occurred on bright sunny days, and gave minimal intimation of their arrival. They were perhaps less likely during the night, but when they did arrive their direction, duration and strength, could only be guess work.
- (iii) Barometric Readings: a barometer is not probably normally taken by sea canoeists on multi-day journeys. After using one on the expedition,

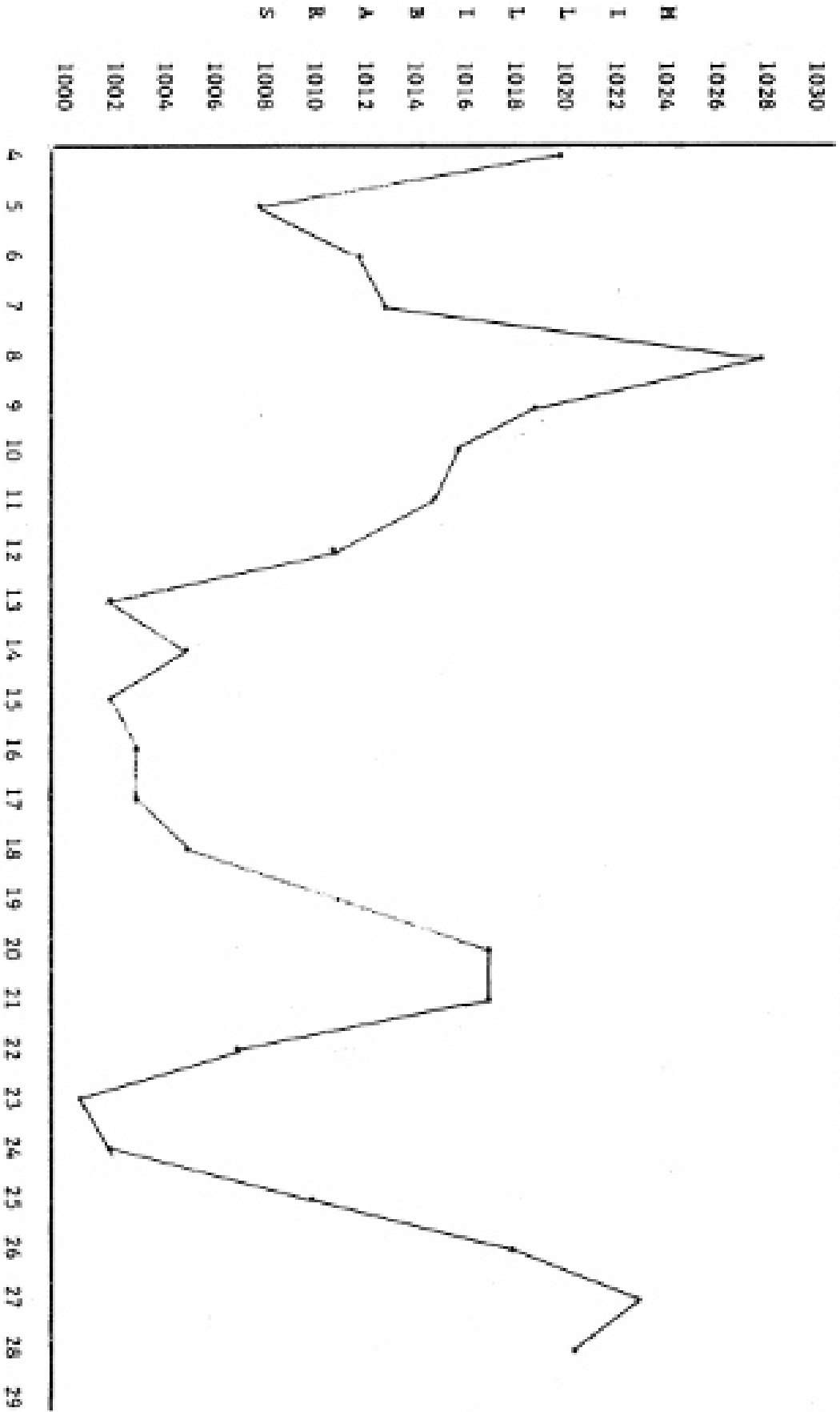
I would highly recommend one to be carried. Although there are many visual signs of weather changes, and professional weather forecasts are generally invaluable, both together may be insufficient to make a correct decision concerning a journey. The value of the barometer is that it shows pressure changes and consequent impending weather change when there may be no visual signs. This should be coupled to the fact that professional forecasts cover huge sea areas (and consequent likelihood of many local variations) and they often experience great difficulty with forecasting accurately both the speed and detailed direction of low pressure systems (especially the former).

