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**SPECIAL REPORT**  
**THE ALTENFJORD AREA**

**INTER-SERVICE TOPOGRAPHICAL DEPARTMENT**

*16 July, 1943*

I.S.T.D./B/189

COPY NO.

SPECIAL REPORT

ON

THE ALTEMFJORD AREA

Inter-Service Topographical Department

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INTRODUCTION

(Admiralty Charts 2314, 2315; Norwegian Charts 95, 97, 96.)

(1) General

The transfer position is assumed to be about 70°25'N., 22°00'E., off the south-west extremity of Sörøy. From here the route runs south-eastward through Stjernsund, the channel between the south side of Stjernøy and the mainland of the Öksfjord peninsula. From the eastern end of Stjernsund it runs south-westward to the head of Langfjord; or, southward to the head of Altenfjord.

(2) Distances.

Transfer Position to head of Langfjord about 44 miles.  
Transfer Position to head of Altenfjord about 39 miles.

(3) Tidal data at transfer point. (Söröysund and Stjernsund)

Spring rise about 7 feet.

Note: The time of local high water is approximately minus 03 hrs. 15 min. on Vardö. For predictions on Vardö see Admiralty Tide Tables Part I, Section A, Supplement No. 1.

In Söröysund the tidal streams usually set eastward and northward with the flood tide, and westward and southward with the ebb.

In Stjernsund the tidal streams are very strong. They set eastward through the sound with the flood tide until the time of local high water when they set westward. (See photograph 1.)

(4) Abnormal magnetic variation

Magnetic disturbance is reported to exist in Stjernsund (see cautionary note on chart).

(5) Weather

The winds usually follow the direction of the sounds; squalls from off the hills in the neighbourhood are frequent, and weather conditions are very changeable.

(6) Defences

German coast defence positions, O.P.s, etc. have not been considered in the preparation of this report.

DESCRIPTION OF COAST

(1) COAST OF STJERNØY (Norwegian Chart 97)

Stjernøy is in the western entrance to Altenfjord, between Rognsund and Stjernesund, the two channels leading from Sørøysund to Altenfjord.

The island is high, with numerous flat-topped mountains and peaks, especially in the north, where the peaks attain a maximum height in Kjerringfjordfjell (3,114 feet). In 1930 the total population of the island was 250 people, living in 44 houses.

For the purposes of this report the details of the coast of Stjernøy are described in an anti-clockwise direction between Varnes (70°23.5'N., 22°47'E.), the north-eastern extremity of the island, and Gavlodden (70°14'N., 23°00'E.) the south-eastern extremity.

Between Varnes and Stjernfoten (70°20'N., 22°21'E.), a distance of about 9 miles westward, the coast is indented by several narrow fjords extending southward from Sørøysund, and separated from each other by high, narrow mountain-ridged peninsulas.

Store Kjerringfjord, entered between Varnes and Kjerringfjordnes (70°23.5'N., 22°41'E.), extends southward for 4 miles and is the longest fjord on this part of the coast; it is narrow and deep with practically steep-to sides. Its western shore is rocky with mountains sloping steeply to heights of between 1,500 and 3,000 feet. The eastern side of the fjord has more gradual slopes with a mountain peak 1,115 feet high near the entrance, southward of which there is a hummocky valley with a few scattered farms near the shore; southward of this valley, mountain slopes rise to about 2,250 feet. No anchorages are charted in this fjord but there are depths of about 11 fathoms eastward of Revet, about a mile north of its head. There are lying-up places, in depths of between 38 and 25 fathoms, between Revet and the head of the fjord; if selected close to the western shore, they would probably be concealed from the farms at the entrance to the fjord.

Lille Kjerringfjord, about 1½ miles westward of Store Kjerringfjord, is entered between two rocks and eastward of a rock awash. The fjord is almost entirely enclosed by mountains sloping steeply up to 2,000 feet, and is uninhabited. Its shores are nearly steep-to in places, but about a mile from its head the 5-fathom line lies some distance off-shore. Suitable lying-up places in this vicinity are obtainable with depths in the centre of the fjord varying from 23½ to 11 fathoms, or near the head of the fjord in depths between 17½ and 13½ fathoms. There is anchorage close inshore, near Revet, and off the opposite shore, in depths of about 10 feet.

Snaalfjord, entered between Naeringen (70°23'N., 22°37'E.) and Svartskognes, about half a mile westward, is narrow and practically steep-to with mountains rising steeply on either side to nearly 2,000 feet. It is uninhabited. The depths in the centre of the fjord vary from 12 fathoms at the entrance to 22 fathoms about a mile to the southward, and 14¾ fathoms near the head.

Nordfjord, the entrance to which lies about 1½ miles westward of Snaalfjord, is short but wider than the others on this coast. Its shores are rocky and mountains on either side of the entrance rise to heights of about 2,000 feet; towards the southern part of the fjord the land slopes more gradually from the shore and is sparsely wooded in places. There are a few scattered farms on the eastern shore of the fjord and one at Midbukta on the

south-eastern side of its head, but there is no road communication inland. Depths in the fjord are suitable for lying-up purposes, especially in the southern part where they vary from 17½ to 12½ fathoms. The only charted anchorage lies off the western shore about 600 yards from the head of the fjord.

Sørfjord, the western entrance point of which is about 2 miles north-eastward of Stjernfoten, is shallow in the outer part and its entrance is much encumbered by rocks and shoals; the least depth in the fairway is 16 feet. The inner part of the fjord, the head of which dries out for some distance, is considerably deeper. The shore is practically steep-to and the mountains on either side of the fjord rise to a height of about 2,200 feet.

This fjord is unsuitable as a lying-up place, there being a telephone station and some houses near the point at Sennes, on the western shore, and some scattered farms elsewhere on both sides of the fjord.

Between Stjernfoten (70°20'N., 22°21'E.) and Gavlodden, the coast is straight and practically unbroken except for a few small, short inlets; the shore is rocky and in most places practically steep-to. Along the whole of this part of the coast, except for low-lying areas in the vicinity of river valleys at the heads of the inlets, mountains, sparsely wooded on their lower slopes, rise fairly steeply from the sea, leaving little or no beach, and attain heights ranging from 2,500 to 3,050 feet.

Between Stjernfoten and Ytre Simavik, about 8 miles south-eastward, there are no inlets providing shelter or anchorage.

Ytre Simavik is surrounded by steeply sloping mountains between 1,700 and 2,100 feet high. A small mountain stream runs into the head of the inlet and near the low ground at its mouth there are a few trees, and one house, possibly only inhabited during the summer months. There is no telephone communication in the vicinity.

There is anchorage for small craft, close within the entrance to the inlet, in depths of about 16 or 17 fathoms; elsewhere the depths vary from 18½ to 16 fathoms. The head of the inlet is shallow with a sandy and rocky bottom, and dries out for a considerable distance.

Mellomvik, about half a mile eastward of Ytre Simavik, is very deep with practically steep-to sides; mountains, sparsely wooded on their lower slopes, rise steeply from its shores. A small stream runs into the head of the inlet and it is probable that temporary anchorage could be found off its mouth, but there are charted depths of 11½ to 14 fathoms quite close inshore. The inlet is uninhabited.

Indre Simavik is a small, deep inlet with a rocky shore and high mountains on either side. The head of the inlet is sandy and rocky and dries out for a distance of about 200 yards. There are two or three small farms on low-lying ground on either side of a stream at its head. There is anchorage for small craft on the eastern side of the inlet in depths of about 10 fathoms. There is no telephone communication in the vicinity.

Halvorvik, close west of Gavlodden (70°14'N., 23°00'E.), is a small bay on either side of which the mountains rise steeply from the sea. The land at the head of the bay is low-lying, with a rocky shore above which there are three or four farms on either side of the mouth of a small river. There is no charted anchorage but small craft could obtain temporary anchorage close inshore, off the river mouth. There is no telephone communication in the vicinity.

(2) COAST OF ØKSFJORD PENINSULA BETWEEN NORDRE BERGSFJORD AND LANGFJORD

(Norwegian Charts 95 and 97)

Between Nordre Bergsfjord (70°20'N., 21°57'E.) and the entrance to Ulfjord (Ulsfjord), a distance of 1½ miles eastward, the coast is comparatively low and rocky with mountains, on either side of a river valley, rising to a height of about 1,500 feet.

Ulfjord is a small fjord extending south-westward for about 3 miles. The narrows in its entrance are very shallow and rocky with a maximum depth of 11 feet. Further in the fjord the maximum depth is 12 fathoms, with a clay and sandy bottom. The coasts of the fjord are for the most part practically steep-to with high barren mountains rising fairly quickly from near the shore. The head of the fjord is foul with a rocky shore, behind which there are two river valleys with fairly steeply sloping mountains on either side of them. Gammelvaer, close inside the western entrance point, is a port of call for local steamers and has a telephone or telegraph station and a wooden wharf. There are also one or two houses at Rokkanes, about three quarters of a mile to the southward; the inner part of the fjord is practically uninhabited and there are no road communications inland. Small craft usually anchor close south of Rokkanes in from 23 to 33 feet, bottom sand.

Nuvsfjord, the entrance to which lies about 1½ miles east-south-eastward of Ulfjord, extends in a southerly direction for about 4 miles. Except at a few places the shores of the fjord are practically steep-to and surrounded by a narrow belt of low land. On the western side of the fjord the mountains slope fairly steeply to the coast from glaciers about 1½ miles inland; these attain a height of about 3,700 feet. The eastern side of the fjord, which is broken by two river valleys, has a comparatively gentle slope for some distance inland; thence mountains rise steeply to about 3,000 feet. The head of the fjord, on either side of which there is a river valley, slopes gradually up to the Oksfjord glacier, about 3,800 feet above sea-level. Except in the vicinity of Steinnes, a village on the north-east side of the fjord, where there is a wharf, the fjord is very sparsely inhabited and there are no roads or tracks. The depths in the fjord vary from 32 to 8 fathoms.

Between Klubben, the eastern entrance point of Nuvsfjord, and Klubbnes (70°17'N., 22°18'E.), the western entrance point of Oksfjord, the coast is rocky and irregular with numerous off-lying dangers. Except for a small stretch of flat country at the head of Skittenvik, high mountains slope gradually inland, attaining a height of 3,137 feet in Sjetnevikfjell, about a mile inland.

