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ALASDAIR H. NEILSON

Vascular plants of Edgeøya, Svalbard

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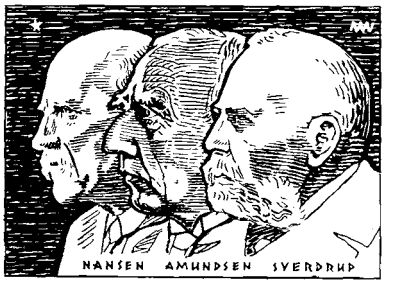

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Contents

Abstract

Records of vascular plants from 51 stations in northern, western, and southern Edgeøya are reported. There are 16 species new to the island whose vascular flora comprises 93 species; of these, four were not found in the present investigation. Plant lists are given and include all the literature records from previous workers; a detailed account of the vegetation is attempted. The composition of the flora differs from that of Nordaustlandet with which detailed comparison is made.

Acknowledgements

This paper is an account of our investigations of the vascular flora of Edgeøya carried out during the summers of 1967 and 1968, and once more it is a pleasure to thank Dr. TORE GJELSVIK, director of Norsk Polarinstitutt, who arranged that we accompany the Svalbard Expeditions.

In 1967 we arrived in van Keulenfjorden on July 6, and after working in that fjord during the rest of July, we were taken by M/S «Signalhorn» to Edgeøya where we spent the greater part of August. We carried out botanical investigations between Lønøodden in the south-east and Visdalen in the north-west, collecting material from 35 stations. This is no mean achievement since the weather was not ideal for all of this time; it was only due to the unstinting help of the expedition leader, cand. real. THOR SIGGERUD, who organized logistic support, that we were able to carry out the intended programme almost completely.

In 1968 we arrived in Edgeøya on July 23 and spent the next three weeks working on the north-western part of the island and as far east as Meodden in Freemansundet, collecting at a further 12 localities.

Any success we have achieved is due to the efforts of my excellent assistants, PER EIDE DYRHAUG who accompanied me during both summers, STEIN KROGHDAL who took part in the 1967 expedition, and ARNE DALLAND in the 1968 expedition; all of them combined patience and help with good cheer even under somewhat trying conditions, and I offer them my very best thanks.

In the preparation of this paper, I had occasion to read KEILHAU's account of his expedition to Edgeøya in 1827, and also PALIBIN's paper covering Russian botanical work carried out during the Arc of Meridian Expedition. I should like to thank my friend Professor dr. ANATOL HEINTZ for translating substantial parts of these works, as well as for several illuminating comments; the translations used in this account are his.

The determination of several genera has been carried out by others. The burden of determining the *Draba* material was once again cheerfully carried by Mr. D. P. SPICER, University of Leicester, and the *Carex, Colpodium*, and *Puccinellia* material has been determined by my good friend Dr. G. HALLIDAY, University of Lancaster. To both of these my very best thanks are due, and gladly given.

Introduction

Edgeøya has often been visited by expeditions, sometimes with hunting as the principal object, but beginning with the visit of KEILHAU in 1827, increasingly for scientific purposes. It seems quite likely indeed that the island may have been visited more frequently in former times than in recent years.

Though the island which bears his name was not discovered by THOMAS EDGE in 1616, but rather two years earlier by CAROLUS (see CONWAY 1906, p. 78), the Muscovy Company Map published by PURCHAS (1625) and incorporating EDGE's discovery is a very excellent piece of work, and was not superceded until that of DUNÉR and NORDENSKIÖLD (1867). EDGE's map shows the principal features of the west coast of the island and many of the original place names are still to be found on present day maps. The expeditions which have contributed to our knowledge of the botany have been summarized by DAHL (1937); these were the expeditions of KEILHAU in 1827, MALMGREN in 1864, HEUGLIN in 1870, KÜKENTHAL in 1889, BRUHL in 1898, PALIBIN, ACHMATOV and MIKAILOVSKY in 1901, MICHELMORE in 1927 and, of course, DAHL's own in 1936. DAHL has, it seems to us quite fairly, criticized the work of HEUGLIN and BRUHL, and of these we shall say nothing more; we have included no records from either expedition in our plant lists, though we comment later on HEUGLIN's record of *Taraxacum brachyceras*. We should like, however, to make some further comments about the other expeditions and about place-names which have, in some cases become confused, or ambiguous.

Account of previous botanical investigations

KEILHAU 1827

It is not possible sufficiently to praise the work of KEILHAU (1831), not only for his geological contributions, but also for his perceptive observations on plant life. From the locality called by him, "Stans Foreland", he records 26 species of vascular plant, a number not exceeded from the same locality (Kraussbukta) until DAHL's work in 1936 which brought the number up to 52. KEILHAU's collection of plants was worked up and published by SOMMERFELT (1832); KEILHAU himself comments, "The vegetation is much richer than might be supposed for a place so far north. I collected 26 species of phanerogam on Stans Foreland and 34 lower plants. The number of the latter must be much larger if it had been

easier to study marine algae; in all places where we sought them they were either disturbed or destroyed by the ice. Therefore there are only three species of algae on Stans Foreland, and none at all on Sydcapp and Bear Island." We should note in comparing the number of species of vascular plants with later work, that KEILHAU arrived at Edgeøya on September 11 and left again on September 19, so that the conditions for plant life were far from favourable and indeed we are rather surprised that he found as many species as he did. Probably his two most interesting findings were that of *Dryas octopetala* which is fairly rare in the southern parts of the island, and of *Lycopodium selago* which was not again recorded until our own finding of it in 1967. We found it only over a very limited area on Grunnlinesletta, in what must surely be the same locality as KEILHAU found it; our other locality was in the south-east of the island which KEILHAU did not visit.

KEILHAU calls his locality simply "Stans Foreland", a name originally used for the peninsula on the south side of Tjuvfjorden, and used by EDGE (PURCHAS 1625) and many later cartographers. The place which KEILHAU visited can, however, certainly be identified as Habenichtbukta, though not solely on account of the map reproduced by KEILHAU, which is used to support this identification by DAHL. Indeed DAHL calls this locality Kvalpynten in his plant list, a name which is now used strictly for the steep point at the southern extremity of Kvalpyntfjellet. There is also some confusion resulting from the remarks of CONWAY (1906), who seems to imply that the locality visited by KEILHAU, was on the north side of Tjuvfjorden, near the present Keilhaubukta. LAMONT (1876), whose drawing of the Russian huts is reproduced by CONWAY is, however, quite clear in meaning the west coast of Edgeøya, and KEILHAU himself is quite precise in his description of the place and of its situation. He gives a detailed account of the former Russian hunting establishment in Habenichtbukta and after describing the look-out tower he says, "From the same point we could look at the beautiful view of the coast of Vest-Spitsbergen lying on the opposite side, and directly into these parts called on the map Kapp Muscovy. The mountains consist of truncated pyramids and cones, mostly free of snow, and between them there are extremely large glaciers shining whitely." The mountain discovered in 1610 by JONAS POOLE and named by him, "Muscovy Company's Mount" (see PURCHAS 1625) is certainly Hornsundtind. On later maps, however, the name has been used for a mountain on the east coast; thus EDGE's map shows "Muscouiemount" somewhat south of Whales Head (Kvalhovden), and in the map of GILES and REP published by VAN KEULEN (see WIEDER 1919, p. 95, map 213, plate 31), "Mockovia Mound" is given more or less the same position. All of these must correspond to Hedgehogfjellet (see ORVIN 1942, p. 181), and it must surely be to that which KEILHAU refers. If any doubt remained, this would be removed by comparing the drawing of the hunting station reproduced by KEILHAU, with photographs, first of the Russian Arc of Meridian base camp reproduced in BACKLUND's account (1907) of the dolerites of the Storfjorden area, and second with one of our own. These are shown in Figs. 1.1, 1.2, and 1.3 and Kvalpyntfjellet can clearly be made out in all three.

We therefore identify KEILHAU's locality with Habenichtbukta, and assume that is the same as MALMGREN's, "Whales Point", KÜKENTHAL's, "Whales Point-

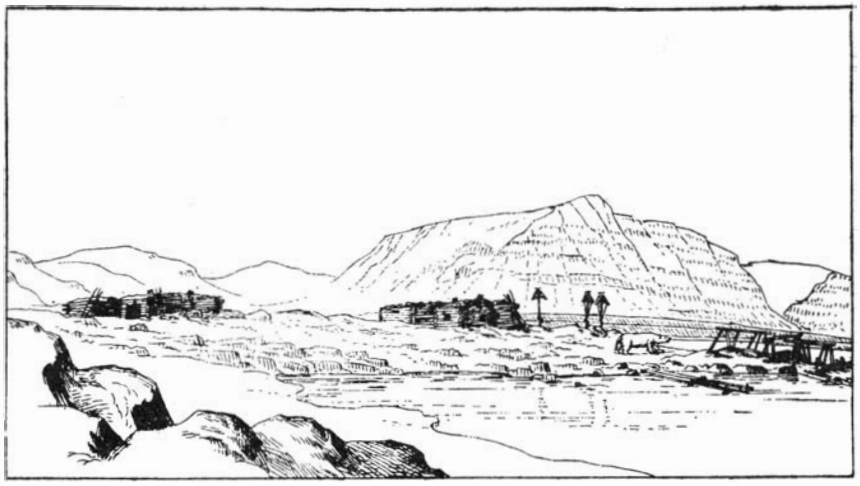

Fig. 1.1. *Drawing of the Russian houses south of Habenichtbukta taken from* KEILHAU (1831).

Fig. 1.2. *Photograph of Kvalpyntfjellet from Kraussbukta taken from* BACKLUND (1907).

Fig. 1.3. *Kvalpyntfjellet from the northern end of Kraussbukta.* Photo: A. H. NEILSON 6.8.1967.

hafen", and PALIBIN's, "Krausshaven"; we use the name Kraussbukta in the present account for all of these localities.

Later we quote extensively from KEILHAU's quite excellent account of the vegetation and topography.

MALMGREN 1864

MALMGREN visited two localities on Edgeøya, "Whales Point", and one called by him simply, "Walter Thymens Strait". There is a description of the anchoring place and this is clearly marked on the map published by DUNÉR and NORDENSKIÖLD (1867); on this map Kapp Lee is shown as the north-west extremity of Edgeøya though the name is transferred, on the maps of PETERMANN (1871) and WATKINS (1928) to the point farther south with the low dolerite island. We follow the original usage, using Kapp Lee only for the northern extremity of Edgeøya, and Dolerittneset for the point with the low dolerite sill exposed at sea level at the southern extremity of the bay due west of Leehovden. In this account we therefore identify MALMGREN's locality, "Walter Thymens Strait" with Dolerittneset,[1] and "Whales Point" with Kraussbukta. His observations from other parts of Svalbard were published in his own synopsis of the flora of Svalbard (MALMGREN 1864), but the Edgeøya material was published in a later account by FRIES (1869). From Kraussbukta only four species are noted, though no doubt many more were found, and none of them are of special interest. From Dolerittneset, however, nineteen species are recorded including the following:

Chrysosplenium tetrandum
Deschampsia alpina
Dupontia fisheri var. *psilosantha*
Melandrium apetalum
Equisetum arvense
Minuartia biflora
Potentilla pulchella
Puccinellia phryganodes
Stellaria humifusa
Taraxacum arcticum

Many of these must still be counted rare species and *Chrysosplenium tetrandum* extremely rare, being noted subsequently only by KÜKENTHAL and by MICHELMORE from Kraussbukta. It has not been recorded either by DAHL or by us though we looked for it rather carefully in the area around Dolerittneset.