Normal barometers used on boats are generally both too large and too prone to damage, for the canoeist. The altimeter, as used by mountaineers, is advised. Several types are available, ranging from £13 to £35 in price. The one used on the expedition, of the latter price, was a Thommen model 3026. Although expensive it had the following qualities: very light (3.2 ounces); compact (2½" x 2½" x ½") robust and easily carried in a waterproof container; a dial calibrated in millibars which indicated small changes in pressure very clearly, and could be read at a glance.

The instrument was read every morning and evening, the pressure recorded, and the change in pressure compared to a set of notes. The latter indicated whether the pressure change was rapid, slow, etc., based on readings of from one hour to 24 hours. The graph enclosed can be compared with the expedition log concerning the type of weather experienced. It will be seen that there is a broad correlation between the pressure readings, and the weather experienced, i.e. apart from a short fine spell, July 7th to 9th, the only settled weather occurred on the final few days.

Barometric readings were generally taken each morning and evening, and more frequently when possible, especially at times of poor weather and low pressure. On the evening of July 4th for example, the pressure dropped very rapidly and eventually our tent took off. Another example was the evening of the 28th July. The next day we were due for North Cape, but there appeared to be a large bad weather build up of cloud. The barometer revealed 1020 millibars - exactly the same reading as 12 hours previously - a definite sign of continuing high pressure. A final advantage of the instrument is its use when a radio cannot be used to obtain a professional forecast, e.g. radio out of action or high mountains cutting out radio waves.

DAILY PRESSURE READINGS DURING THE JOURNEY TAKEN AT 0700 DAILY



JULY

GENERAL WEATHER CONDITIONS

It was apparently the worst summer since records began in 1867 in North Norway. It was not difficult for us to believe this comment. Rain, wind, near freezing temperatures, large cloud covers and minimal sunshine, were a characteristic of most of the journey. We were lucky, however, in two respects. First the journey was planned to allow for bad weather to follow us. This, in fact, worked generally, and, as in a sailing boat, going with wind, wave and weather, was infinitely preferable to generally going into it. The second factor in our favour was the good weather in the final days of the journey. The traverse of North Cape itself, for example, would be very serious in bad weather.

CAMPING

The first decision to be made was the size of camp group. This provoked more discussion than we expected about the possible combinations. Normal practice, perhaps would be three groups of two, but as size and weight were a priority in stowage, it was looked at closely. One large tent for six people packs considerably smaller than three two man tents, but it was felt that having six in one tent could be intolerable with everyone getting in each others way. Two, three man tents were smaller and lighter than three, two man tents; and also one stove and one set of billys was felt to be as adequate for three people as it was for two. Therefore, by choosing three man camp units we would need one less stove and one less set of billys. The three man unit was therefore chosen as the most efficient for our purposes.

TENT

Saunders Base Camp tents were chosen for their compactness when stowed, their weight (8 lbs each), and design. They proved to be adequate considering their light weight and size, but space for three adults to sleep shoulder to shoulder was limited. A considerable improvement was for one person to sleep with his head to the feet of the others, but this was not often possible due to the unlevel nature of most of the campsites. An alternative was for all three to sleep in line with the ridge pole rather than at right angles to it. This meant that one's feet were sticking out of the door into the bell end, but it gave a lot more shoulder room. However, this was not feasible when the mosquitoes were about because the tent door could not be fully closed. The flysheet could, of course, be closed but in warm weather this led to overheating by the occupants. Often it was a choice of being comfortable and bitten or uncomfortable and not bitten?