Skittenvik is a small uninhabited inlet about 500 yards long and 300 yards wide, with high land on either side of it. Except from seaward it would provide good concealment: the depth is about 20 feet.

Øksfjord (photographs 2-4) is a large deep L-shaped fjord which extends southward for about 7 miles and then eastward for a further 5 miles. The shores of the north/south stretch of the fjord are steep-to with mountainous country rising fairly steeply to over 2,000 feet. The principal place of importance in this part of the fjord is the trading station of Oksfjord (photograph 2), about 1½ miles south of Ystnes, the eastern entrance point. It is a port of call for local steamers and has a large herring-oil factory with a wooden quay, capable of accommodating ships up to 3,000 tons. In 1930 there were 19 houses and a school in the village; population was 122. The anchorage in this vicinity is in Vassdalsbotn (photographs 3 and 4), about half a mile southward of the village, where the depths are from 7 to 14 fathoms, sand.

The shores of the west/east stretch of the fjord are also steep-to and surrounded by high mountainous country, but the head of the fjord, which dries out for a considerable distance, is low-lying, with a narrow wooded valley extending south-westward to Langfjord; a main road runs through this valley. Storsteinnes and Lenning, villages on the north and south sides of the head of the fjord, have between them about 10 houses and a school. There is a long wooden pier at Lenning, and Rapstoft, half a mile north of Storsteinnes is a port of call for local steamers.

The only area which might provide a lying-up place is at the western end of the west/east stretch of the fjord, in Nordre Kjos on the north side of two rocks with about 13 feet over them. The depths at this place are between 12 and 28 fathoms, and by keeping close inshore it would be fairly free from observation, except from one or two farms on the shore between Gamvik and Steinviknes on the eastern side of the fjord. The coast in the vicinity of this lying-up place is steep-to, rocky and uninhabited, with barren rugged mountains rising steeply from the shore to about 3,000 feet.

Between Ystnes (70°15.5'N., 22°21.5'E.) and Klubbnes, the western entrance point of Altenfjord on the south side of Stjernesund, the coast is rocky and steep-to in most places; mountains, broken by occasional streams, slope steeply to heights of between 2,100 and 2,600 feet (photograph 5).

Between Klubbnes (70°12'N., 22°58'E.) and Ytre Kovnes, the northern entrance point of Langfjord, about 2½ miles southward, the coast is rocky; mountains, sparsely wooded in places on their lower slopes, rise from near the shore to a peak 2,270 feet high, about 1¼ miles inland. On the south side of the mouth of a mountain stream, at Nils Baardsavik, 1¼ miles south of Klubbnes, there is a hut (inhabited only during summer months) on low ground close to a rocky shore.

Øyvik (photograph 5), about 2½ miles eastward of Oksfjord, is uninhabited, with steeply sloping mountains rising from a rocky shore. The head of the bay is rocky and shallow, the 3-fathom line lying about 200 yards from the shore. Beyond this there are depths of about 9 fathoms, possibly suitable for lying-up, but the depths increase quickly and the inlet is fairly exposed to observation from seaward.

Lille Lokkarfjord (photograph 5), about 4 miles eastward of Ystnes, is an inlet about three quarters of a mile long. Its western and eastern shores are rocky with mountains sloping fairly steeply to a height of 2,100 feet. At its head, which is very shallow and rocky, a stream enters the fjord from a long narrow valley; there are farms on low marshy ground on either side of the mouth of the stream. Good temporary anchorage for small ships may be obtained close-in on the western side of the fjord, just over half a mile within the entrance, in depths of about 29 feet. There is no telephone or road communication.

Store Lokkarfjord (photograph 5), 1½ miles eastward of Lille Lokkarfjord, is larger and deeper. Its shores are also rocky, but steep-to. The head of the fjord is shallow and rocky for a distance of about 600 yards from the shore. There are farms on low ground near the shore at Laddones on the western side of the fjord, at Sommerset on the eastern side, and at Botn about 300 yards east of the mouth of a small stream at the head of the fjord. Good anchorage, sandy bottom, can be found near the head of the fjord. There is no telephone or road communication.

(3) LANGFJORD (Norwegian Chart 96, mosaic 2)(a) General

This fjord is entered between Ytre Kovnes (70°09.5'N., 22°57'E.) and Finnes, about 1½ miles south-eastward; it is about 15½ miles long and almost free from dangers. The southern shore of the fjord is practically steep-to with almost unbroken, fairly steep mountain slopes attaining a height of about 3,500 feet towards the centre of the fjord and descending slightly towards its head. The northern shores are also steep-to but broken by one or two inlets and bays; the mountains on this side are also fairly steep but lower, the general height being about 2,000 feet. The lower slopes of the mountains from the centre of the fjord inwards on both sides are sparsely wooded, as is also the head of the fjord. A narrow strip of low sloping ground separates both shores of the fjord from the mountains behind. The foreshore is of small stones.

Numerous small rivers and waterfalls flow into the fjord from the mountains along its sides, and there are houses and occasionally villages in the vicinity of the mouths of these.

The North Trunk Road from Kvaenangenfjord runs through Alteid to Ruselvnes, on the north-west side of Langfjordbotn. From Ruselvnes this road runs south-eastward round the head of the fjord and then north-eastward close along the southern shore to Isnestoft and Altenfjord. From Ruselvnes a secondary road runs along the north shore of the fjord to Tappeluft where it strikes inland to the head of Øksfjord.

(b) The coast

Ytre Koven, on the north side of the entrance to the fjord, close west of Ytre Kovnes, is a fairly deep but small inlet, on both sides of which the mountains slope steeply to a rocky shore. The head of the inlet, into which runs a small stream, is also deep, with a rocky shore above which a small wooded valley rises on a rather steep slope inland. There is anchorage for small craft at the head of the inlet close under a reddish-coloured knoll; the anchorage is exposed to southerly winds and to squalls from off the neighbouring hills. The inlet is uninhabited and there is no road or telephone communication.

Isnestoft, a village close south-east of Finnes, on the southern entrance point of Langfjord, is a port of call for local steamers; there is a telephone or telegraph station here. A wooden L-shaped wharf extends from the southern side of a small projecting point of land close south of the village; this wharf together with various buildings in the vicinity, has been built in connection with the German coast defence position here. A short road, about 200 yards long, is said to connect the quay with the North Trunk Road which follows the low, partly marshy gap south of the village. South-west of the village, the hills rise to about 500 feet.

Storsandnes is a village on the narrow strip of flat land at the foot of the steep scarp which rises about 1,800 feet on the southern side of the fjord, about 2½ miles south-westward of Finnes. It is a trading station and a port of call for local steamers, and has a telegraph or telephone station. There is a wooden wharf here and temporary exposed anchorage can be obtained close inshore in depths of 16 to 17 fathoms.

Indre Koven, the southern entrance point of which is Kovnes (70°07'N., 22°51'E.), about 3 miles south-west of Ytre Koven, on the north side of the fjord, is an uninhabited inlet providing an excellent harbour near the head of which there is anchorage for small ships in depths of from 9 to 19 fathoms. There is no telephone or road communication. About 700 yards south-west of Kovnes, a narrow channel between the mainland and the

small islet of Kovholm might provide a lying-up place. The coasts on either side of the channel are practically steep-to and the depth in the channel is about 30 feet. The tidal streams set strongly through this channel, however, and the holding ground is not good; there are mooring rings on both sides.

Eidsnes, a village on the south side of the fjord, 2½ miles south-west of Kovnes, is a port of call for local steamers.

Summerbukta, a village of 4 or 5 houses, situated on the western side of a small stream 2 miles westward of Eidsnes, is also a port of call for local steamers. There is charted anchorage for small craft close inshore.

Riverbukta (70°05.5'N., 22°38'E.), a village with a telephone or telegraph station, on the northern side of the fjord about 1¼ miles north-west of Summerbukta, is a port of call for local steamers. It stands at the head of a wide open bay, the shores of which are rocky and steep, with sparsely wooded mountain slopes behind. There are numerous houses, including a school, round the bay on either side of the mouth of a small mountain stream at its head; there are about 80 inhabitants. There are depths of about 12 fathoms and more, fairly close in to the shore.

Tappeluft is a village with a telephone or telegraph station in a small bay on the north side of the fjord, 3½ miles westward of Riverbukta; it is a trading station and a port of call for local steamers. The village has a population of about 80 people, and there are about 25 houses, including a school, mostly clustered together on gently sloping, cultivated land on the west side of the mouth of a stream entering the head of the bay. The mountain slopes forming the sides of the bay are fairly thickly wooded. In front of the village a wooden wharf, about 200 feet long, extends into the bay. From the wharf a road runs through the village where it joins the secondary road connecting Storsteinnes, in Øksfjord, with Ruselvnes on the north side of the head of Langfjord.

Sopnes (photographs 6 and 7), 2½ miles south-west of Tappeluft, on the same side of the fjord, is also a trading station and a port of call for local steamers. The village lies on the slopes of a low hill on the western shore of Frankbukta and is the principal place of importance in Langfjord; it has a population of about 80 persons and there is a school, a chapel, local store, some warehouses, and a telephone or telegraph station. There is a wooden wharf, north-eastward of the chapel. Frankbukta is a good harbour and affords anchorage on its western side in depths of from 9 to 17 fathoms, mud, good holding ground.

Langfjordbotn (photograph 7), the head of Langfjord, has a general depth of from 12 to 20 fathoms. At the extreme head of the fjord the depths are shallow for a distance of about 500 yards from the shore. There is anchorage for small ships on the south-east side of the fjord, about 400 yards westward of Oldernes, in depths of from 7 to 11 fathoms.

The country surrounding Langfjordbotn is sparsely wooded near the shores. The southern shore is bounded by a narrow belt of low-lying land above which the mountains slope fairly steeply to heights of about 2,300 feet. The northern shore, westward of Sopnes, is fairly flat with mountains sloping gradually to the north-westward. The head of the fjord is low with a gradual slope to the westward; it is inhabited by about 60 people living on about a dozen small holdings. There is a telephone or telegraph station at Langfjordbotn village.

(c) Tidal streams

The tidal streams may set strongly through Langfjord.

(d) Ice

The head of the fjord is liable to be ice-bound in winter as far north-eastward as Tappeluft, a distance of about 5 miles. Indre Koven, on the northern shore, about 3 miles within the entrance, is reported to be often frozen over.