[1] In a recent paper covering the geobotanical work carried out by the German expeditions in south-east Svalbard during 1960 and 1967, HOFMANN (1968) has suggested that the locality visited by MALMGREN in 1864 and called by him 'Walter Thymens Strait' should be identified rather with a locality in Barentsøya on the east side of Malmgrenbukta (and called by HOFMANN Talavera Vorland), than with one on Edgeøya north of the present Dolerittneset. This appears to be based primarily on the finding at the above locality on Barentsøya of plants which HOFMANN assumes are not found at Dolerittneset and which he suggests have somewhat specialized ecological requiremants. Among these plants are: *Chrysosplenium tetrandum, Dupontia psilosantha, Puccinellia phryganodes, Stellaria humifusa, Equisetum arvense, Melandrium apetalum,* and *Potentilla pulchella*; apart from the first, we have recorded all of these from Dolerittneset, many occurring quite close to the shore, nor should we consider any of them as specially rare in Edgeøya. We therefore feel justified in retaining our original position in supporting DAHL's suggestion that "Walter Thymens Strait" be identified with a locality west of Leehovden and north of the entrance to Rosenbergdalen.

HEUGLIN 1870

DAHL has already commented sufficiently on the botanical results of this expedition, but especially on the ambiguity of the locality "Ostküste des Storfjordes". One record is, however, of rather special interest; HEUGLIN records from this locality a plant which would now be called *Taraxacum brachyceras*. We comment on this later in the list of plants.

KÜKENTHAL 1889

DAHL (1936) has already commented on KÜKENTHAL's collection and we can do no less than endorse his remarks. It is impossible at this stage to decide what some of his plants are, e. g. *Saxifraga hirsutus,* and in view of the uncertainties surrounding identification of some of the common species, we are unhappy about his record of *Ranunculus glacialis*. There is no reason why this plant, known from the west coasts of Sørkapp Land and Wedel Jarlsberg Land, should *not* be found in Edgeøya, but it has never otherwise been noted. As already mentioned, we can safely take "Whales Pointhafen" to mean Kraussbukta.

THE RUSSIAN ARC OF MERIDIAN EXPEDITION 1901
PALIBIN, ACHMATOV, AND MIKAILOVSKY

The botanical material from this expedition was published by PALIBIN (1903) and includes some useful records by the two other members of the expedition who visited Siegelfjellet, and Gothavika a little north of the base. The plant lists are somewhat meagre, comprising 18 species from Kraussbukta collected by PALIBIN himself, and none especially rare except for *Ranunculus nivalis* and *Catabrosa concinna*. It has, however, been suggested by HANSSEN and LID (1932) in their discussion of the collections of PALIBIN from Franz Josef Land, that these have been confused with *Ranunculus sulphureus* and *Phippsia algida,* neither of which common plants were recorded by PALIBIN. *Saxifraga hieraciifolia* was noted for the first time, growing among mosses between diabase blocks, above the strand flats. This is probably the locality on the north side of Årelva, which has a rather rich vegetation. In defence of the small number of species recorded, it must be noted that the collections were made very early in the year, (June 8–9 Old Style; June 21–22 New Style) and indeed PALIBIN adds that the spring had just begun and the area near the beach only recently become free of snow. The vegetation was rather barren with the young plants not yet above old grass stalks from the previous year.

On June 19–20 (Old Style; July 2 New Style), ACHMATOV and MIKAILOVSKY noted *Potentilla hyparctica* and *Saxifraga flagellaris* on the beach at Gothavika, and somewhat later still ACHMATOV made a collection of plants on Siegelfjellet; this comprised 20 species including, *Braya purpurascens, Festuca brachyphylla,* and *Trisetum spicatum* which were all new records, and also *Dryas octopetala* which was not recorded by them to the south of this point.

Up to this date there had been records from only four localities on the whole

island, viz. Dolerittneset (MALMGREN), Siegelfjellet (ACHMATOV), Gothavika (ACHMATOV and MIKAILOVSKY) and Kraussbukta (KEILHAU, MALMGREN, KÜKENTHAL and PALIBIN). One of the real merits of the next expedition was that it brought back material from the southern parts of the island.

MICHELMORE 1927

In 1927 GINO WATKINS led an expedition to Edgeøya which spent several weeks in the southern and central parts of the island; MICHELMORE (1934a, 1934b) has published an account of the botanical investigations in two papers. As already noted by DAHL, the ecological paper (1934b) is not very useful, since it contains few references to specific localities and it seems to us that the conclusions were rather premature at that time. The first paper, however, (1934a) gives details of the localities visited and plant lists for most species. The collections were made at localities called by MICHELMORE, Kapp Lee, "Plain of the Russian Base" (Grunnlinesletta), Keilhaubukta, Kuhrbreen, "Andrée Island" (Andréetangen), and Negerdalen. Fortunately WATKINS (1928) published a map of Edgeøya from which it is clearly seen that Kapp Lee is the present Dolerittneset, and Keilhaubukta is used for parts of the coast farther west than is now implied by the name; MICHELMORE's locality is accordingly called Risetrappa in the present account.

This is the first account of botanical work in Tjuvfjorden and on the south coast, and there are several species new to the island:

Carex ursina
Cerastium regelii
Equisetum variegatum
Koenigia islandica
Ranunculus spitsbergensis
Saxifraga tenuis

In addition MICHELMORE noted *Chrysosplenium tetrandum* from the marsh on Grunnlinesletta, and though already noted by MALMGREN from Dolerittneset, is has not subsequently been noted either by DAHL or by us. As far as we can see, this is also the first record of any *Carex* species from the island – *Carex ursina* from Andréetangen.

DAHL 1936

The 1936 expedition in which DAHL took part visited many parts of northern and eastern Svalbard including four localities within the area covered by this paper. As already noted, the point called by DAHL, Kapp Lee, is now known as Dolerittneset, and in the present account we call his locality, "Between Rosenbergdalen and Kapp Lee" simply Dolerittneset. His locality Habenichtbukta we call Kraussbukta, and Keilhaubukta, Risetrappa; from his descriptions of the last two localities there can be no doubt about this identification. From Dolerittneset he recorded 60 species, from Kraussbukta 52, from Risetrappa 33 and from Kapp Heuglin 15. A total of 70 species was recorded from the whole of Edgeøya including the following new records:

Arenaria pseudofrigida	*Phippsia concinna*
Carex rupestris	*Poa alpigena* var. *colpodea*
Carex subspathacea	*Poa arctica*
Draba cinerea (*D. arctica*)	*Puccinellia vacillans* (*Colpodium vacillans*)
Erigeron unalaschkensis (*E.humilis*)	*Ranunculus nivalis*

He also recorded *Ranunculus spitsbergensis* from Grunnlinesletta, noted previously by MICHELMORE from the same locality, and in a later paper with HADAČ (1946), DAHL recorded *Arctagrostis latifolia* from Dolerittneset. This is an extremely interesting record since the grass had previously been noted only in Isfjorden and in Wijdefjorden. This investigation dramatically altered the picture of the vascular flora of Edgeøya, which was, at the time of publication, comparable to that of Nordaustlandet, based on the account of SCHOLANDER (1934). We shall later make a comparison between these two islands which shows that they differ not so much in the number of species found as in the composition of the vascular flora.

Up till this time botanical work in Edgeøya had been confined more or less to areas near the shore, and the valleys had remained relatively unexplored. The total number of localities from which records were available was also small, and of these, two, with a very rich flora (Dolerittneset and Kraussbukta), gave rather a false impression of the richness of the vegetation over the island as a whole (see also MICHELMORE 1934b). It was one of the purposes of the present expedition to cover as large an area as possible, and to extend the investigations inland into the great valleys.

It is pleasing to be able to say that in nearly every case where we have revisited localities from which earlier collections have been made, we have confirmed, and in some cases extended the original observations. This may give some measure of the excellence of the older work which was often carried out in difficult conditions and in great haste.

The present investigations

In 1967 we sailed from Vestervågen in Recherchefjorden in M/S «Signalhorn», and after meeting some ice around Sørkapp sailed in thick fog to the north-east and landed on the northern side of Kraussbukta on July 31. We worked on the great marshes on Grunnlinesletta, northwards as far as the moraine of the glacier south of Sydowbreen, and southwards on to the northern shores of Tjuvfjorden, east of Vogelberget. Using our dory, we visited Bjørnholmane, Siegelfjellet and Plurdalen to the north of Russebukta, and Eilifdalen, the small valley a few miles east of Kvalpynten. On August 10 we were transported to the southern part of Tjuvfjorden, north of Negerpynten, and in wretched weather with light snow we worked during August 10 and 11 in Negerdalen, and as far as Lønoodden on the south-east coast. We then walked to Andréetangen, where we carried out a short investigation on the peninsula, and inland for several miles; we were then taken across the fjord and, after a short visit to Kuhrbreen and the areas to the eastwards, we moved to the northern side of Diskobukta. We stayed

in the American Overseas Petroleum Company hut east of Blankodden until we were finally picked up on August 23. From this camp we carried out a full investigation of the whole area, working in Visdalen (on a day of heavy snow showers), Drivdalen, Raddedalen, Smelledalen, Uvdalen and Guldalen.

Apart from a full storm from the south-east during August 3 and 4, the weather was mainly fine though after August 2 the effect of the first frosts on the plants was increasingly evident, and by the time we left Blankodden the vegetation had taken on a deep brown hue and it was becoming quite difficult to identify material more than a short distance above the ground. We therefore find it all the more remarkable that KEILHAU found as much as he did in the middle of September.

In 1968 we sailed in M/S «Signalhorn» from Ny-Ålesund, and after meeting some ice in Storfjorden, arrived off the north-west part of Edgeøya in thick fog on July 22; after waiting some 12 hours for the fog to clear, we were able to go ashore in fairly open water. From the American Overseas Petroleum Company Hut at Dolerittneset we worked as far south as Visdalen, about 9 km into Rosenbergdalen, into the eastern extremity of Åmotsdalen, and using the dory as far east as Meodden in Freemansundet, making an especially interesting visit to Skrukkedalen. We were picked up again on the August 14; the weather was generally poor, with much strong wind and very little sun. There was a heavy fall of snow on August 11 and by then the vegetation had taken on a deep brown colour; the temperatures were generally low, falling to +0.4°C at 1930 hr. on August 2.