A good feature of the tent was that both inner tent and flysheet had zips at both ends, and the design allowed a big bell end at both ends. This meant all the sodden canoe gear could be left in one end, and the cooking could be done in the other end. Entry and exit were then via the end with the canoe gear, in order not to disturb the cooking.

A failing of the tent in its standard form was that the inner tent could not be erected or taken down with the flysheet standing, because the tags that supported the tent were attached to the top of the poles. This

was overcome by attaching loops to the top of the poles to allow the inner tent to be clipped up without disturbing the flysheet. One other modification was the addition of a one foot wide valance around the base of the flysheet. This eliminated a great deal of wind and mosquitoes from entering underneath the fly, and also doubled as an extra anchorage by placing rocks on it when in sandy ground, which was often the case. The additional weight of this extra material was negligible. The loose and sandy ground of most of the campsites proved quite a problem with the small aluminium pegs proving inadequate for the job. Early in the expedition, we fashioned a few larger pegs out of drift wood which proved an asset throughout the trip. The tent was fairly stable in a good wind, although one did blow down during a gale. The latter was mostly due to the standard pegs not holding.

On the whole the tents performed well, providing adequate if not spacious accommodation for their size and weight.

COOKING

One pint primus stoves were used and found to be very efficient. Each person carried two pints of fuel which was sufficient to last between available replenishing spots (most garages in towns hold paraffin). Billies were of the type with wire handles, in order that they could be used for cooking on driftwood fires. The deck hatches were seven inches diameter, which restricted the size that could be fitted in the stowage compartments, but two larger billies and a frying pan were fitted into the cockpit compartments. These proved to be a great asset when cooking communally, and making omelettes and pancakes.

1 Apple flakes	4 ounces
1 Soup	1 pint
1 Dried egg	4 ounces
1 Box Healthy Life biscuits	7½ ounces
1 Biscuit pack - as before	
1 Lunch pack - as before	

(iii) Chicken Supreme Pack

1 Dried egg	8 ounces
2 packets of peas	6 portions
1 Soup	1 pint
1 Dried egg	
1 Box Healthy Life biscuits	7½ ounces
1 Cornflour	2 ounces
1 Biscuit pack - as before	
1 Lunch pack - as before	

(iv) Dried Egg Pack

1 Dried egg	8 ounces
2 packets peas	
1 potato - dried	4 ounces
1 Plain flour	4 ounces
1 Apple flakes	4 ounces
1 Soup	1 pint
5 Alpen sachets	
1 Box Healthy Life biscuits	7½ ounces
1 Biscuit pack - as before	
1 Lunch pack - as before	

(v) Curry Pack

1 Farmhouse stew with onion	9 ounces
1 Rice	4 ounces
1 Cornflour	2 ounces
1 Porridge	4 ounces
1 Box Healthy Life biscuits	7½ ounces
1 Biscuit pack - as before	
1 Lunch pack - as before	

FOOD CARRIED SEPARATELY IN CONTAINERS: (per head)

Tea	-	70 bags	Butter	-	½ lb	Syrup	-	1 lb
Coffee	-	4 ounces	Fat	-	½ lb	Raisins	-	½ lb
Sugar	-	2 lbs	Jan	-	1½ lbs	Ovaltine	-	4 ounces
			Dried Milk	-	8 ounces			

A varied selection of spices were carried by each tent group, and also some bacofoil. The sugar and milk containers were not expected to last the full three weeks, and therefore, 6 pounds of sugar and 2 pounds of milk were carried to refill them. Everybody started off with seven packs and a complete set of containers. The idea was that only one person from each tent group would get the food out for one particular day, whilst the others left their food packs and containers in their kayaks. This generally worked well and saved a lot of unnecessary packing and unpacking.