(e) The fleet anchorage (photographs 6 and 7)

Within a distance of about 5 miles from its head, where the fjord varies in width from about 750 yards to  $1\frac{1}{2}$  miles, there is well-sheltered anchorage accommodation for a large number of ships in depths varying between 32 and 11 fathoms; the nature of the bottom is unknown but is probably mud.

In June 1943 one large German naval unit - "Tirpitz" or "Scharnhorst" - was seen anchored in mid-fjord, about three-quarters of a mile from the head where the depth is about  $16\frac{1}{2}$  fathoms: another berth occasionally occupied by a similar sized ship is in mid-fjord, about half a mile north-eastward of Sopnes chapel, where the depth is also about  $16\frac{1}{2}$  fathoms.

Smaller German units moor head and stern off the northern shore of the fjord in Frankbukt, about 1,100 yards north-north-east of Sopnes chapel, where the depth is probably about  $13\frac{1}{2}$  fathoms; another mooring billet which is occasionally occupied is off the mouth of Mjølkeelv (Melkely), a mountain stream on the southern side of the fjord, the mouth of which is about half a mile south-by-east of the same chapel, where the depth is about 14 fathoms.

The head of Langfjord is apparently used as an anchorage only: there are no known shore facilities.

(4) ALTENFJORD (Norwegian Chart 96, mosaic 1)(a) General

Altenfjord, entered between Klubbenes ( $70^{\circ}12'N.$ ,  $22^{\circ}58'E.$ ) and Store Korsnes, about 5 miles eastward, is the largest and best known of the fjords in the western part of Finnmark, and together with its continuation Kaafjord, indents the mainland for a distance of about 20 miles south of Stjernøy and Seiland. Its shores are irregular, forming several large bays and small inlets, but Langfjord (see para. 3, above) is the only branch of any extent. The climate is comparatively mild for so high a latitude, and vegetation is remarkable.

Both sides of the fjord are steep, becoming increasingly wooded towards the south. Numerous rivers and streams flow into the fjord, and near the mouths of these, where the land is generally low-lying, there are small populated areas. The district of Alten (Alta), at the head of the fjord, has a population of about 6,500 principally centred in the villages of Bossekop, Bukta and Elvebakken, and on both banks of the Altenelv to the south.

(b) East coast of Altenfjord

The east coast of the fjord between Store Korsnes ( $70^{\circ}13'N.$ ,  $23^{\circ}11'E.$

and Rafsbotn, is practically steep-to with mountains rising fairly steeply from a rocky shore to heights of about 1,600 feet. There are two inlets on this stretch of coast, Skillefjord and Leirbotn, the latter being of importance on account of its road connection with the North Trunk Road.

Store Korsnes harbour, eastward of Korsnes, is a port of call for local steamers, and is protected from the northward by a small breakwater. There is a telephone or telegraph station here and in 1930, the population was about 150, living in about 20 houses. There is a steamship wharf on the east side of the bay, and on the south side of the bay, close south-east of the breakwater, there is a new quay reported to have been constructed by the Germans; there are said to be 8 barrack buildings close south of the quay.

Between Store Korsnes and the entrance to Skillefjord the coast becomes increasingly high and steep-to, with mountains, thinly wooded on their lower slopes, rising sharply from the shore and attaining a height of over 1,000 feet about a mile inland.

Skillefjord is a narrow inlet with practically steep-to shores above which mountains rise sharply to a height of about 1,000 feet. Skillefjordnes, a village on the southern shore, situated on a small stretch of low sloping ground close within the entrance, is a port of call for local steamers and has a telegraph or telephone station. A river flows into the head of the inlet from a narrow steep-sided, thinly wooded valley; on the northern side of the mouth of the river there are two small settlements of about 3 houses each.

The northern side of the entrance to Leirbotn is masked by Aarøy, a rocky island about 400 feet high. Except on its eastern and southern sides the island is steep-to with hills sloping fairly sharply from the shore; at Vik, on its western side, there is a small area of flat land with a rocky shore above which there are two farms. The eastern side of the island comprises a bay surrounded by low and grassy land, with some 15 houses and a school, including the old Norwegian fort of Kongshus; there are sparsely wooded slopes inland. Off Jektvik on the northern side of this bay there are two small boat jetties. There is good anchorage in the bay in depths of from 5 to 15 fathoms; the anchorage is said to be much used by German units.

Leirbotn (photograph 8) is a broad, rocky-shored inlet round most of which there is a narrow belt of low ground, above which the mountains slope steeply to about 1,600 feet. At the head of the inlet the land is flat, gently sloping and wooded on either side of the mouth of the Lakselv. Round the inlet, between Snaavik on the north coast and Laukvik on the south coast, there are about 75 houses and small farms, and two schools; a coastal road overlooks the inlet between these places.

Kviiby, a village with a telephone or telegraph station at the head of Leirbotn, is a port of call for local steamers. The village, which consists of numerous scattered houses situated on flat ground to the south of the mouth of the Lakselv, is fronted by a sandy beach which dries out for some distance; the depths increase rapidly to seaward. About 380 yards south of the river mouth there is a wooden pier, 230 feet in length.

Djupvik, a small bay about  $1\frac{1}{4}$  miles south-west of Kviiby, has at its head the small village of Leirbotn, where there is a telegraph or telephone station. It is a port of call for local steamers and has a quay and boat jetty.

Between Altnes, the southern entrance point of Leirbotn, and Russeluft, the northern entrance point of Rafsbotn, the coast is steep-to

with deep water close along it for most of the distance. There is practically no foreshore, except in the vicinity of some mountain streams; sparsely wooded mountains rise steeply from the water's edge to about 1,550 feet, broken only by small river valleys. This part of the coast is practically uninhabited except at Storvik and Hoyvik, two small villages  $1\frac{1}{2}$  and 3 miles, respectively, south-eastward of Altnes.

Rafsbotn (photographs 9-12) is the south-eastern part of the head of Altenfjord. Large sand deposits have been carried into the bay from the Altenelv and the two rivers to the eastward, the Tverelv and the Transforelv, and the southern part of the bay is in consequence formed by partly drying alluvial banks for a distance of about one mile from the shore. The eastern and northern sides of the bay are also shallow with a long, sloping, partly drying foreshore. Near Russeluft the coast is steep-to with a rocky shore above which mountains rise steeply to 1,300 feet. Except in the vicinity of Rafsnes on the eastern shore of the bay, where the land rises fairly steeply to about 1,200 feet, the land surrounding the bay is comparatively flat and consists of gently sloping wooded country. The bay is overlooked by the North Trunk Road which runs right round the southern and eastern shores and by a branch of this, on its northern shore. Between Russeluft and Latermo, on the west side of the mouth of Transforelv there are some 75 houses.

Between Rafsbotn and the entrance to Kaafjord, a distance of about 6 miles, lies the Alten peninsula (photographs 13-18).

The eastern promontory of the peninsula is low, flat and wooded; it is fronted by drying mud banks extending from the mouth of the Altenelv. The area is known as Altengard (Altagard) and is the site of the old Norwegian drill ground (photograph 10). The village of Elvebakken (photographs 11 and 12) is situated on the west bank of the Altenelv, and in 1930 consisted of about 570 inhabitants, living in about 95 well-built houses. Bukta (photograph 13), a straggling village about one mile westward of Elvebakken, had in 1930, about 200 inhabitants living in some 40 scattered houses. It is a port of call for local and coastal steamers and there are several wharves, quays and jetties in the vicinity.

The northern promontory of the Alten peninsula is dominated by the barren peak of Kongshammfjell (photographs 13, 14 and 17). The north-west side of this peak falls steeply to the sea but on its north-eastern side there is a small, flat, wooded and partly cultivated area on the seaward side of which is situated the village of Amtmannsnes; the village consists of a few scattered houses on either side of a road leading southward to Bukta from a small creek on the north-east side of the promontory. The small bay southward of Amtmannsnes is used as a German sea-plane anchorage and, in 1942, there were about 12 mooring buoys in the bay for the use of the sea-planes.

Bossekop (photographs 14-18), a village on the western side of the Alten peninsula, about  $1\frac{1}{2}$  miles south-westward of Bukta, is a fairly large trading station and a port of call for local steamers, with three wharves. The village consisted, in 1930, of about 400 inhabitants living in some 80 houses.

Between Bossekop and Jemmeluftnes (photographs 17 and 18), the eastern entrance point of Kaafjord, there are two small rocky bays, both inhabited, and the coast generally is overlooked by the North Trunk Road.

(c) The west coast of Altenfjord

Between Langnesholm ( $70^{\circ}08'N.$ ,  $23^{\circ}01'E.$ ), near the southern entrance of Langfjord, and Talvik, about 6 miles to the southward, the coast is rocky with a very narrow belt of low-lying ground near the shore; from

the low ground mountains, sparsely wooded on their lower slopes and broken by occasional river valleys, rise fairly steeply inland to heights of between about 1,350 and 1,750 feet.

Talvik ( $70^{\circ}02.5'N.$ ,  $22^{\circ}58'E.$ ) is a small harbour with a quay and two wharves for fishing craft; it is a port of call for local steamers. The village, which, with its surroundings has a population of about 400 inhabitants, lies mainly on a low-lying area on the northern side of a small river; on the southern side of the river a broad wooded valley extends inland in a south-westerly direction.

From Talvik the land trends in a south-easterly direction for about 2 miles to Melsvik, an open bay lying on the western side of a high, wooded, sloping promontory terminating in Kroknes ( $70^{\circ}02'N.$ ,  $23^{\circ}05'E.$ ). Melsvik village is on the southern side of the bay and scattered houses surround its shores.

From Kroknes the coast runs in a southerly direction for about  $3\frac{1}{2}$  miles to the bay of Storvik. This stretch of coast is high and wooded with mountains sloping steeply down to a rocky shore. Storvik is a small village, consisting of 3 or 4 houses only, lying at the head of a bay on the west side of a wooded promontory about 400 feet high. From the south-eastern side of the promontory the long, narrow and peculiarly shaped point of Auskarnes (photographs 17-20) projects in a south-easterly direction to form the northern entrance point of Kaafjord.

The whole coast between Langnesholm and Storvik is overlooked by the North Trunk Road.

(d) Tides and tidal streams (see photograph 1)

Spring rise 8 to 9 feet (approx.)

The standard port for this area is Vardø and the time difference at Bossekop is minus 03 hrs. 21 min. Used with the 1943 Admiralty Tide Tables, the time differences give predictions in Time Zone minus 1; with the 1944 Admiralty Tide Tables the predictions will be in G.M.T.