Geology and topography of Edgeøya

The rocks of Edgeøya are almost entirely of Triassic age though older Permian inliers have recently been reported without details (KING 1964), and Jurassic outliers were noted by WITTENBERG (1910) on Kvalpyntfjellet and on Negerpynten. The published data on the Triassic as a whole has been summarized by BUCHAN et al. (1967) and as far as Edgeøya is concerned, seems to be based primarily on material collected by FALCON on the 1927 GINO WATKINS expedition, and on his short published account (FALCON 1928).

It is certain, however, that a vast amount of excellent detailed work has been carried out in recent years by groups sent out by the Arctic Institute, Leningrad (see BUCHAN et al. 1967), and by the American Overseas Petroleum Company. This material has not yet been published and so we base our short comments on the paper of BUCHAN et al. 1967.

The triassic rocks of Edgeøya are more or less horizontal; the lower sediments have been assigned to the Sassendalen Group and consist of fossiliferous blue bituminous shales with intercalated thin limestone bands. Above these lies the Kapp Toscana Formation consisting mainly of blue and purple shales in the lower horizons and merging into sandstones further up. In a section measured by KLUBOV at Kapp Lee (Dolerittneset) there is a thick development of sandstones at the top of the sequence. For our purposes, therefore, the situation is straightforward both lithologically and structurally.

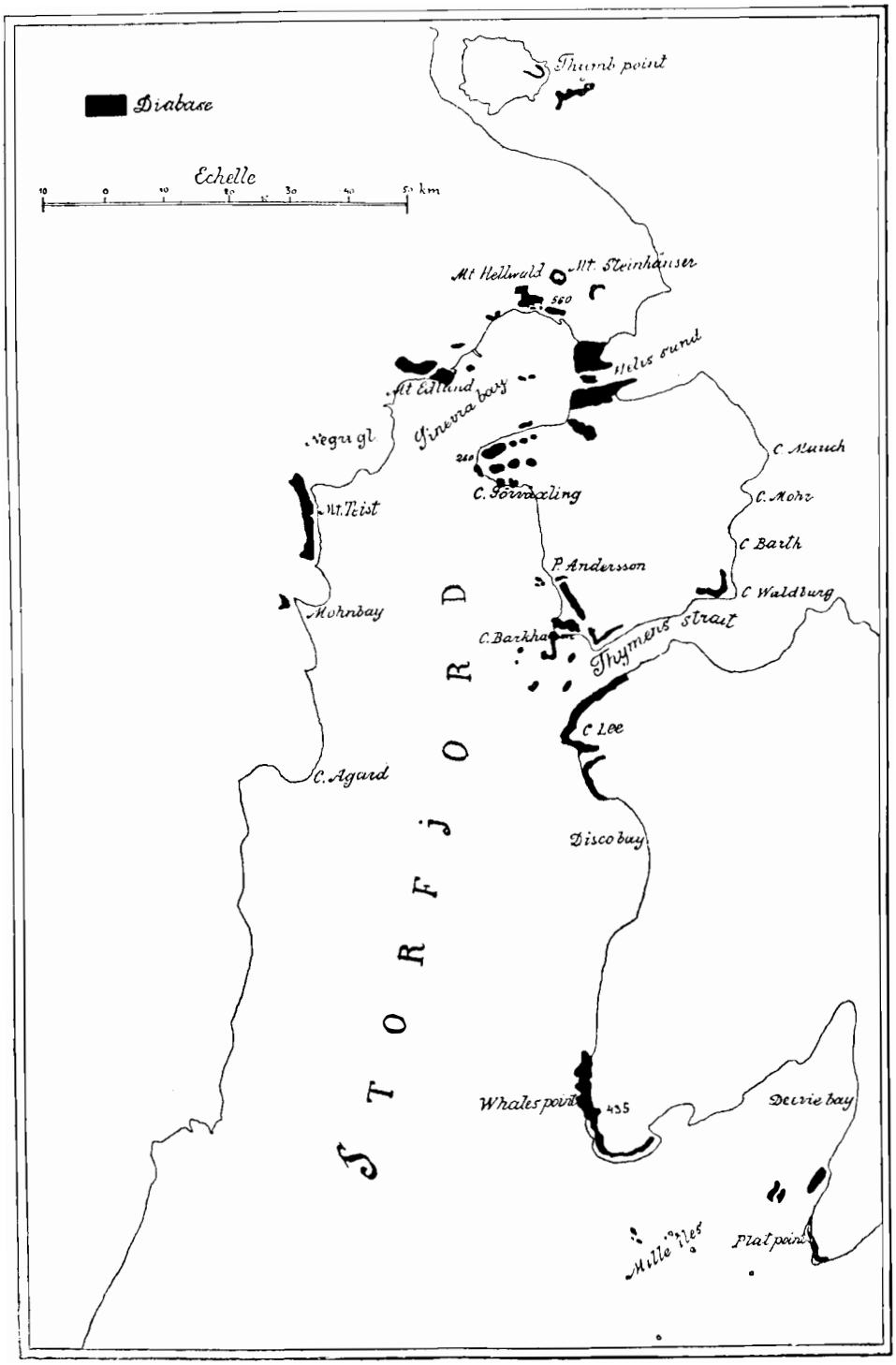

Fig. 2. *Distribution of dolerite sills in Edgeøya, taken from* BACKLUND (1907).

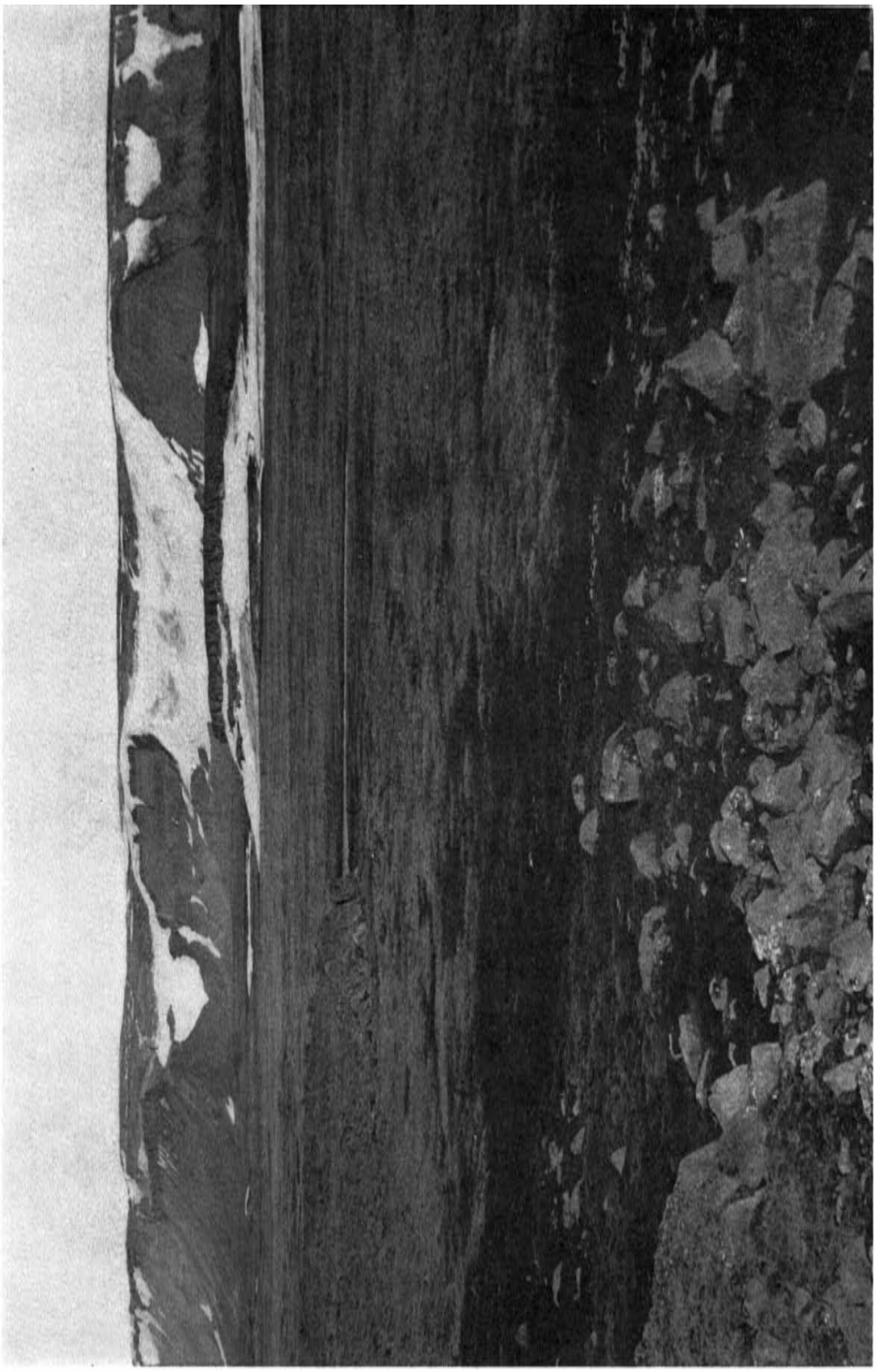

Fig. 3. *The southern end of Grunnlinesletta showing dolerite sills, centre and top left, and blocks of dolerite in the foreground.*
Photo: A. H. Neilson 2.8.1967.