The packaging of the food took a great deal of time before the expedition. This paid dividends when, on the trip, a new pack was opened every evening which contained everything for the evening meal, breakfast and lunch the next day - all accurately measured such that it was simply a matter of adding water and heating. Working out the menus was very much a matter of working with the food that had been kindly donated, and that which we could obtain at a moderate price. The target of 3500-4000 calories each per day was not easily reached because much of the dehydrated food was not of a high calorific value. A great deal of the calories came from the jam, syrup, butter, fat, sugar and chocolate, which was used in generous quantities.

All the food was packed in heavy gauge polythene and sealed with a Bosch heat sealer similar to those used with home freezers. The heat sealer did an admirable job but was of lightweight design, and at times became too hot to touch. One burnt out! All the individual items in the menus were packed in 6 inch width tube and then the whole lot was packed in 12 inch width tube. Apart from one or two, the food packs stayed dry throughout the trip. The containers we used were saved by numerous dispensing chemists, who had pills delivered in aluminium containers. These had screw tops and rubber seals. They performed well, but were rather battered by the end of the expedition, often making it difficult to screw the tops on. The syrup containers especially, became very sticky around the tops, making them difficult to unscrew but they were easily cleaned.

The only food we bought on the journey was butter and fat, as we had planned; and some bread. The latter always made a pleasant change from biscuits, although it was not essential. Fishing also proved successful with many meals starting with cod fillets.

Everyone enjoyed the food, which was mainly due to the variety offered by including flour and egg packs. The dried potato seemed comparatively tasteless on its own, but with flour added, patted into rounds and fried, and then served with jam, it was almost a meal in itself. Pancakes with a

squeeze of lemon or spread with jam or syrup, were always a treat, whilst omelettes with mushroom powder or on their own, were also very tasty. Dumplings made from flour and suet added a great deal to the stews and were easy to make. For sweet it was either apple flakes, or cornflour used to make a custard without vanilla flavouring. This was done by adding milk and sugar, and simmering for five minutes, with a spoonfull of jam in the middle - again this was popular.

One particular rest day was spent in feasting. An oven was made out of an old fire extinguisher, with its bottom broken off, and a fire built around it. Pastry was made with suet and flour, or fat and flour, and after a little effort, we had a jam turnover. Along with potato pancakes, sweet pancakes, and fried fish, we dined well!

In retrospect, little change would be made, apart from taking more flour packs. Sadly, toward the end of the trip, a lot of food became contaminated with fibreglass vapour, which made a great deal of it inedible. This appeared to be due to vapour coming from polyester resin that we carried for repairs, but we could not be positive that this was the cause. However, expeditions are strongly advised not to carry food and fibreglass in the same kayak compartments, no matter how well sealed.

MEDICAL REPORT

The profusion of mountaineering expeditions over the last fifty years, has accumulated a wealth of knowledge of medical requirements in this type of environment. Much of this knowledge was invaluable to this, the first major sea canoeing expedition. We were, however, only able to foresee our possible needs based on our experience of kayak trips and expeditions of much shorter duration. Muscular strain, blistered hands, stomach upsets and general fatigue, we foresaw as our major problems.

Several firms we approached for advice and supplies. Only one of the major suppliers - Boots Limited - were willing to help us, the manager of their Hinkley Branch being particularly helpful. Supplies were also obtained from other sources. Our kit was contained in five 'deep freezer' type plastic boxes, measuring 7" x 4" x 2" - the lids sealed with plastic adhesive tape.

Our planned route was at all times within three days paddling of towns, and therefore, medical help. We were never more than two days away from telephone or radio communication. Hopefully, in the event of a major accident, assistance could be obtained through use of our radio distress beacon.

We were in telephone contact with the Rescue Control Centre, Bodo, every fourth day at least. Any failure to do so, would have initiated immediate search and rescue operations.