With the rising tide the streams set inward and eastward through Stjernsund and Rognsund. They divide at Store Korsnes into two branches, one of which runs southward into Altenfjord, the other runs north-eastward through Vargsund. About 3 hours after low water the latter stream peters out and turns its direction with the result that the streams run into Altenfjord from all three sounds. At the time of high water the streams turn and run out, northward through Rognsund and westward through Stjernsund.

South of Korsnes there is but little stream, and the freshets cause a continual northerly current there during the summer; these freshets have also a perceptible influence on the tidal streams in Rognsund, by accelerating the north-going stream and retarding the south-going.

(e) Weather

In Altenfjord the weather is usually calm; south-easterly and westerly winds are the most frequent in winter, and north-westerly and northerly winds in summer.

(f) Ice

The water surrounding the shores of Rafsbotn and the bay off Bukta, on account of the fresh water from the rivers, usually freeze during January and February to a thickness of 2 to 3 inches; the bay itself does not freeze over.

The bay off Bossokop is generally ice-free, but ice which has been driven from Kaafjord may collect and pack there.

(g) Lying-up places

The outer part of the fjord is very deep and, northward of a line drawn eastward from Kroknes (70°02'N., 23°05'E.), the depths in the fairway vary from about 250 to 100 fathoms; southward of this line the depths vary from 50 to about 30 fathoms. There is deep water close along both shores and the head of the fjord.

Such inlets as might otherwise provide lying-up possibilities are inhabited and the fjord is generally overlooked by the North Trunk Road which follows the western coast at heights between 100 and 300 feet above sea-level, from Lengfjord, round the head of Kaafjord, to the Alten peninsula; here it follows the shore round to the north side of Rafsbotn.

The only place which might provide some temporary concealment is on the northern side of Tümaerholm (photograph 9), about 3 miles east of Kroknes, off the eastern coast of the fjord. It is possible that a billet might be found close inshore between the two islets. The depth is not known but the indications are that deep water might be expected alongside these islets.

(5) KAAFJORD (Norwegian Chart 96, mosaic 1, photographs 17-23)

(a) General

This fjord, entered between Auskarnes (69°58'N., 23°09'E.) and Jemmeluftnes, about three quarters of a mile south-eastward, is about 4 miles long; there is a 33-foot rocky shoal in the entrance, in the centre of the fairway.

The western side of the fjord is thickly wooded, with mountains rising sharply from a flat, narrow coastal belt to heights of between 2,300 and 2,600 feet. The eastern side, southward of Simones, is less wooded, with mountains sloping steeply to about 1,150 feet. The head of the fjord, into which flow two small streams, is low, rocky in places, and wooded.

The outer part of Kaafjord is separated from the inner part by a very narrow channel, known as Straumsund, in which there is a least depth of 10 feet. The inner part of the fjord is divided into two basins; the outer basin is large and deep, and forms an excellent harbour. The inner basin is small and very shallow, and is separated from the outer basin by a 3-span road bridge which stands about 11 feet above high water.

There is a wooden steamer wharf near Kaafjord village, about 200 yards north-west of Straumsund, and there is another similar wharf on the same side of the fjord, about 850 yards south-west of Straumsund; there are also several boat jetties.

Eastward of Simones, there is a rocky-sided inlet known as Kvaenvik, at the head of which there is a sloping stony beach on either side of the mouth of a small stream. The land behind the beach slopes inland for a distance of 100 yards to a height of about 100 feet, beyond which the country is flat and wooded.

The fjord is overlooked by the North Trunk Road which, after following the west coast of Altenfjord, cuts across the neck of a low peninsula from Storvik to near Flintnes, and thence follows the west shore of Kaafjord to its head, at heights varying from a few feet to about 200 feet above sea-level. From the head of the fjord it cuts across country to the south-east side of the head of Kvaenvik whence it follows the shore of the Alten peninsula.

The population of Kaafjord, which numbers about 250, is mainly concentrated on the western side of the fjord in about 50 houses which are scattered between Dulland, in the outer part, and Kaafjordbotn. There are some disused copper mines in the hills westward of Straumsund.

(b) Tides and tidal streams

Spring rise 8 to 9 feet.

The time of local high water is approximately minus 03 hrs. 21 min. on the standard port of Vardø.

The streams set very strongly through Straumsund, the channel between the outer part of the fjord and the outer of the two inner basins; the turn of the stream occurs about 3 hours after the time of local high water.

(c) Ice

Ice forms in the inner basins during the winter months, and drift-ice may be swept through Straumsund at a considerable speed by the tidal stream.

(d) The fleet anchorage

The outer part of Kaafjord, including Kvaenvik, affords good enclosed anchorage about 1¼ square miles in area with depths varying from 28 to 11 fathoms, clay, good holding ground. The anchorage is used by both large and small German naval units.

In June 1943 the "Lützow" was seen berthed stern-to off the south-west side of Auskarnes, where the depth is about 23 fathoms, clay. Another billet occasionally used by a large unit is off Flintnes, where the depth is about 22 fathoms; there is a small boat jetty, probably used as a landing stage, in the vicinity.

On the same date one large unit, probably the "Tirpitz", was seen moored with her stern near the wooden wharf 300 yards north-west of the entrance to Straumsund; the depth here is about 17½ fathoms.

Large units also occasionally berth in mid-fjord, between Dulland and Møllenes, in about 21½ fathoms, clay; destroyers and mine-sweepers berth in Kvaenvik.

Kaafjord is apparently used as a fleet anchorage only: there are no known shore facilities other than a small boat-repair yard probably situated close south-westward of Møllenes.

I.S.T.D./B/189. Supplement No.1.

Copy No.

The North Coast  
of  
SORBY

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PHOTOGRAPHS 24 to 29.

SÖRBY (North coast)

(70°35'N., 22°35'E.)

(Admiralty charts 2314, 2315, 3535; Norwegian charts, 100, 101; photographs 24 - 29)

(a) GENERAL

Sörby is the third largest island off the Norwegian coast and is about 34 miles long, with a maximum width of 13 miles. It is extremely mountainous and attains a maximum height of about 2,200 feet in Sandfjell, on the east coast.

The western coast, from Hasvik (70°29'N., 22°10'E.) to Sörvaer, and the north-eastern end of the island are the most thickly populated. The total population of the island in 1930 was about 800 inhabitants living in some 300 houses.

The north coast of the island is high and presents a broken appearance of bold steep headlands separated by deep inlets. Fuglen (70°39.5'N., 21°58'E., photograph 24), the north-western extremity of the island, is about 1,230 feet high and can be seen from the westward in clear weather at a distance of about 30 miles. The promontory on the eastern side of Galtefjord, about 17 miles north-eastward of Fuglen, attains an elevation, in Staalet, of 1,896 feet (photographs 27 - 29). Kjøttvikfjell, 1,050 feet high near Tarhalsen, the northernmost point of Sörby and about 13 miles north-east of Staalet, is identifiable by its jagged summit, on which is a black beacon-tower.

The northern coast of the island is a dangerous lee shore during northerly gales, and the fjords which indent it are exposed to the sea.

Tides and tidal streams

Spring Rise 6 to 7 feet.

The tidal streams on the seaward side of Sörby set north-eastward with the flood tide and south-westward with the ebb, and set north-eastward for a rather longer period than south-westward. They are particularly strong off the headlands, and may attain a rate of 3 to 4 knots at Darupskjaer, north of Fuglen.

(b) SANDEFJORD

Sandfjord, the entrance to which is between Darupskjaer (photograph 24), 1½ miles north-east of Fuglen, and Ofjordnaering (photograph 25), a promontory about 4½ miles eastward, has a steep indented coast and is very open. The bottom consists of firm, hard sand with patches of rock and stone. Its western and southern shores are generally steep-to and rocky, with steeply sloping hills rising from a very narrow, low coastal belt; at the head of Sörsandfjord and Nordsandfjord, on the southern and eastern sides of the fjord, there are two large sandy beaches, 1,000 and 800 yards long, with a gradually sloping foreshore and flat, low country behind.

The only inhabited places in the fjord are at Darup, about 1½ miles southward of Darupskjaer, where there are about 2 houses or farms from which a cart-track leads southward to Sörvaer and Breivik, on the west coast of the island; at the head of Sörsandfjord, where there are about 7 houses and farms from which cart-tracks lead westward to Sörvaer and southward to Breivik; and at the head of Nordsandfjord where there are 2 farms. There are no telecommunications in the fjord.

The whole fjord is very exposed to northerly winds, but subject to weather conditions the coast between Skittenvik and Sandfjordnaering offers the best prospects for transfer or lying-up. Ostre Skittenvik, about three quarters of a mile westward of Sandfjordnaering, is about 600 yards long and 400 yards wide, with depths varying from about 49 feet at the entrance to 22 feet about 100 yards from its head. The inlet, which is formed by a small river valley, has hills on either side sloping up to a height of roughly 1,000 feet and is quite free from observation, except from seaward.

(c) OFJORD

Ofjord, between Ofjordnaering (70°40.5'N., 22°12'E.) and Steinsnaering (photograph 26), about 4 miles north-eastward, has a rocky shore and is surrounded by fairly steeply sloping hills from which heavy squalls are experienced. There is a village at Ofjord, on the east side of the head of the fjord, and it is connected by cart-track with Breivikfjord. Paths also run north-eastward from Ofjord to Sanden and Storbukt on the west side of Dønnesfjord, and to near the head of Dønnesfjord. There is a farm on the northern side of Ytterelvkubb on the south side of the mouth of Ytterelv; elsewhere the fjord is practically uninhabited and there are no telecommunications.

Except that it is under observation from the above-mentioned farm, the small bay on the north side of Ytterelvkubb would appear to provide the best transfer or lying-up place in the fjord. The land on either side of it rises fairly steeply to a height of from 600 to 1,150 feet and the depths vary from 52 to 23 feet.

Raevik (photograph 26), close south of Steinsnaering, the eastern entrance point of the fjord, is uninhabited and, except from seaward, is free from observation. The bay lies between very steeply sloping hills attaining heights of about 560 feet on the northern side and about 900 feet on the southern side. The depths vary from 52 feet in the entrance to 16 feet about 100 yards from its head, and the bottom is sand.