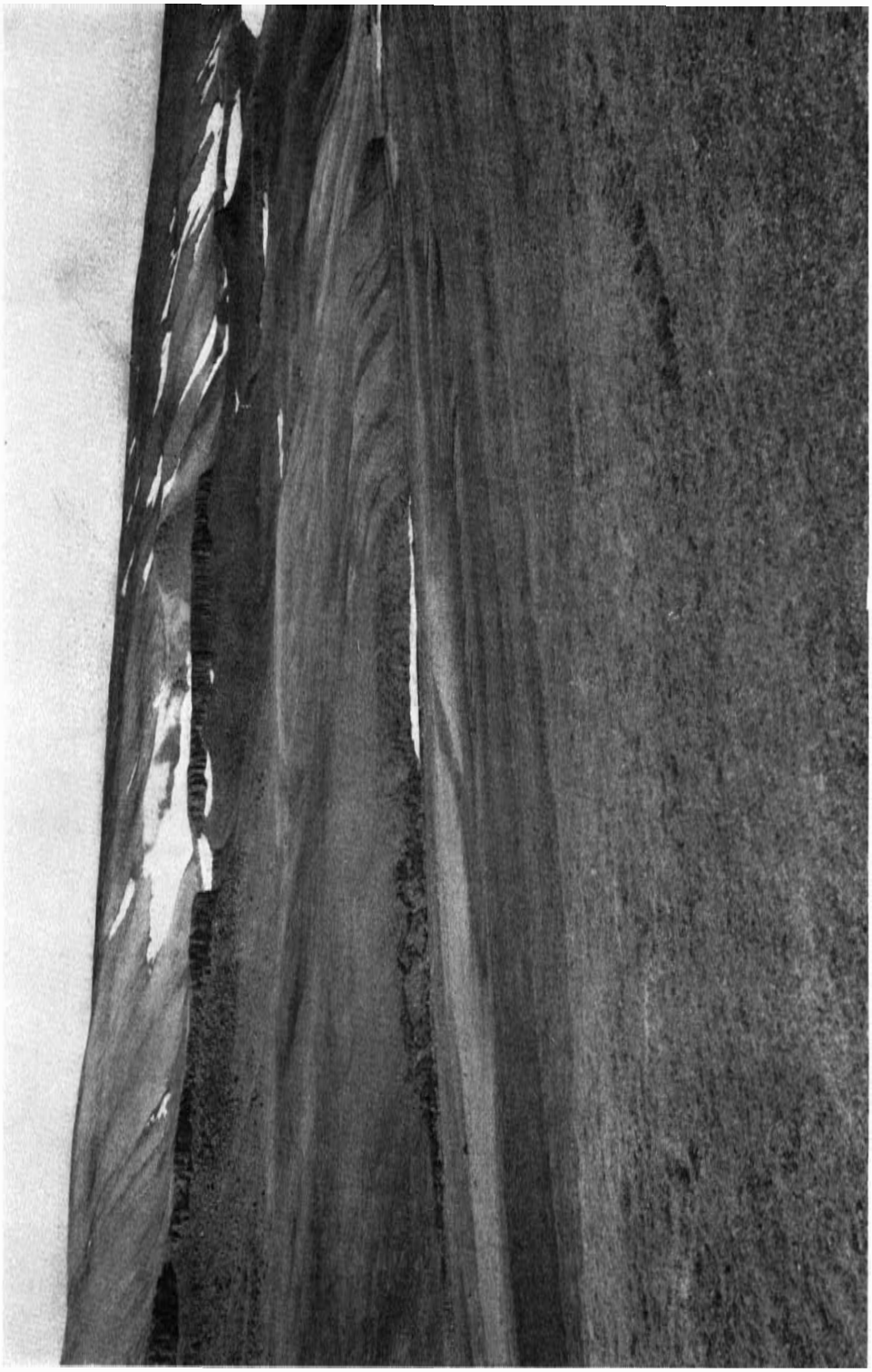

Fig. 4. *The northern entrance to Rosenbergdalen from the south side of Rosenbergelva, showing the series of dolerite sills; Arnica alpina under the middle sill.* Photo: A. H. Neilson 7.8.1968.

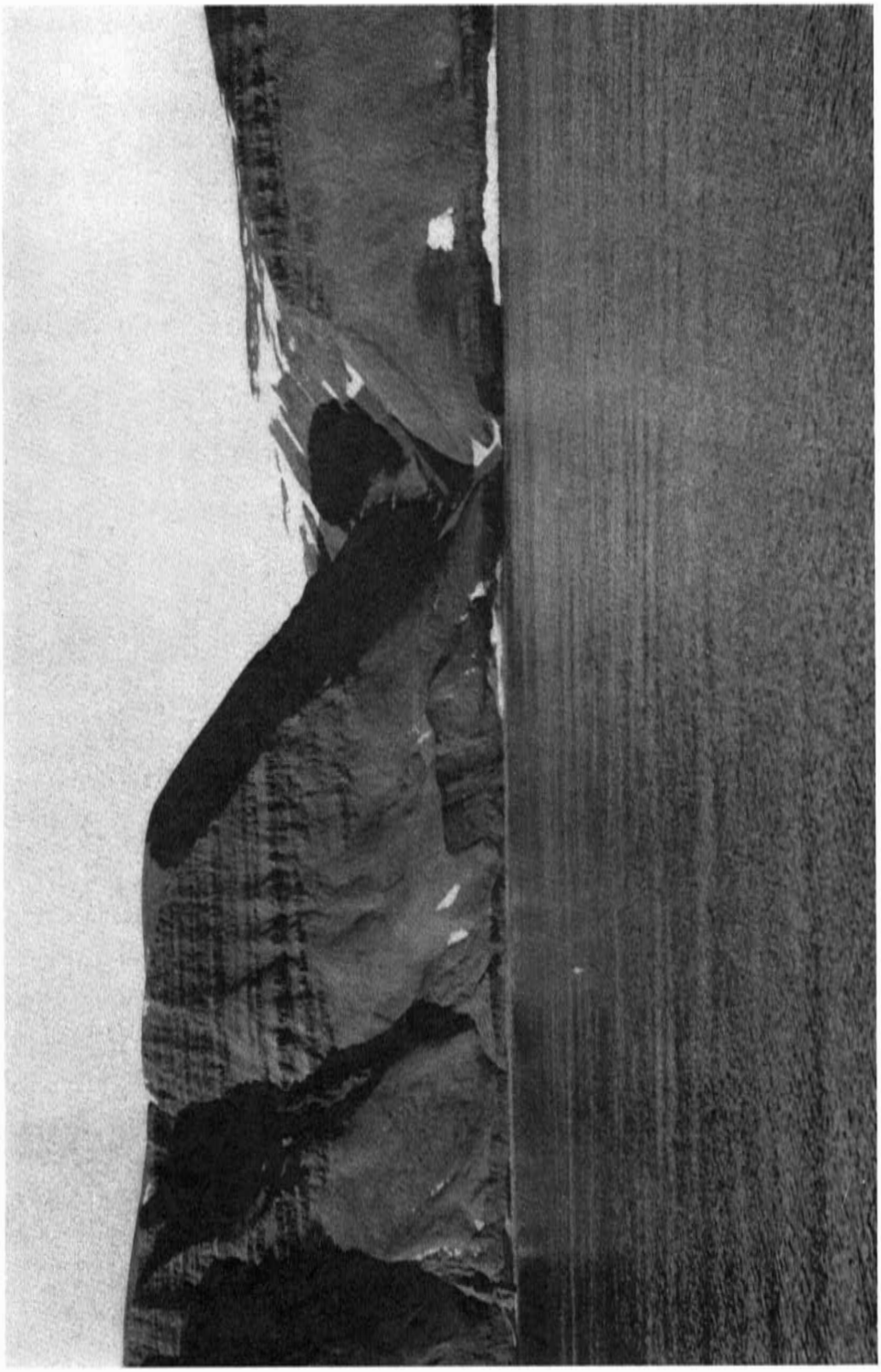

Fig. 5. *Dahlvika and Eilifdalen (in shadow) from the south. The rich locality with Taraxacum brachyceras was just below the rocky outcrop on the western (left) side of the valley.*
Photo: A. H. Neilson 8.8.1967.

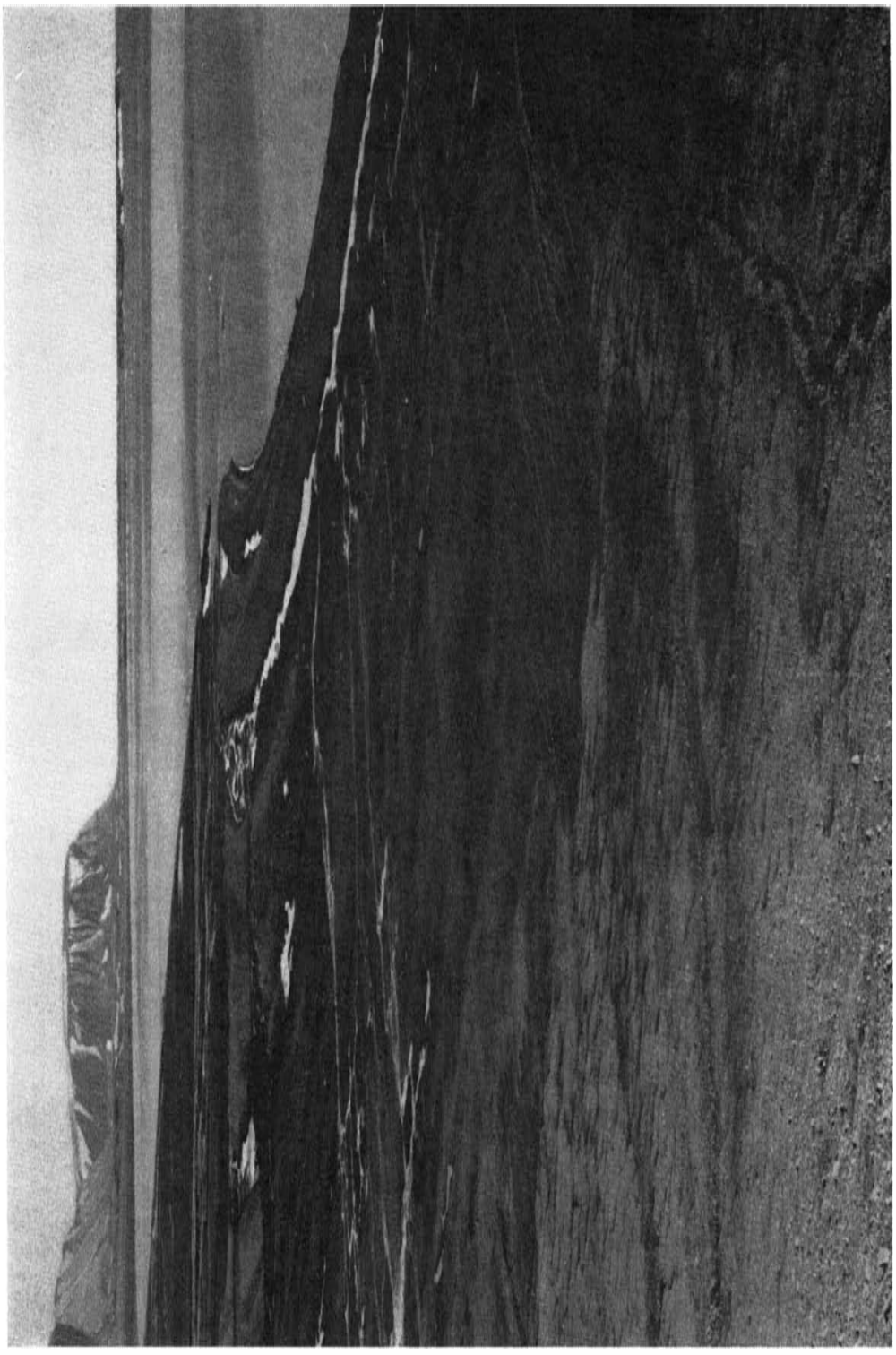

Fig. 6. *View southwards from Siegelfjellet showing the northern end of Grunnlinesletta on the north side of Plurelva; the lower parts of the strandflat are covered in whale bones.*
Photo: A. H. Neilson 3.8.1967.

On the west coast there are numerous dolerite sills and we reproduce in Fig. 2 a map of these taken from the paper of BACKLUND (1907); these are of special significance in respect of the vegetation which seems to reach its highest development in their vicinity. We comment on this in greater detail later on, and here we note merely that the relevance of these sills has already been commented upon by MICHELMORE, PALIBIN, and KEILHAU. A typical sill appearing as a low bluff a few km inland, near the southern part of Grunnlinesletta is shown in Fig. 3, and some of those on the northern side of Rosenbergdalen in Fig. 4. Those west of Lønøodden are rather similar, though much lower, while those exposed along the coast are usually weathered into blocks, very similar in appearance to those found in other parts of Svalbard (see Fig. 13 in NEILSON 1968).