Our kit consisted of;

- Numerous assorted adhesive dressings
- 3 pkts. Boric lint
- 2 pkts. cotton wool
- 2 x 3" bandages
- 4 x 2" bandages
- 4 x 1" bandages
- 2 x 2" crepe bandages
- 2 triangular bandages
- 1 Netelast dressing (thigh-head size)
- 2 x 1" adhesive tape
- 1 x 1" Micropore surgical tape
- Numerous No. 7, 8 and 9 standard wound dressings
- 1 pair 6" scissors
- 1 pair pointed tweezers

4 Gillette scalpels
 4 hypodermic syringes
 6 hypodermic needles
 6 ordinary needles
 4 x 2 ml. Fortral ampoules - analgaesics
 36 Fortral tablets
 500 soluble aspirin tablets
 25 Panadol tablets
 25 Aspro tablets
 75 gms. Magnesium Sulphate Paste (for abscesses)
 60 Penbritin tablets (antibiotics)
 40 Septrin tablets
 10 gms. Bonjela (mouth sores)
 100 gms. Cetaviox cream - antiseptic cream
 25 gms. Brulidine
 25 gms. Acriflex
 6 x 25 Antihistamine and Calomine cream
 17 gms. Sketofax Cream - anti-midge
 2 x 25 gms. Boot's Insect Repellent
 3 x 15 gms. combined Sun and Insect cream
 10 gms. Fucidin - anti-bacteria cream
 30 Dijex - indigestion tablets
 25 gms. Metosyn
 12 Anusol suppositories
 50 Boots Senna Laxative tablets
 50 Diocalm - diarrhoea tablets
 50 Piriton tablets - for hay fever
 16 Sereen and 10 Marzine - travel sickness pills
 10 ml. Brolene - eye drops
 10 gms. Brolene - eye ointment
 10 ml. Boots tooth tincture
 10 ml. Oil of Cloves
 30 gms. Mycil - for skin infection
 24 Strepsil throat lozenges
 30 Dexedrine tablets - stimulants
 24 salt tablets
 30 ml. 'N' burn paint
 50 Antihistamine tablets - for bites
 30 gm. Dermovistat - fungal skin, etc.
 8 Sterets - injection swabs
 10 x 4" x 4" Neotulle Gauze - anti-biotic gauze

4 x 4" x 4" Sepratulle
200 gms. Uvistat Sun cream
500 ml. Cleaning solution
300 ml. Kaoline and Morphine - for stomach upsets
500 Multivite tablets
6 tubes Lipsyl - lip cream
50 water purifying tablets
300 ml. Boots embrocation

Cuts and grazes were inevitable and treated with antiseptic cream. Open wounds on the hands were a problem, as the almost continual immersion in salt water, delayed the natural healing processes. 'Waterproof' dressings helped to some extent. Probably a Zinc Oxide dusting powder would have assisted the drying and healing when on land. Only one such wound caused any problem, healing over, then becoming very inflamed. The swelling was lanced, matter removed, and dressed with Fucedin cream.

Stomach upsets occurred towards the end of the trip, and were treated with Kaolin-Morphine mixture.

Mosquito bites were treated beforehand with antihistamine tablets - to prevent swelling and itching, and afterwards with antihistamine cream.

One member of the team suffered a shoulder muscle injury (sustained before the trip), which was massaged daily with embrocation.

In the final stages of the trip one member developed a sty, which was treated with Brolene ointment.

The many headaches - general 'under the weather feeling', were treated with aspirin type tablets, dependent on the preference of the sufferer.

Antibiotics tablets were used to dispel the gland swelling associated with an abscess. The abscess was later completely removed in Tromso hospital. The resulting 'abyss' was treated with Fucedin cream. Despite its almost permanent wet state during the latter part of the expedition, no ill effects were suffered.

Most of the team took daily Multivitamin tablets. In the absence of fresh fruit, drink powder containing Vitamin C was taken.