(d) BØLEFJORD

Bølefjord, entered between Steinsnaering and Skarvnaering (70°43'N., 22°32'E.), about 3 miles eastward, is fairly steep-to on its western side with steeply sloping mountains rising to heights of between 1,000 and 1,400 feet; the eastern shore is comparatively low and the country slopes gradually inland. On the south side of the peninsula of Bøle, on the western side of the fjord, there is a small whale fishing station (probably little used) and a small wharf. There is anchorage for small craft, south-east of the wharf, where the depth is 9 fathoms, sand and mud.

From Strømmen, on the eastern side of an inlet at the head of the fjord, a track leads eastward to Ytre and Indre Veines, on the west side of Galtefjord. From Langkjeila, a small sandy-bottomed inlet on the east side of the head of Bølefjord, a track leads eastward for 3 miles where it joins the track from Strømmen to Galtefjord.

The fishing station is only a small local concern comprising one or two houses at most, and the remainder of the fjord is uninhabited except for isolated farms, one on the northern side of the Bøle peninsula, one on the eastern side of the entrance to Strømmen at the head of the fjord, and

The inner part of this fjord is not recommended except as a possible anchorage, on account of its waters being studded with rocks and its difficult entrance. The outer part of the fjord is very exposed, but being practically uninhabited and surrounded by high hills, it might serve as a transfer position.

(e) GALTEFJORD

Galtefjord is entered between Skarvnaering and Presten (70°44.5'N., 22°41.5'E., photograph 27), about 3½ miles east-north-eastward. At its head are three inlets, Dønnesfjord, Børfjord, and Nordfjord. From the eastern side of Dønnesfjord a peninsula, with two small bays on its northern side, extends in a westerly direction; the three divisions of the peninsula are known as Nordøy, Midterøy and Vesterøy.

Galtefjord has a rocky and much indented coastline. On its western side hills slope fairly steeply to heights of between 600 and 1,250 feet; at its head are two peaks, separated by Børfjord, which attains heights of 1,180 and 1,450 feet; its eastern side is formed by the ridge culminating in Staalet, 1,896 feet high.

The principal place of importance in the fjord is the village of Galten, on the eastern side of the entrance to the fjord, where there is a telegraph or telephone station. It is an important fishing station where small repairs can be effected, and is a port of call for local steamers. There are no quays or road communications. From Pompervik, a small village about 2½ miles south-east of Galten, a path leads eastward to Kobberdal on the west side of Sandøyfjord; a branch of this path, about one mile inland, leads southward to Nordfjord, at the east side of the head of Galtefjord.

There are small villages at Sanden and Børfjord. Sanden, on the west side of Dønnesfjord, is a port of call for local steamers and has a telephone or telegraph station: there is no quay. A path leads south-westward from the village to the head of Ofjord; this path is joined, about 1½ miles inland, by another path running south-westward from Storbukt, three quarters of a mile south of Sanden. From the head of Dønnesfjord, where there is a telephone exchange, a path runs westward to Ofjord and southward to Øyfjord and Midbotn (Mebotn), at the head of Øyfjord on the south coast of Sørøy.

Børfjord village, near the head of Børfjord, has a telephone exchange, and a path runs southward from the village, across the mountains, to Midbotn at the head of Øyfjord.

In addition to these villages there are houses or farms at the heads of most of the inlets in the inner part of this fjord, making it unsuitable as a transfer position. Ytre Øksvik, on the western side of Galtefjord, about 1½ miles south-east of Skarvnaering, might provide a lying-up place, though it is very exposed to the northward. The depths in this bay vary from 65 to 43 feet: there is a rock in the centre of the entrance, with a depth of 9½ fathoms over it. The bay is surrounded by steeply sloping hills, between 600 and 1,200 feet high, and its shores are uninhabited.

(f) SANDØYFJORD

The coast between Presten, the eastern entrance point of Galtefjord and Staalet (70°46'N., 22°48'E.), the western entrance point of Sandøyfjord, is rocky with fairly steeply sloping mountains rising to a height of between 1,300 and 1,600 feet (photographs 27 - 29).

Sandøyfjord, entered between Staalet and Skarvnaering (70°47.5'N., 23°01'E.), about 4½ miles east-north-eastward, is the largest fjord on the north coast of Sörby. Store Sandøy, an island in the centre of the fjord, about 1½ miles long, is distinguished by a mountain peak at each end, the northern one being 659 feet high; there is a small fishing village on the isthmus of a small sandy-bayed peninsula on the eastern side of the island. The bottom between Store Sandøy and Lille Sandøy, to the south-eastward, consists of sand and mud.

Skarvfjord, a village about 3½ miles eastward of Store Sandøy, is a port of call for local steamers. It is a small whale fishery station and has a small boat-jetty and telegraph exchange. There is no road communication from here but from Hönseby (1¼ miles south-east of Skarvfjord), where there is a telephone exchange, a path runs south-eastward to Skippernesfjord, on the north-east side of Sörby.

Sandøybotn and Storolv, on the west side of the head of the fjord, are both ports of call for local steamers. A parish road runs eastward from Storolv, crossing the head of the fjord at Straumen, then northward past Sandøybotn and Sandvik to Gamlehjem, and thence runs eastward to Laatre; a branch of this path runs through Baadsfjord to Laatre.

Like Galtøfjord, Sandøyfjord is unsuitable as a transfer position on account of its liability to observation; Skarvfjord village has a telegraph exchange and the telegraph line practically follows the eastern shore from there to the head of the fjord, linking up the various small villages and farms at the heads of the inlets.

On the western side of the entrance to the fjord, however, there are two uninhabited inlets, Ytre and Indre Reppafjord, where lying-up should be possible. Ytre Reppafjord, the northern of these inlets, would appear to offer excellent possibilities; it is almost landlocked, except for an arc of about 30° to seaward, and surrounded by steeply sloping mountains attaining heights of between about 1,000 and 1,900 feet. At the head of the inlet there is a submerged rock with 39 feet over it. Northward of the rock the depths vary from 20 to 11 fathoms. On the western shore of the approach to this inlet, about three quarters of a mile southward of Staalet and 1¼ miles northward of the head of the inlet, there is a bird rock, probably conspicuous from seaward on account of the bird-droppings.

(g) BONDÖY (70°52'N., 22°54'E.) STORE KAMÖY and LILLE KAMÖY

These conspicuous and craggy islands, lie north of Sandøyfjord, and are separated from the mainland of Sörby by Kamöysund; they are steep and inaccessible and easily identified by their jagged summits; some grass grows on their slopes; they are uninhabited.

Store Kamøy is 987 feet high and Lille Kamøy attains a height of over 600 feet. Between the two there is a well surveyed bay with depths of from 9 to 4½ fathoms, providing a possible transfer position free from all observation, but the bay is exposed to the north and west. The lighthouse on Store Kamøy is unwatched.

Kamöysund should not be used by open boats when the tidal stream is setting in the opposite direction to the wind; south-westerly gales blowing against the south-west-going stream render the passage of the channel particularly dangerous. Local fishing craft never use this channel but pass between Bondøy and Store Kamøy.

(h) SAKSEFJORD AND FINNFJORD

These small fjords indenting the mainland of Sörby, on the south side of Kamöysund, are surrounded by high steeply sloping mountains.

Saksefjord is a well surveyed inlet, with depths of from 10 to 5 fathoms, which, as it is uninhabited, would prove a suitable transfer or lying-up position in easterly or southerly winds, but is very open and exposed to westerly winds.

Finnfjord, close eastward, is similar but more open to the northward, and with south-westerly winds heavy squalls are experienced in the fjord from off the neighbouring hills. The fjord is uninhabited except for one farm at its head and two farms at Skipsvik, on the south-eastern shore. There are no telephone or road communications in the fjord. There is a possible lying-up place close under the south shore of Finnfjordholm, three quarters of a mile north-west of the head of the fjord, where the depths are from 23 to 56 feet over a bottom of sand and mud.

(j) GAMVIKFJORD

Gamvikfjord, the entrance to which lies between Finnfjordnaering (70°50'N., 23°11'E.) and Tarhalsen, about 3¾ miles north-eastward, is mainly surrounded by steeply sloping mountains, except for part of its eastern side where the hills slope fairly gradually inland from a rocky coastline. There is no harbour in the fjord but in Bastafjord, at its head, there are facilities for small craft to secure to the shore with hawsers. There are one or two houses here and a path runs from Indre Bastafjord, south-eastward, through a hummocky, marshy valley, to the head of Skippernesfjord, on the north-east coast of Sörby.

From Gamvik, a village of about 3 houses situated on a very rocky part of the shore on the east side of the fjord, 3 miles south of Tarhalsen, a path runs north-eastward to the south side of the head of Kjötvik, on the north-east side of Sörby.