There are no very high mountains in Edgeøya, the highest point of the central plateau being 578 m a.s.l. but the coast is quite steep-to at many points, especially at the extremities of Tjuvfjorden, Kvalpynten and Negerpynten. The rich southern slopes of Kvalpyntfjellet north of Dahlvika are shown in Fig. 5, and such castellated cliffs are reminiscent of the Permo-carboniferous mountains in Billefjorden.

Between the mountains and the sea, and running for several miles north of Kvalpyntfjellet, lies the great marsh on Grunnlinesletta. This is indeed one of the most extensive marshes we have seen in Svalbard, being reminiscent of the coastal plains of Spitsbergen, and over many miles is covered in deep moss, dotted with small pools of standing water and containing massive development of aquatic plants, such as *Dupontia, Ranunculus spitsbergensis,* and others. We shall discuss this vegetation in detail later, and quote the very fine description of this area given by KEILHAU. The northern extremity of Grunnlinesletta, which is covered in whale bones, is shown in Fig. 6; Kvalpyntfjellet is seen to the south along the skyline.

The largest valleys seem to be found in the northern parts of the island; there is a great complex of valleys running southwards into the inner parts of Diskobukta and southwards from Freemansundet. These valleys are, in general, low-lying with very gentle gradients and the rivers which carry substantial volumes of water from the ice-cap have built up enormous alluvial deposits on the deltas. The open valleys, such as Raddedalen which runs in a north-easterly direction inland, have a rather poor vegetation, but the more sheltered ones, such as Uvdalen, Rosenbergdalen, and Skrukkedalen, are much richer especially on the fairly well drained terraces above the rivers. Fig. 7 shows the upper parts of Uvdalen and it is readily seen just how massive these valleys are. Farther south the valleys seem to be less well developed though both Plurdalen and Årdalen are quite substantial. In Fig. 8 we show the view looking north-west from near the head of Årdalen, with Grunnlinesletta lying to the east in the distance. Again these valleys are well vegetated, especially Plurdalen where we found some rare and unrecorded plants, *Carex misandra* and *Eutrema edwardsii.* By contrast the valleys on the south side of Tjuvfjorden are poorly drained, muddy, low-lying and rather miserable places. Negerdalen supports throughout its length only a depauperate flora with massive areas of "sneleier" almost dominated by *Phippsia algida.*

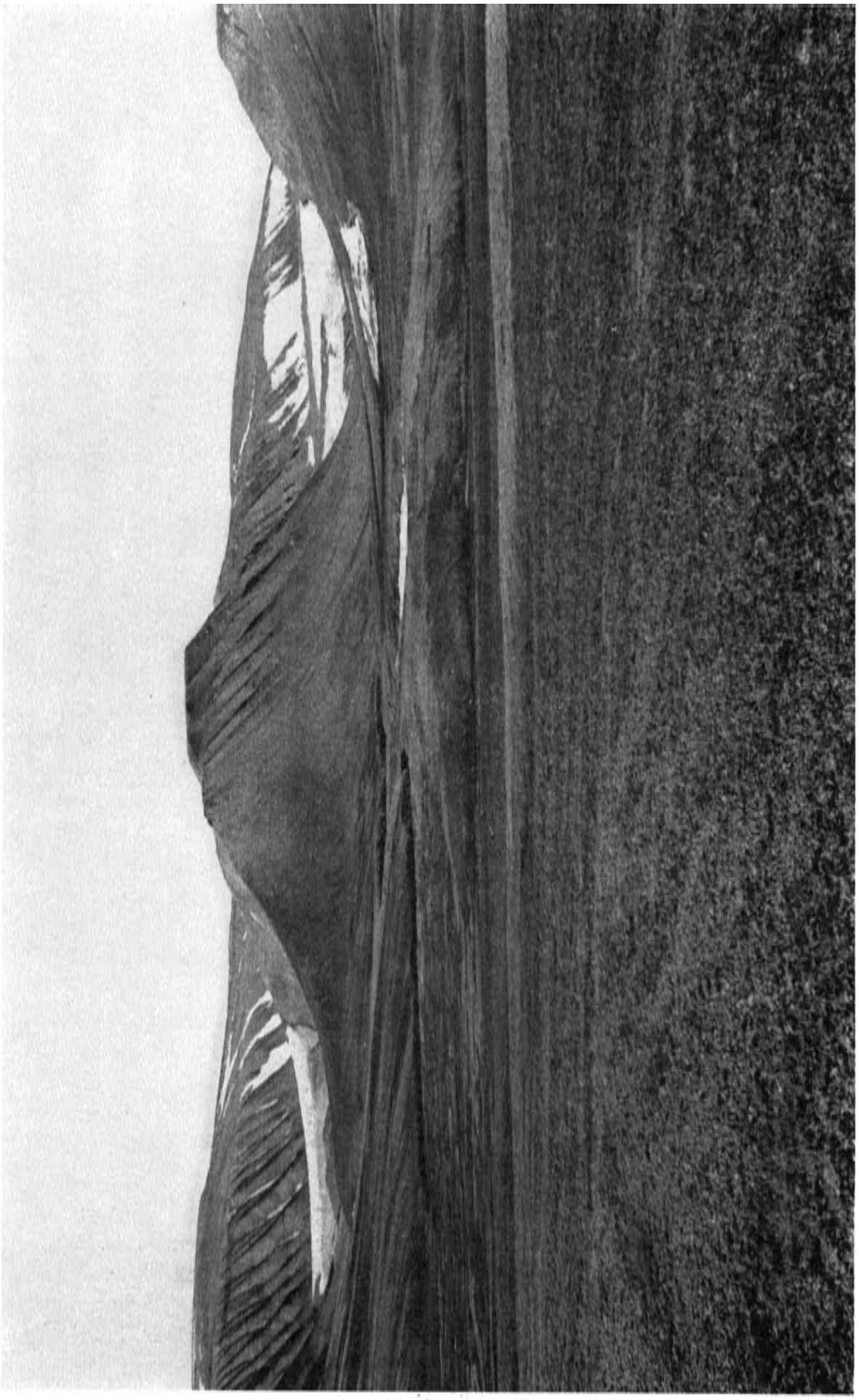

Fig. 7. *Uvdalen looking northwards; the dry terrace in the middle had a rich covering of Dryas octopetala but was otherwise bare.*
Photo: A. H. Neilson 6.8.1967.

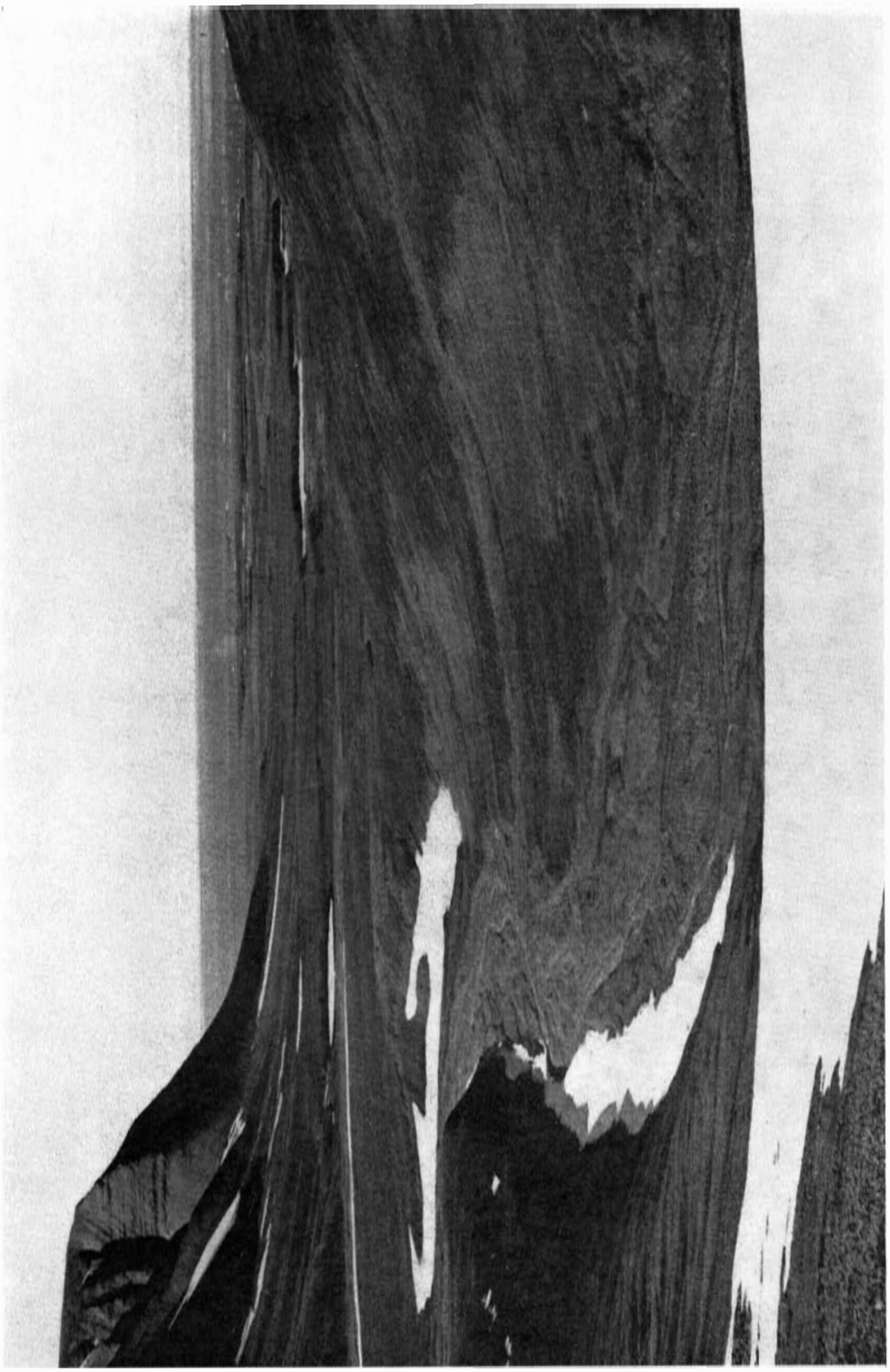

Fig. 8. *Årdalen looking north-west with the southern end of Grunnlinesletta in the far background.*
Photo: A. H. Neilson 2.8.1967.