Norway has reciprocal health service arrangements with the U.K., although some charges may be made to cover the cost of dressings by 'country doctors'.

Surprisingly, no-one sustained blisters on the hands of a serious nature.

This we put down to regular use of paddles beforehand, and especially the very smooth finish on the looms of the Lendal paddles. We took great care to protect those parts of the paddle which we held, from damage.

In retrospect, as advice for future expeditions:-

- (i) Have thorough medical checks beforehand to ensure that all members are fit to participate.
- (ii) Try to maintain a balanced diet prior to leaving, to prevent minor skin and stomach disorders.
- (iii) Pay close attention to diet, drinking water and general hygiene during the trip to help prevent stomach disorders.
- (iv) Be aware of the medical service system of the country to be visited.
- (v) Carry details of blood group, any recent illness, and any tablets or medicines which may have been taken recently.

The medical experience of the team was gained primarily from:-

- (i) Work with mountain and cave rescue teams.
- (ii) Attending Mountain First Aid courses run by Dr. Ieuan Jones in North Wales.

PHOTOGRAPHIC REPORT

Prior to leaving, the team had taken canoeing pictures generally with normal land cameras. Their use was severely restricted once on the water and in rough conditions their use became impossible. Fortunately, two Nikkor-Calypso II 35 mm. f 2.5 underwater cameras were loaned by Rank Photographic, through the good offices of the Telegraph Magazine.

For use on land, team members had:-

Mamiya DSX 500 35 mm. SLR with 28 mm f. 2.8 lens

Agfa 35 mm. SLR of some vintage, with 50 mm. lens

Fujica G.E.R. 35 mm. pocket automatic, with 38 mm f. 2.8 lens

Yashica pocket automatic

The Telegraph Magazine supplied 50 rolls of Kodachrome II and 50 rolls of Ektachrome X. Our photographic equipment was completed by:-

80 mm. f. 1.4 lens for the Calypso

Set of extension rings for the Mamiya

2 Sekonic lightmeters in underwater housings

1 underwater viewfinder for the Calypso

All the team members used the Calypso cameras at various times, finding them easy and ideal for the environment. The separate meter and lack of built-in rangefinder made them initially somewhat 'fiddley'. Lens changing on the water in moderate conditions was fairly easy and quick. Rough handling had no obvious effect. The makers recommend that before each 'immersion', the 'O' ring seals are greased. We only did this once in the whole trip, yet found the cameras watertight.

The only problem experienced was the failure of the rewind mechanism on one of the bodies - this after some four weeks of hard usage.

The light meter housings, with 'O' ring seals, were completely watertight. Unfortunately one of the meters was inaccurate in stronger light conditions by two stops. Half of our film, therefore, was underexposed by two stops.

In the early stages of the trip, the Mamiya was accidentally saturated in salt water, ending its use. We were thus deprived of ultra-close up shots.

Overall we were impressed with the Calypso, but we would have liked a longer telephoto, together with a more compact viewfinder (one is available,

we had the underwater version). Ideally the camera viewfinder should be etched with appropriate frames. The facility for close-up work would also have been useful.

Continual movement while on the water, necessitated high shutter speeds; poor weather necessitated large apertures. Ektachrome X, rated one or two stops higher, proved ideal film.

Most important to any photographically successful expedition, is experience of the equipment being used. We had no results before we left, all film exposed was processed on our return. Purely by chance we discovered the fault in one of the meters. Similarly the Fujica gave problems with the first roll of film through it.

Greater emphasis cannot be placed on testing all the equipment thoroughly before leaving, testing in varying light and weather conditions.

Additional equipment which would have proved useful:- a changing bag; a small tripod; a long cable release; a supply of lens cleaning tissue; and a set of watchmaker's screwdrivers.