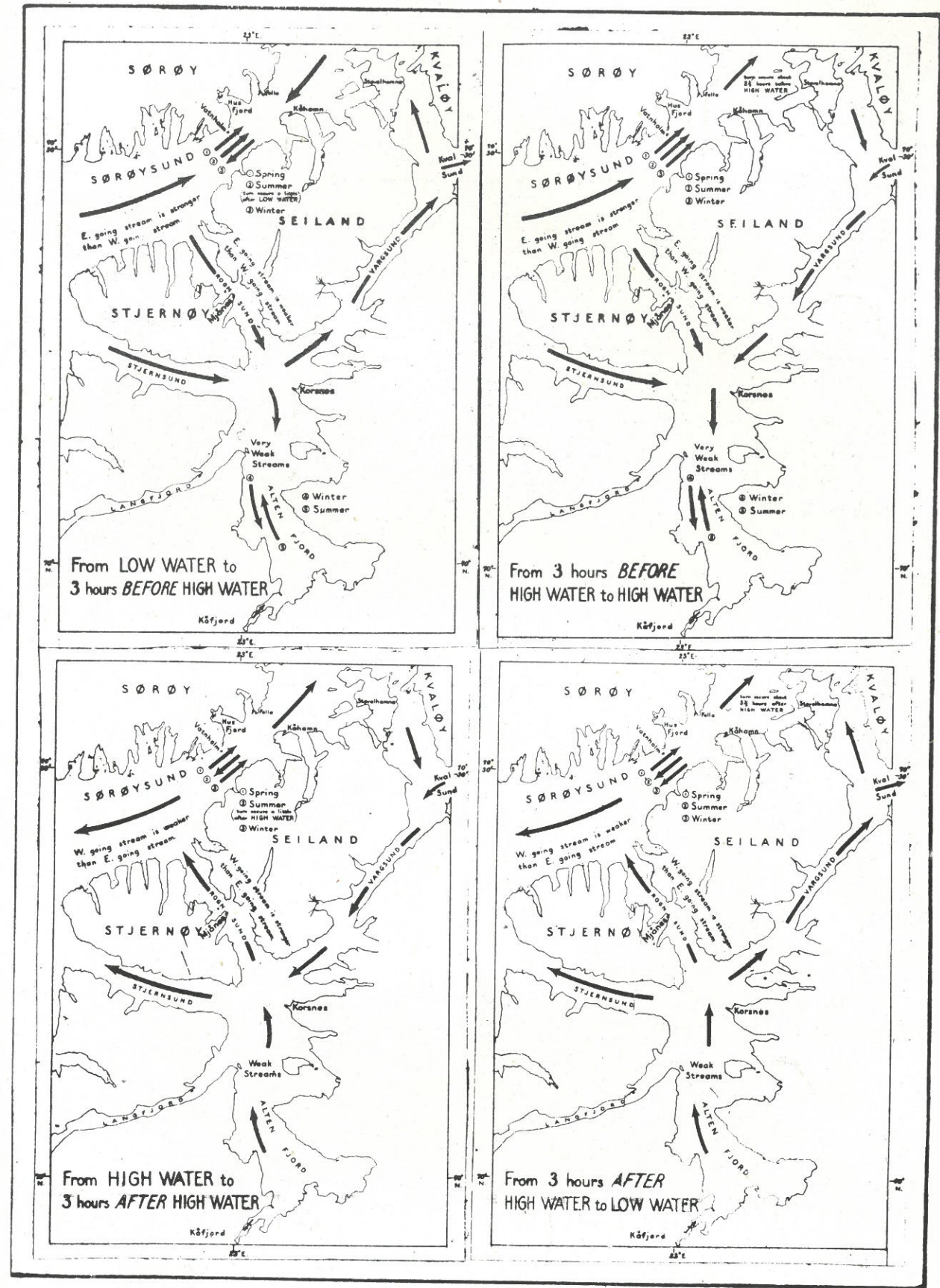
Apart from the few houses at Gamvik and Indre Bastafjord, the fjord is uninhabited, and the lighthouse at Tarhalsen is normally unwatched. There is, however, a telephone exchange at Gamvik, from which the line runs south, skirting the shore of Finnvik, past the houses at Indre Bastafjord.

The fjord is not recommended either as a transfer position or for lying-up. It is very exposed to weather conditions and any activities are liable to observation from the houses and telephone exchange at Gamvik.

<u>Photograph No.</u>	<u>Negative No.</u>	<u>Photograph No.</u>	<u>Negative No.</u>
1	6 I.	15	63929
2	176484	16	47834
3	179953	17	372428
4	215101	18	372429
5	372426	19	10 D.
6	10 E.	20	10 C.
7	372427	21	10 B.
8	38025	22	10 A.
9	198426	23	20250
10	198424	24	142487
11	117565	25	142486
12	20251	26	142490
13	372430	27	142488
14	20526	28	142489
		29	142491

NOTICE: The above list gives the negative numbers corresponding to the photographs in this report.

Any demands for copies of individual photographs from this report should quote the report number and negative number, and be submitted through proper channels to the Director of Naval Intelligence (Section XI).



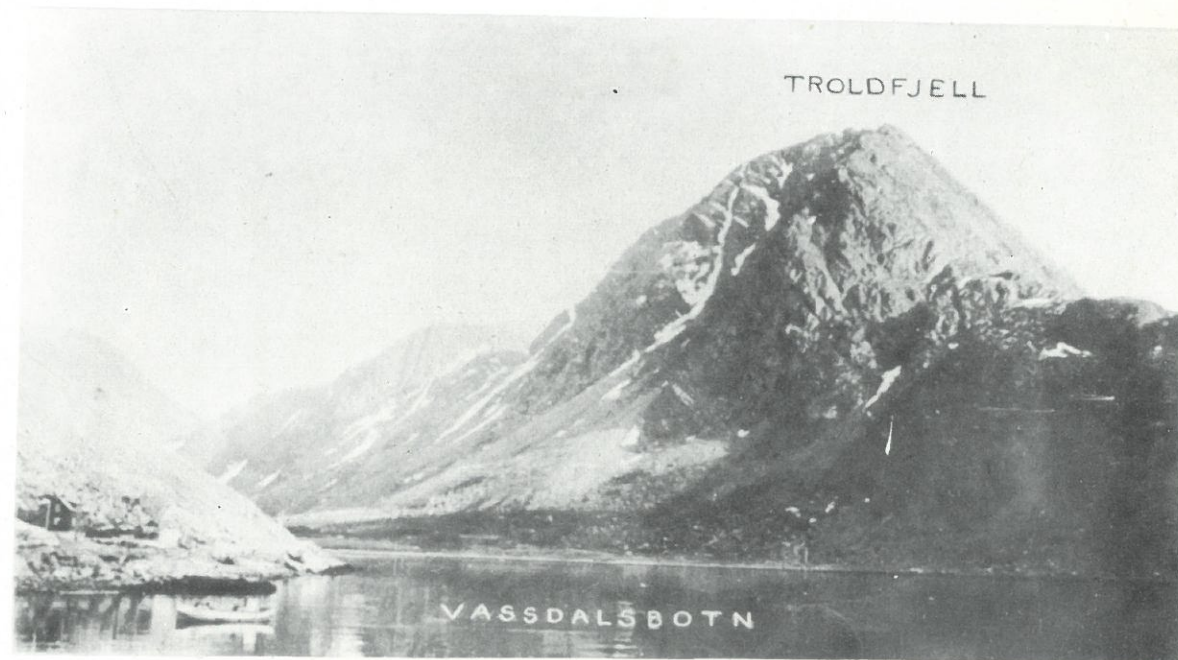
1. Diagram illustrating the accompanying descriptions of the Tidal Streams in ALTENFJORD and its approaches.



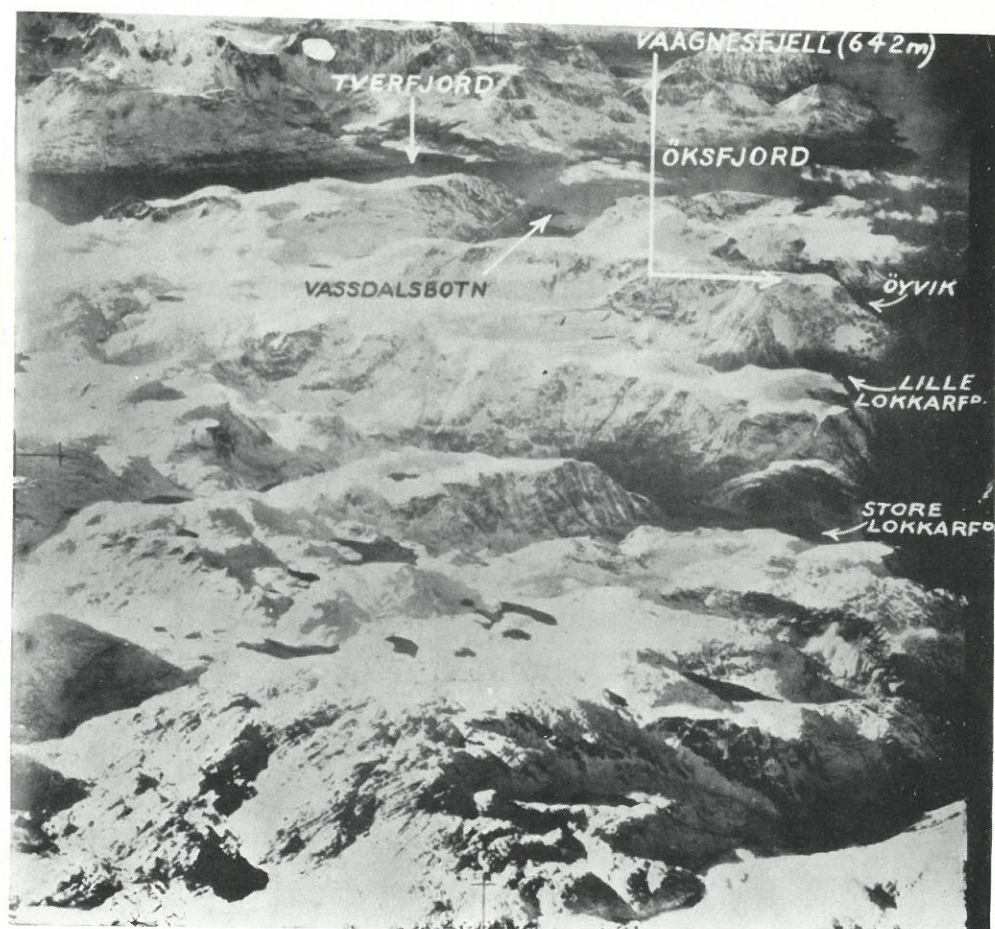
2. Öksfjord. The village and herring oil factory, looking east.



3. Öksfjord, looking south-east into Vassdalsbotn.