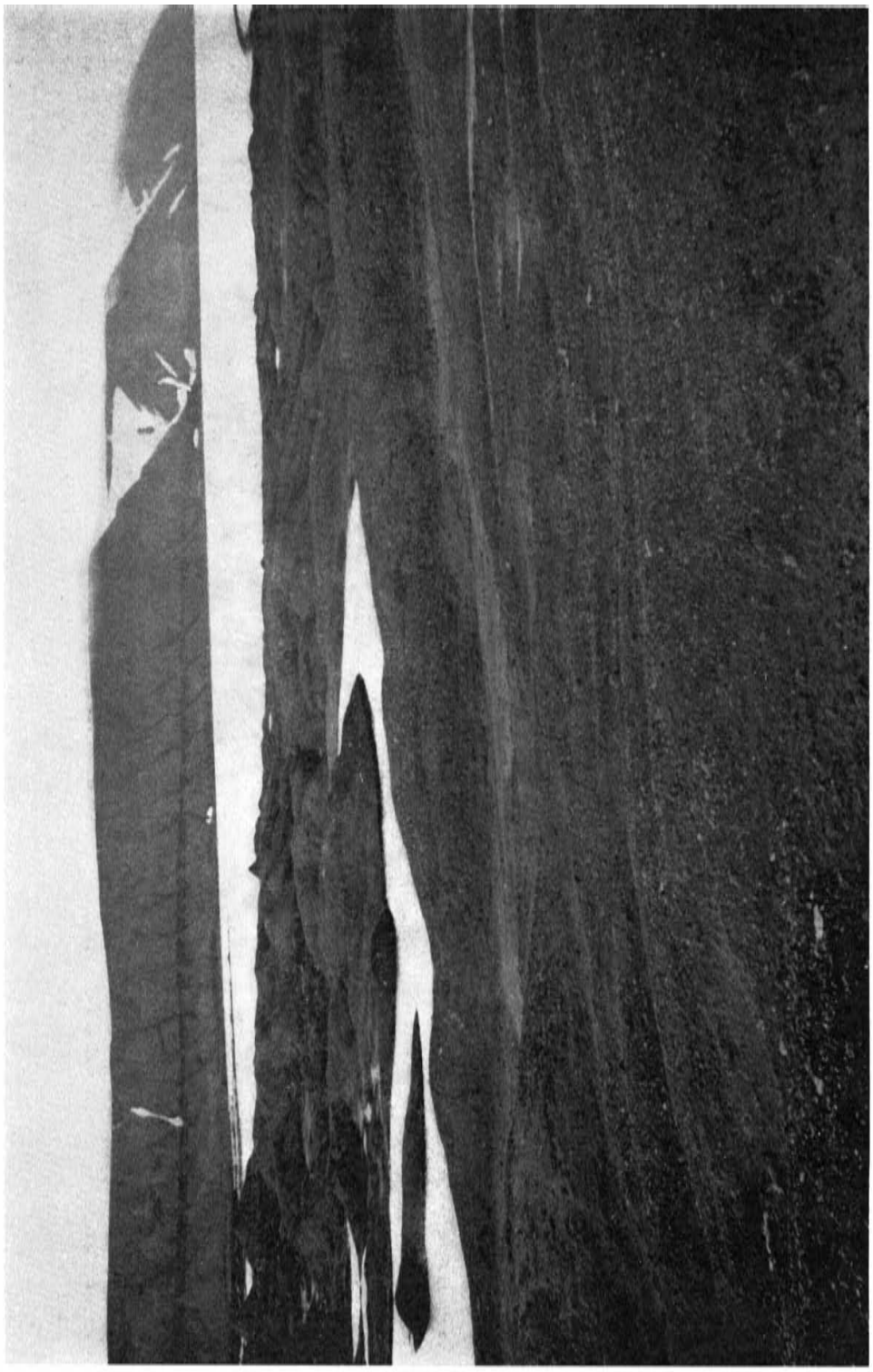

Fig. 9. *Kuhrbreen moraine; eastern lateral moraine showing development of miniature landscape. The south side of Tjuvfjorden in the background.*
Photo: A. H. Neilson 13.8.1967.

Fig. 10. *View looking south-east over Risetrappa showing the canyons in the foreground, and Negerdalen on the south side of Tjuvfjorden in the top right.* Photo: A. H. NEILSON 2.8.1967.

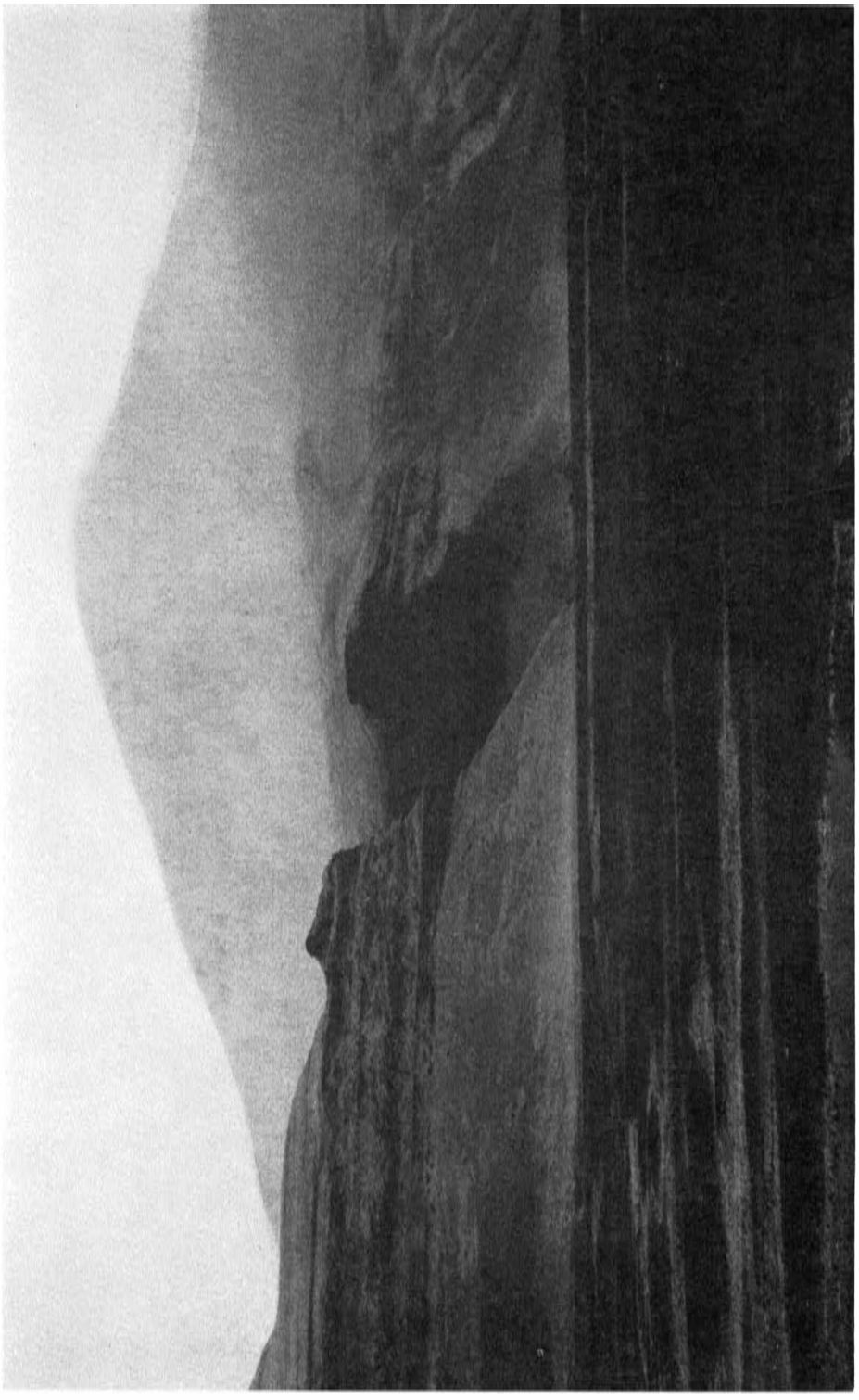

Fig. 11. *The kittiwake rookery on the south side of Drivdalsryggen showing the spectacular gorge; the rich vegetation of Ranunculus pedatifidus occurred on the steep slopes on the west (left) side of the gorge.*
Photo: A. H. Neilson 19.8.1967

The north side of Tjuvfjorden is notable for Kuhrbreen with its massive moraines, part of which are shown in Fig. 9; the more recent parts are dominated by *Puccinellia angustata* though the older moraines have a remarkably rich vegetation. West of Keilhaubukta lies Risetrappa with a series of steep, wet terraces, which are well covered with a rather limited range of plants. Through some of these terraces, melt streams have cut channels which in places have developed into quite spectacular canyons; one of these is shown in Fig. 10 which shows, in the far distance, the southern mountains of Tjuvfjorden.

List of localities

The localities have been grouped more or less arbitrarily into five areas which are shown on the large scale map of Edgeøya, Fig. 12. These areas have been designated as follows:

A. The south side of Tjuvfjorden and the south-east coast.
B. The north side of Tjuvfjorden
C. Kvalpyntfjellet to Siegelfjellet
D. Diskobukta
E. Between Rosenbergdalen and Freemansundet.

They have all been included on the detailed maps which have been prepared from preliminary maps kindly provided by Norsk Polarinstitutt.

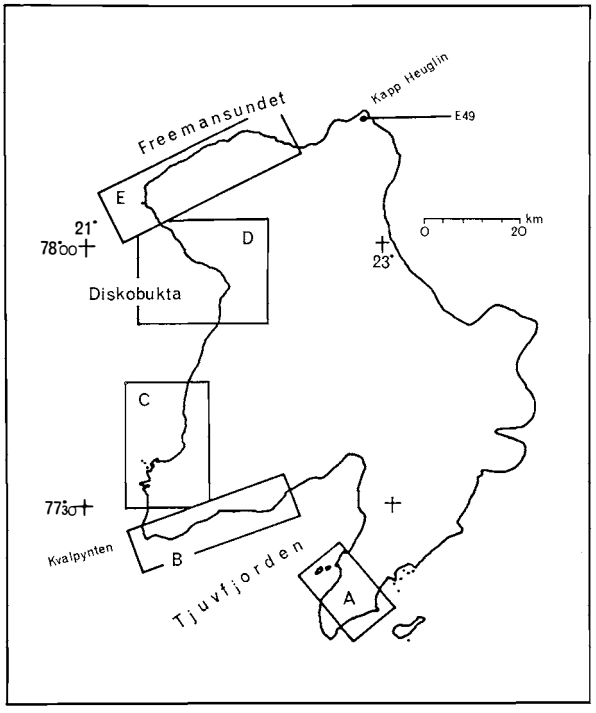

Fig. 12. *General map of Edgeøya, showing division into regions.*

		Lat. °N	Long. °E	Date
A	*The south side of Tjuvfjorden and the south-east coast* (see Fig. 13)			
A1	Mureflota The area under the dolerite sills somewhat to the west of Lønøodden, flat, exposed, and partly covered by falling snow during our visit.	77°19′	22°48′	11.8.67
A2	Negerdalen The east side of the southern entrance to the valley, on wet, south facing slopes, richer than in the valley itself. Also small pools with *Ranunculus hyperboreus*, *Cardamine nymani*.	—»—	22°44′	—»—
A3	Negerdalen The north side on generally wet, low, muddy areas near the shore, on the slopes of the north side of the valley, and on areas of 'sneleier' on the floor of the valley.	—»—	22°25′	—»—
A4	Bjørnbukta The north side of the bay on wet, muddy solifluction slopes.	77°23′	22°34′	12.8.67
A5	Andréetangen Around small pools near the hut, among dolerite blocks by the shore on Bjørnbukta, and on a small dolerite sill to the east, with small areas of wet soil.	77°24′	—»—	—»—