EXPEDITION EXPENDITURE

	£
Travel - personnel and equipment	920.00
Stationery and Brochures	48.58
Insurance	52.79
Repair Kits	28.85
Medical Items	7.21
Lightmeter	15.00
Containers	2.94
Food (many items were donated)	54.79
Member expenses (post, phone, stationery, etc.)	74.28
Expedition Report	100.00
Expedition costs in Norway	120.00
	<hr/>
	£1423.44
	<hr/>

N.B. Personal Canoe items and accessories are not included.

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The members of the Nordkapp Kayak Expedition are indebted to the organisations, firms, and individuals that assisted them so generously. Without their donations, gifts of equipment and food, and their advice, the expedition would not have been possible. To all concerned a very sincere thank you.

ORGANISATIONS

Winston Churchill Memorial Trust (Travel grant and Scholarship to Colin Mortlock)
The Daily Telegraph Magazine (for a donation and film)
The City of Oxford Charities (for a donation to Colin Litton)

COMPANIES WHO MADE GIFTS OR WHO OFFERED CONCESSIONS

(1) Equipment

Nordkapp Kayaks	Valley Canoe Products
Spraydecks	Valley Canoe Products
Hatches	Henderson Pumps and Engines Ltd.
Pumps	Munster Sims Engineering Ltd.
Deck Fittings	Olley's of Otley Ltd. Lakeland Sailing Centre
Watertight containers	Hunter Plastic Industries Ltd.
Fluorescent Tape	Mactac Ltd.
Sestrel Junior Handbearing Compass	Henry Browne and Sons Ltd.
Suunto Divers Compass	Newbould and Bulford Ltd.
Buoysancy Aids	Chris Hawksworth Ltd.
Lifejackets	Avon Inflatables Ltd.
Training Shoes	John White Branded Footwear Ltd.
Busbags	Karrimor Ltd.
Liquid Containers	Trylon Ltd.
Flares	Schermuly Ltd. Michael Turner and Associates Ltd.
Cameras	Bank Audio Visual Ltd.
Neoprene Nylon	Graham Tiso
Lighter	Ronson Products Ltd.
Paint	International Yacht Paints
Wetsuit Socks	Insport
Tobacco	M. D. and H. O. Mills

Trunks

Cyril Jaques

Medical Supplies

Boots Chemists Ltd., Hinkley

Resin

B.I.P. Ltd.

(ii) Food

Boots Co. Ltd.

Brooke Bond Oxo Ltd.

Burton's Gold Medal Biscuits Ltd.

Crawfords of Edinburgh

F. Duerr and Sons Ltd.

Foxe's Spices

General Foods Ltd.

Hutton Co. Ltd. (Windermere)

James Robertson and Sons Ltd.

Kenco Coffee Co. Ltd.

W. H. Longman Ltd., Yeovil

Mars Ltd.

Metal Box Co. Ltd., Reading

L. E. Pritchett and Co. Ltd.

Quaker Oats Ltd.

Rountree Mackintosh Ltd.

Tate and Lyle Ltd.

Tetley Catering

Wander Ltd.

Westabix Ltd.

(iii) Individuals: in the United Kingdom:-

J. Anstey

C. Angeloglou

G. Bessey

J. W. Dudderidge

A. N. Fairbairn

J. Gittins

F. Goodman

D. Harding

C. Hawksworth

G. O. Jameson

R. Lawrie

W. Luscombe

B. D. Nixon

D. Penlington

T. Price
P. A. J. Shelley, RAF
Rev. R. Shepton
P. Smith
Hans Thompson
G. Tiso
J. W. Turnbull
M. Waite

(iv) Individuals: in Norway:-

Arne R. Walther	Attache, London Embassy
Jan Bache-Wiig	Chairman, Norges Kajakkforbund
Nanna Johansen	of Finnlandsnes
Mrs. Lund	of Finnsnes
Nordskott villagers	
Mr. Aasund	of Skjervoy
Bernard Hanssen	of Hammarfest
Jan Bull	of Oslo
Rune Johnson	of Bodo
Members of the Rescue Control Unit of Bodo	

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