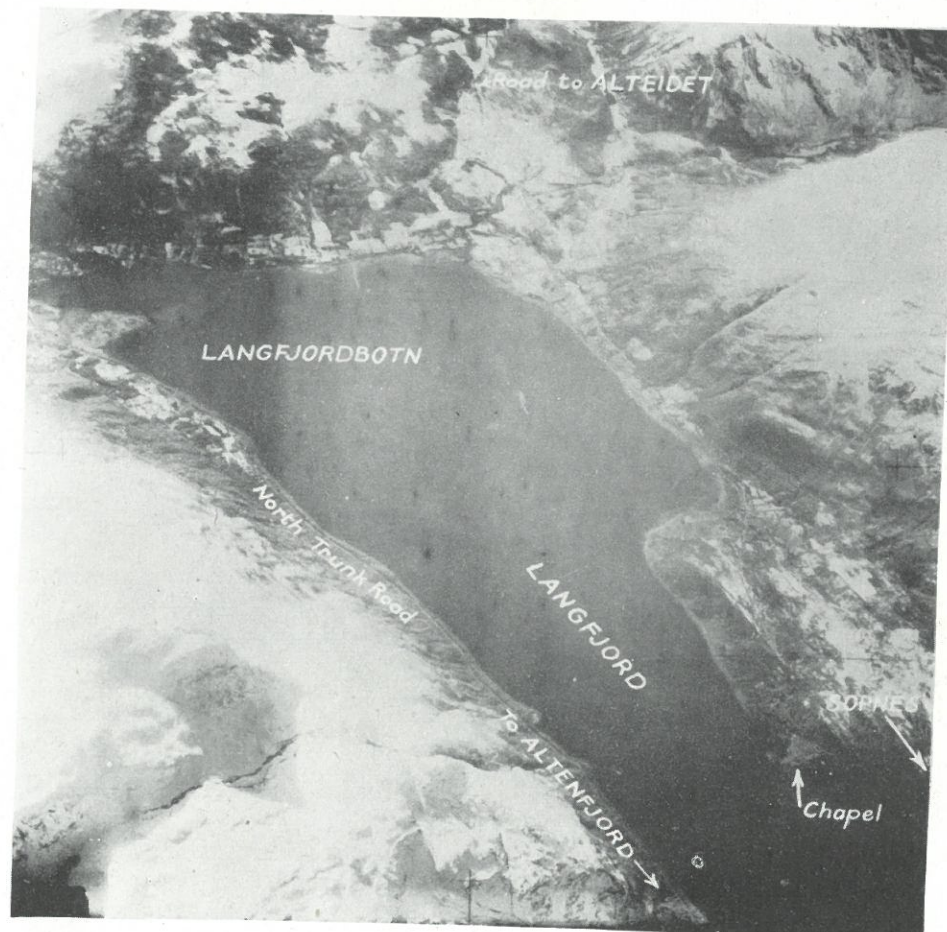
4. Öksfjord. Vassdalsbotn, looking south-east.



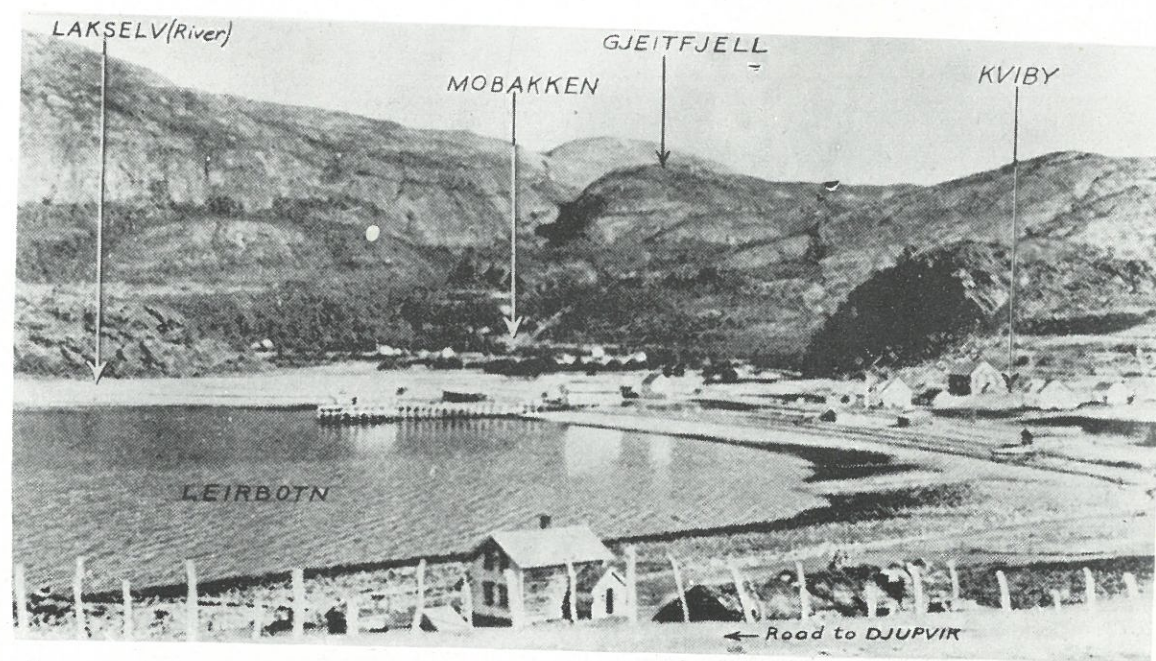
5. Southern side of Stjernesund, looking west-north-west.



6. Langfjord, looking south. (September 1942)



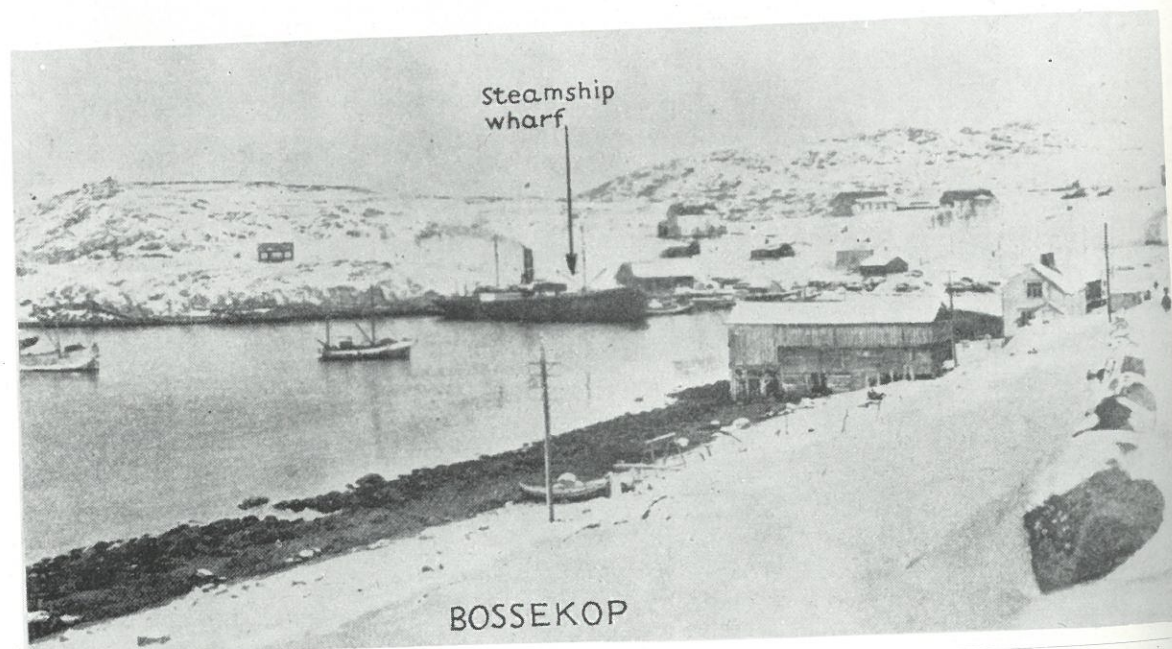
7. Head of Langfjord, looking west. (September 1942).



8. Leirbotn (east side of Altenfjord), looking north-east.



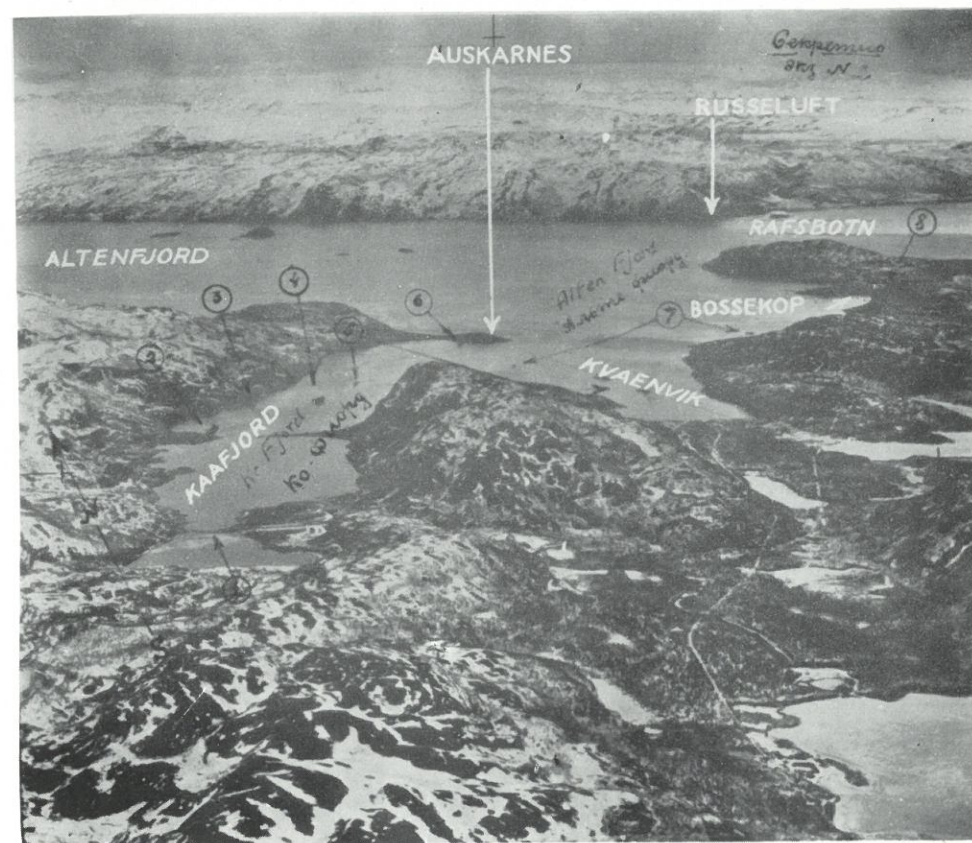
15. Bossekop (Alten, Alta), looking south-south-west.