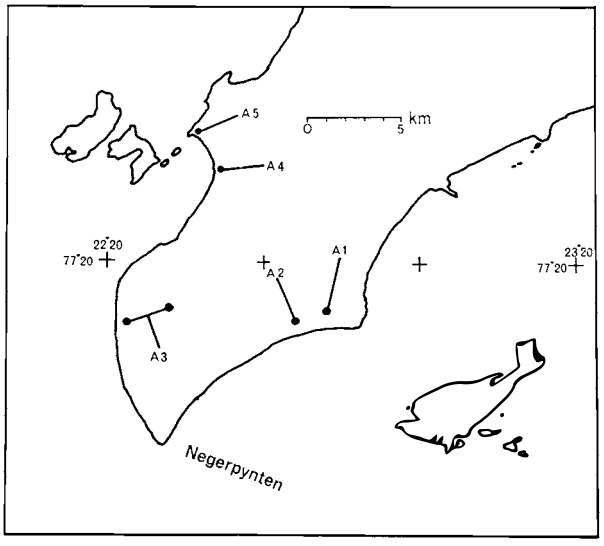

Fig. 13. *Detailed map of localities on the south side of Tjuvfjorden.*

B	*North side of Tjuvfjorden* (see Fig. 14)			
B6	Fløya South facing, ± wet, shale screes.	77°33′	22°00′	13.8.67
B7	Kuhrbreen moraine Dry areas of fine deposits, clay solifluction slopes, and wetter areas around small pools. Also farther to the east on stabilized lateral moraines with a much richer vegetation.	77°30′	21°50′	—»—

		Lat. °N	Long. °E	Date
B8	Risetrappa Wet solifluction slopes on the terraces to the east, above the bay, and drier and richer areas of shale near the rookery on Vogelberget.	77°28′	21°17′	2.8.67
B9	Eilifdalen The west side on steep, south-facing cliffs of sandstone and shale below the rookery. Higher up c. 150 m a.s.l. with *Taraxacum brachyceras, Trisetum spicatum,* and *Poa alpigena.*	77°27′	20°59′	8.8.67

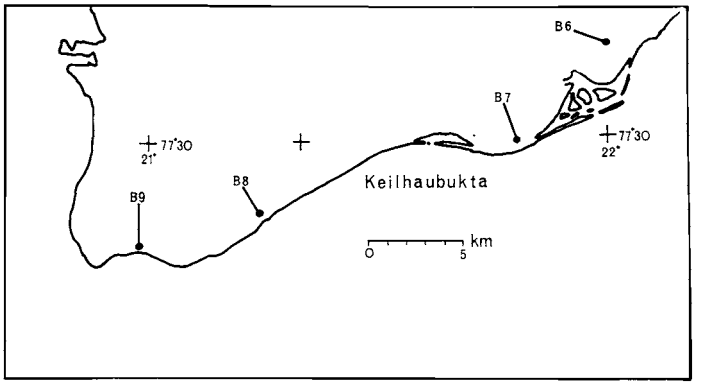

Fig. 14. *Detailed map of localities on the north side of Tjuvfjorden.*

C	*Kvalpyntfjellet to Siegelfjellet* (see Fig. 15)			
C11	Grindane A small exposed hilltop.	77°29′	21°12′	2.8.67
C12	Olbogedalen South facing scree slopes, somewhat open with *Dryas* on the upper parts.	77°30′	21°05′	—»—
C13	Kraussbukta A wet mossy area c. 1 km inland, and wet areas east of the dolerite bluff farther inland. Also among patches of soil below the sill itself.	77°32′	20°54′	17.8.67
C14	Habenichtbukta On the south side at the extremity of Kraussbukta, among dolerite blocks by the sea. Flat, wet, areas with patches of soil.	—»—	20°51′	9.8.67
C15a	Årdalen On the southern banks of the river. Dry exposed terraces with *Carex nardina* heath, and some muddy areas with *Saxifraga flagellaris.* Also the rich sheltered banks below the terraces.	—»—	20°57′	18.8.67
C15b	The marsh, north-west of the above	—»—	—»—	—»—
C16a	Årdalen On the northern side of the river among dolerite blocks with soil banks and mossy hollows.	—»—	20°59′	—»—
C16b	The marsh between the sills and the river.	—»—	—»—	—»—

		Lat. °N	Long. °E	Date
C17	Grunnlinesletta The steep gully near the dolerite sill on Grindane, south facing with a rookery above.	77°33′	21°03′	1.8.67
C18	Grindane West of the dolerite blocks somewhat north of the above locality, and on a rich dry bank lower down.	—»—	21°04′	6.8.67
C19	Grunnlinesletta Terraces above the river, and west of the old moraine of the glacier south of Sydowbreen; also areas under a north facing dolerite sill.	77°34′	21°07′	—»—
C20	Grunnlinesletta Marshes extending from the above locality towards the shore. An extremely wet area with pools of standing water.	—»—	21°00′	—»—
C21	Bjørnholmane The islet with the cairn and the grave, and ruins of an old hut. Among dolerite blocks by the shore, with small areas of soil.	77°35′	20°52′	3.8.67
C22	Grunnlinesletta The beach on the north side of Plurelva, covered in whale bones and supporting a rich vegetation.	77°39′	21°14′	—»—
C23	Siegelfjellet Dry, south facing shales with many deep dried-up gullies. The slopes, dominated over large areas by *Trisetum, Polygonum* and *Festuca richardsonii*.	77°40′	21°16′	—»—

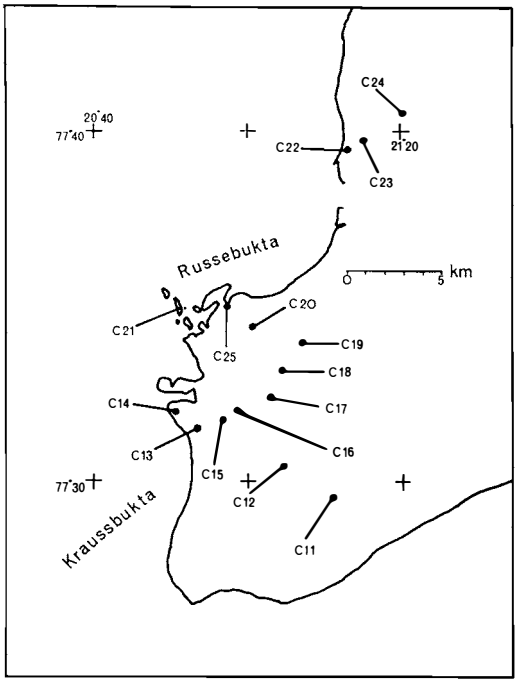

Fig. 15. *Detailed map of localities between Kvalpynten and Plurdalen.*

		Lat. °N	Long. °N	Date
C24	Plurdalen South facing, open, low, wet, slopes south of Reddikskeidet. Wet areas in the centre of the valley with *Eriophorum, Dupontia,* etc. and dried-up muddy areas with *Braya,* and *Potentilla pulchella.*	77°41′	21°20′	3.8.67
C25	Gothavika (PALIBIN)			2.7.01
D	*Diskobukta* (see Fig. 16)			
D26	Guldalen South side of the valley on the wet, north facing slopes of Strandsåta.	77°52′	21°32′	19.8.67
D27	Guldalen The south side, on the higher, dry slopes of Strandsåta, and on the east facing slopes above Vingla. Also wet areas on the east side of Vingla with *Eriophorum, Dupontia* and *Cardamine nymani.*	77°51′	21°37′	—»—
D28	Caltexfjellet The south and west sides, ± dry flat screes but with some wetter areas dominated over small areas by *Equisetum arvense*	77°54′	21°42′	16.8.67
D29	Uvdalen The east side, on dry terraces though with some wetter areas, and bare stone polygons with *Dryas* and *Equisetum variegatum.*	—»—	21°49′	—»—
D30	Smelledalen The west side on the dry, south facing screes of Baerberget.	78°00′	21°36′	17.8.67
D31	Raddedalen The west side, very wet, muddy solifluction slopes with black lichen covered soil dominated by *Salix.*	—»—	—»—	—»—
D32a	Raddedalen Low, wet, mud flats, somewhat inland from the mouth of the river, with some drier areas.	77°58′	21°35′	—»—
D32b	Pools of standing water in the middle of the valley, on the west side.	—»—	—»—	—»—
D33	Mulefjellet Dry, south facing shales c. 70 m a.s.l.	—»—	21°32′	—»—
D34	Drivdalen The west side on sheltered scree slopes within the valley. Some wetter areas.	77°59′	21°28′	15.8.67
D35a	Drivdalsryggen The south side, on the rich dry slopes below the rookery on the western side of the gorge.	—»—	21°21′	—»—
D35b	The eastern side of the gorge	—»—	—»—	—»—
D36	Blankodden The dry, south facing, shale scree slopes from c. 50 m a.s.l. upwards, somewhat west of the hut and in parts dominated by *Oxyria.*	—»—	21°15′	21.8.67

		Lat. °N	Long. °E	Date
D37	Visdalen The south side of the river, on wet, ± sheltered slopes, and on the north side about 3 km inland, on the river banks and on the terraces above, which were dominated by *Polygonum* and *Festuca richardsonii*. A day of heavy snow showers.	78°03′	21°07′	20.8.67
D38	Timertfjellet Steep south-west facing slopes below rookery; dolerite sill with shale and sandstone screes.	—»—	21°00′	1.8.68

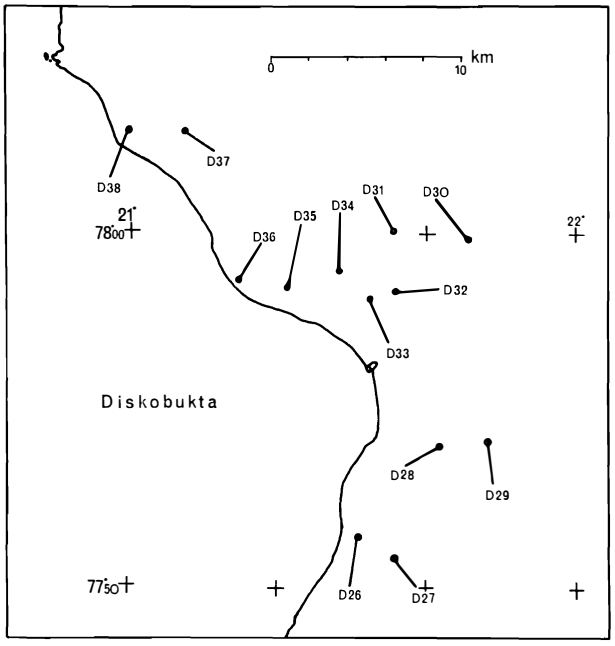

Fig. 16. *Detailed map of localities in Diskobukta.*

E	*Between Rosenbergdalen and Freemandsundet* (see Fig. 17)			
E39a	Rosenbergdalen South-west facing marsh with mosses, on the south side of Rosenbergelva.	78°04′	20°56′	7.8.68
E39b	Rosenbergdalen The north side of the river from the low muddy areas at the mouth of the river, with the ± dry dolerite sills, facing south-west.	78°05′	20°55′	25.7.68
E40	Snøskardet A flat, exposed, rather mossy area on the south side of the valley near the junction with Rosenbergdalen.	78°06′	21°02′	—»—
E41	Rosenbergdalen Dry sandstone screes with some salt crusts, c. 9 km inland; areas of mossy polygons on the north side of the small river.	—»—	21°14′	26.7.68