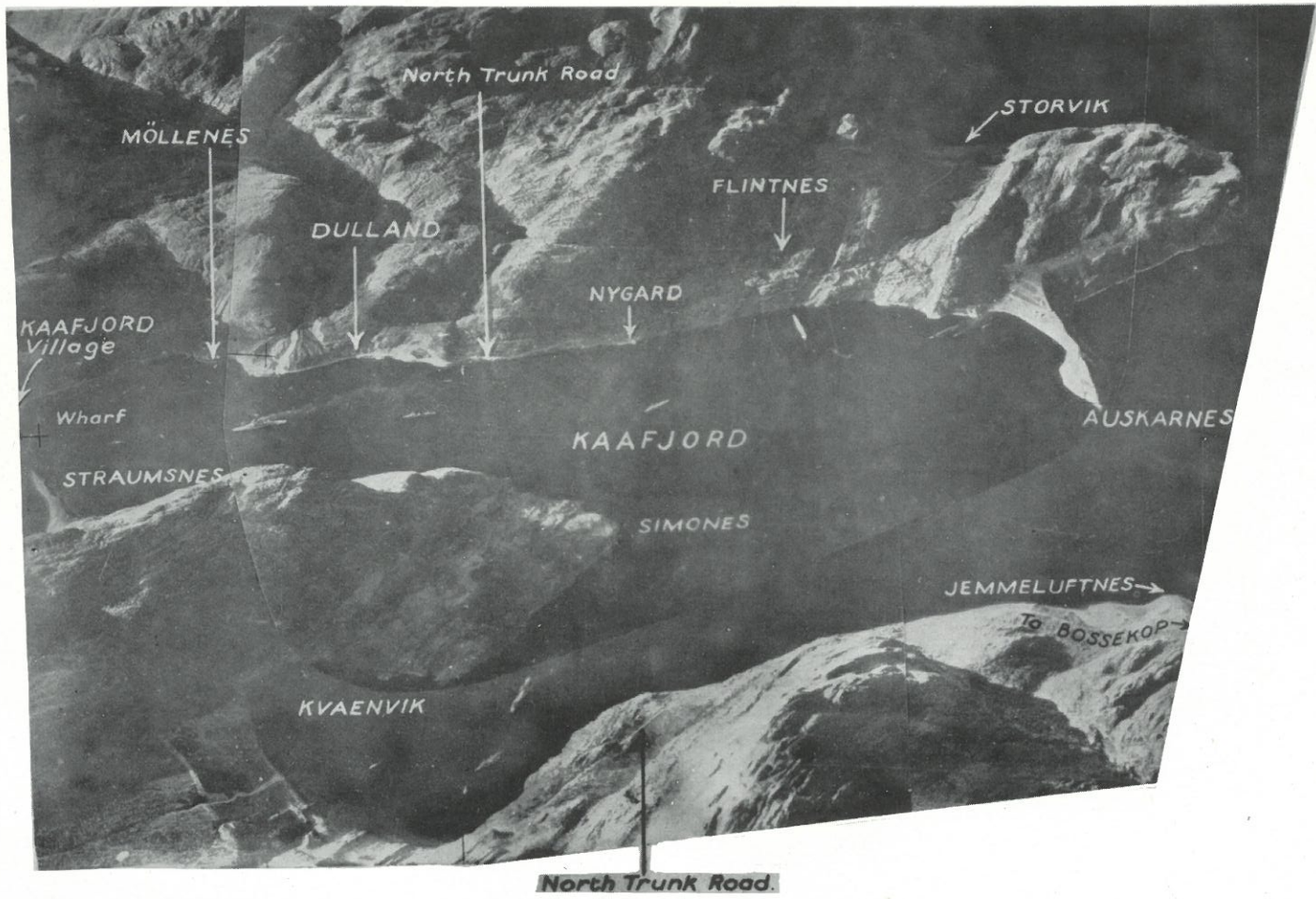
16. Bossekop (Alten, Alta), looking north-north-east.



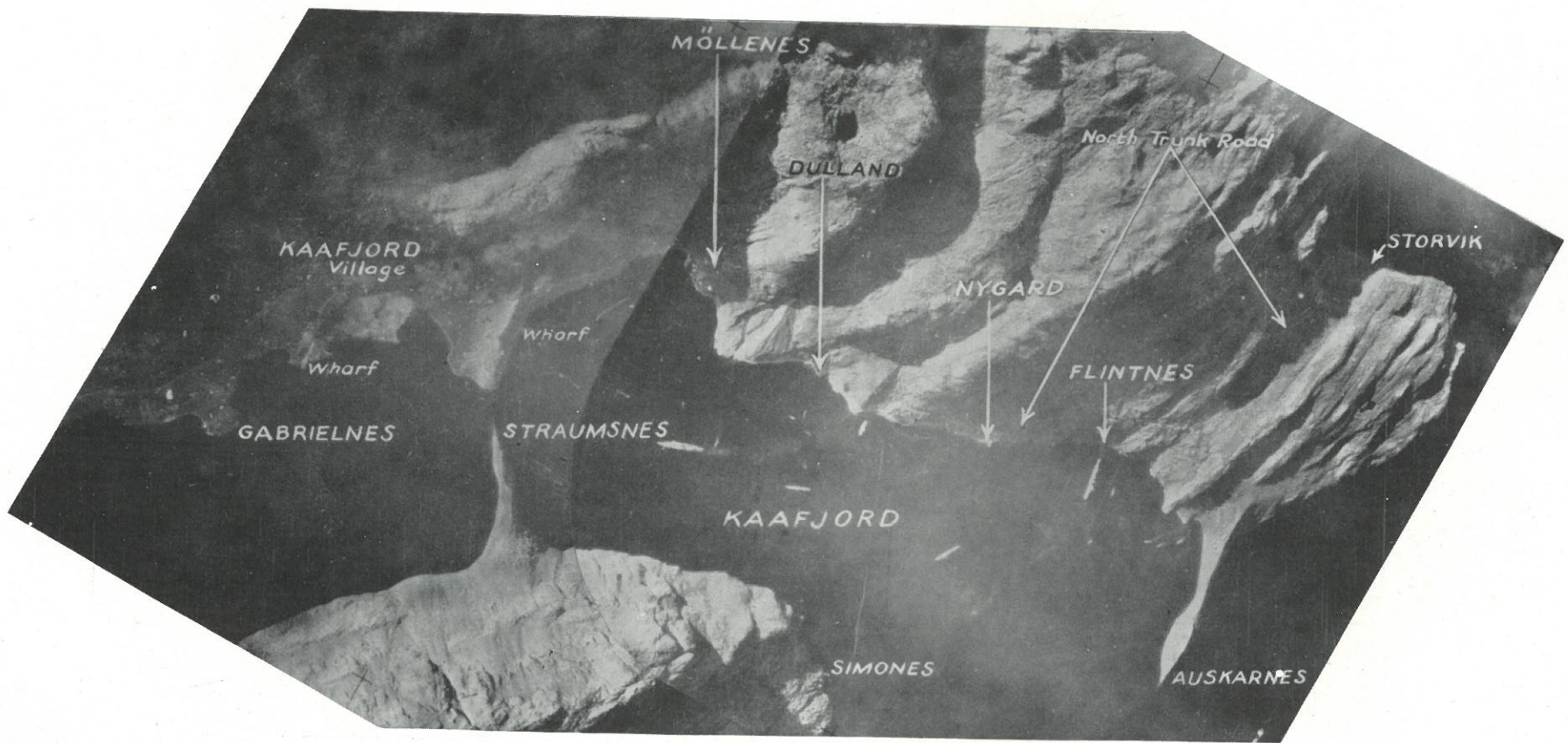
17. The head of Altenfjord, looking south-west towards Kaafjord. (May 1943)



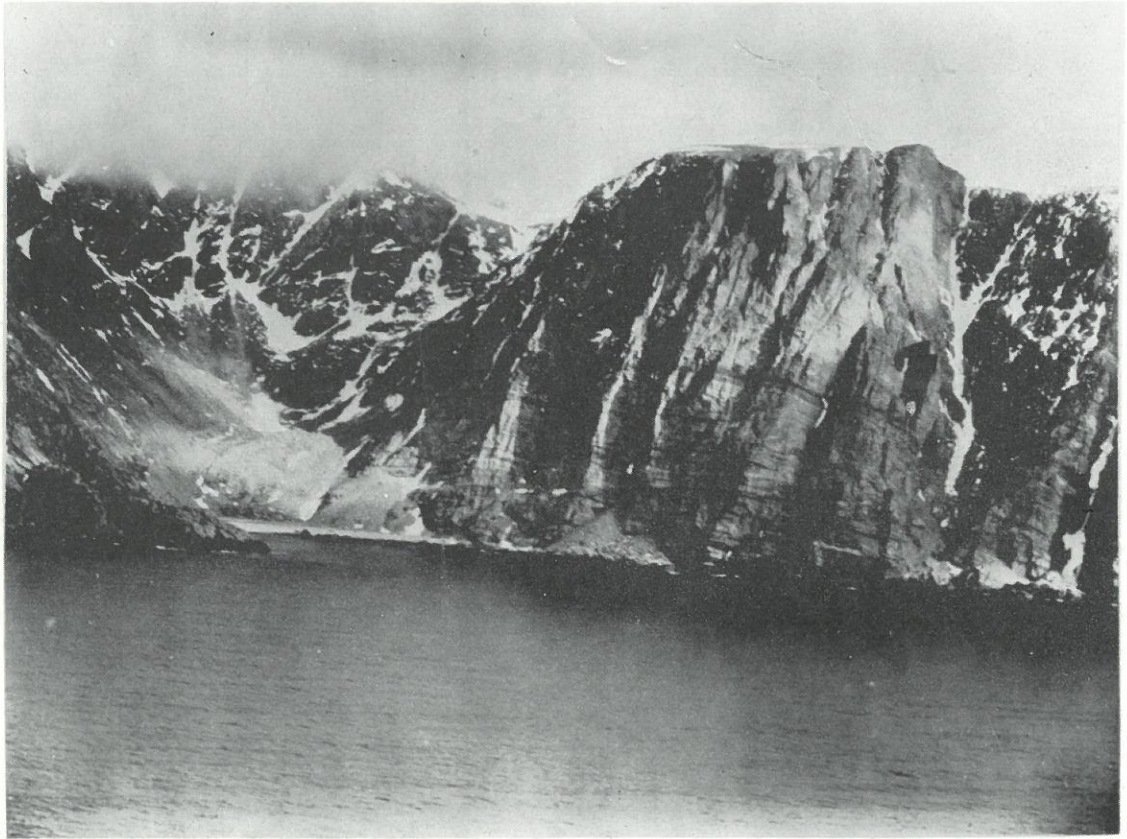
18. The head of Altenfjord, looking north-east. (May 1943)



19. Kaafjord, looking north-west. (September 1942)



20. Kaafjord, looking north-west. (September 1942)



28. Östre Staalvik ( $70^{\circ} 45.5'N.$ ,  $22^{\circ} 44.5'E.$ ), looking south. Staalet (1,896 ft.) hidden by cloud in left background.



29. Coast east of Östre Staalvik looking south. Rocky