		Lat. °N	Long. °E	Date
E42	Dolerittneset The area east of the point, and a little southwards on the dolerite sill including soil banks below the rookery at the entrance to Rosenbergdalen, and the small dolerite islet.	78°05′	20°31′	27.7.68
E43	Leehovden Flat, exposed, ± damp areas near the great Arc of Meridian cairn.	78°06′	20°33′	4.8.68
E44	Arvedalen Wet mossy slopes on the south side of the valley near the junction with Åmotsdalen, and soil banks on the northern side of the river.	78°07′	20°59′	24.7.68
E45	Åmotsdalen The north side of the valley on dry sandstone screes on the lower slopes of the eastern end of Palibinranten.	78°08′	21°04′	—»—
E46	Svingeldalen North facing, low, ± damp slopes above the outwash fan of the river.	78°09′	21°10′	5.8.68
E47	Skrukkedalen The west side on gentle north facing slopes, on dry terraces and soil banks above the river, and on rather wetter terraces lower down.	78°11′	21°30′	—»—
E48	Meodden A wet, low-lying area on the point quite near the shore.	78°13	21°48′	—»—
E49	Kapp Heuglin (DAHL)			9.8.36

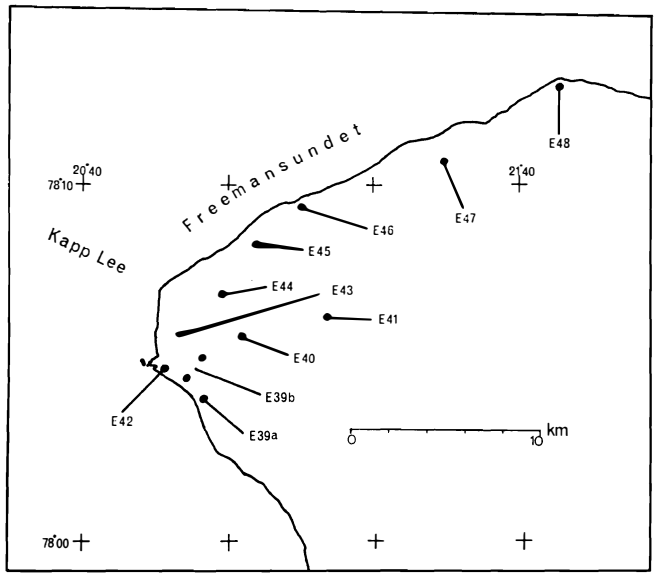

Fig. 17. *Detailed map of localities between Rosenbergdalen and Freemansundet.*

We have included in our plant list the records of all previous workers; we have not had the opportunity of examining any of their material and all the records are taken from their papers. As we have already noted, however, we have been able to confirm most of the older records in those cases where we have revisited the same locality.

In order to incorporate these records we have had to make certain identifications in respect of some of the localities; most of these can, fortunately, still be recognized without much difficulty.

KEILHAU visited the island between September 11 and 19, 1827; he calls it "Stans Foreland" and as we have already shown, this can certainly be identified with Kraussbukta and the southern parts of Grunnlinesletta. We include his records under locality C13 of the present scheme. This is likewise used for the localities "Whales Point" visited by MALMGREN in 1864, "Whales Pointhafen" by KÜKENTHAL in 1889, "Krausshaven" visited in 1901 by PALIBIN, "Plain of the Russian Base" by MICHELMORE in 1927, and "South of Habenichtbukta" by DAHL in 1936.

We have equated MALMGREN's locality "Walter Thymen's Strait", MICHELMORE's Kapp Lee, and DAHL's "Between Rosenbergdalen and Kapp Lee" with Dolerittneset; these have all the locality number E42. It is quite clear that the locality designated Keilhaubukta both by MICHELMORE and DAHL is the area near the hut between Vogelberget and Risetrappa; we use Risetrappa for these localities and give them the number B8.

The localities and numbers which we have used are summarized in

Table 1

Author	Date	Locality	Number
KEILHAU	1827 11–19.9	Stans Foreland	C13
MALMGREN	1864 9.8	Whales Point	C13
»	» 13.8	Walter Thymens Strait	E42
KÜKENTHAL	1889 12.8	Whales Pointhafen	C13
PALIBIN	1901 21.6	Krausshaven	C13
ACHMATOV	» .7	Siegelfjellet	C23
»	» 2.7	Gothavika	C25[1]
MICHELMORE	1927 25.8	Negerdalen	A2
»	» 6–7.8	Andréetangen	A5
»	» 11–13.8	Kuhrbreen	B7
»	» 31.7	Keilhaubukta	B8
»	» 4.8	Plain of the Russian base	C13
»	» 14.8	Kapp Lee	E42
DAHL	1936 6.8	Between Rosenbergdalen and Kapp Lee	E42
»	» 7.8	South of Habenichtbukta	C13
»	» 8.8	Keilhaubukta	B8
»	» 9.8	Kapp Heuglin	E49[1]

[1] Denotes localities which we have not visited.

Very little material of common species was collected, and extensive collection was made only of *Carex, Colpodium, Draba, Poa,* and *Puccinellia* material. In only very few instances was identification of any of these genera made only on the basis of field observations. Of critical species other than the above little was collected; this applies to *Cerastium arcticum* material which seemed to us fairly uniform, and material belonging to the *Saxifraga hyperborea/Saxifraga rivularis* group.

The material, except for a few duplicates which I myself have retained, will be presented to Botanisk Museum, Universitet i Oslo, Oslo.

Enumeration of vascular plants and their distribution

The nomenclature follows, in general, that used by RØNNING (1964) with the following exceptions which are used by BÖCHER, HOLMEN, and JAKOBSEN (1966):

Draba arctica J. VAHL ssp. *groenlandica* (EKMAN) BÖCHER
Melandrium apetalum (L.) FENZL ssp. *arcticum* (FR.) HULT.
Saxifraga flagellaris WILLD. ssp. *platysepala* (TRAUTV.) A. E. PORSILD
Festuca richardsonii R. BR. ssp. *cryophila* (KRECZ. & BOBR.) L. & L.

The number given immediately below the name of the species is the distribution frequency; since there are 53 localities (including two not visited by us), a single finding corresponds to a frequency of approximately 2%. Previous records are specifically noted; our own are denoted by N only where there are previous records from the same locality. Otherwise no name is given and it can be assumed that these are our records from the present investigation.

PTERIDOPHYTA

Lycopodiaceae

Lycopodium selago L.
(4)

A: A1 Mureflota
C: C16a Årdalen

This rare plant was first recorded by KEILHAU from what is almost certainly the second locality above, and has not since been noted by later investigators. In Årdalen we found it over a very limited area among dolerite blocks with *Dryas octopetala, Silene acaulis, Potentilla hyparctica, Arenaria pseudofrigida, Taraxacum arcticum, Minuartia biflora, Saxifraga hieraciifolia,* and *Carex lachenalii.* On Mureflota we found it again on a dolerite sill sticking through fresh snow, among blocks with *Potentilla hyparctica, Minuartia biflora* and *Saxifraga flagellaris.* PORSILD (1957) states that in the Canadian Arctic Archipelago it is found chiefly on Precambrian rocks and this may well be true also in Svalbard, being rare both in Edgeøya and van Keulenfjorden, and seemingly more common in Nordaustlandet and parts of the north coast, e.g. Jermaktangen, Ellingsenodden, Heclahamna.

Equisetaceae

Equisetum arvense L.

(38)

B: B6 Fløya; B8 Risetrappa (DAHL); B9 Eilifdalen
C: C13 Kraussbukta (DAHL, N); C14 Habenichtbukta; C15b Årdalen; C16a Årdalen; C19 Grunnlinesletta; C22 Grunnlinesletta
D: D28 Caltexfjellet; D29 Uvdalen; D32a Raddedalen; D35b Drivdalsryggen
E: E39a Rosenbergdalen; E39b Rosenbergdalen; E40 Snøskardet; E41 Rosenbergdalen; E42 Dolerittneset (MALMGREN, DAHL, N); E47 Skrukkedalen

A moderately common species usually in wet places, but apparently absent from the southernmost regions; small areas in the upper part of Rosenbergdalen were completely dominated by this plant. Significantly more common than in Nordaustlandet.

Equisetum variegatum SCHLEICH

(44)

A: A1 Mureflota; A3 Negerdalen; A5 Andréetangen
B: B7 Kuhrbreen moraine; B8 Risetrappa (DAHL, N)
C: C13 Kraussbukta (DAHL, N); C15a Årdalen; C19 Grunnlinesletta; C24 Plurdalen
D: D27 Guldalen; D29 Uvdalen; D30 Smelledalen; D32a Raddedalen; D34 Drivdalen; D38 Timertfjellet
E: E39b Rosenbergdalen; E40 Snøskardet; E41 Rosenbergdalen; E42 Dolerittneset (DAHL, N); E44 Arvedalen; E46 Svingeldalen; E47 Skrukkedalen

Like the previous species, fairly common, but distributed over the whole island.

SPERMATOPHYTA

DICOTYLEDONEAE

Ranunculaceae

Ranunculus glacialis L.

This plant was reported from Kraussbukta by KÜKENTHAL in 1889 but has not subsequently been recorded from eastern Svalbard; it was collected by KEILHAU from Sørkapp and is also known from Hornsund (see SRODON 196●, and HØEG 1968) and the area north of Torellbreen (personal communication from THORE WINSNES). We provisionally suggest that this should not be included in the flora of Edgeøya.

Ranunculus hyperboreus ROTTB.

(28)

A: A2 Negerdalen; A5 Andréetangen
B: B7 Kuhrbreen moraine
C: C13 Kraussbukta (MALMGREN, KÜKENTHAL, DAHL, N); C14 Habenichtbukta; C16b Årdalen; C20 Grunnlinesletta; C24 Plurdalen
D: D27 Guldalen; D32a Raddedalen; D37 Visdalen
E: E39a Rosenbergdalen; E39b Rosenbergdalen; E42 Dolerittneset (DAHL)

Massive development on the marsh on Grunnlinesletta, and to a much lesser extent on the wet areas in Negerdalen and Andréetangen.

Ranunculus nivalis L.
(10)

A: A1 Mureflota
B: B8 Risetrappa (DAHL)
C: C16a Årdalen
E: E39b Rosenbergdalen; E42 Dolerittneset (DAHL, N)

A rare plant as shown by the above list of localities. We found it in Årdalen on soil banks along with *Lycopodium selago, Minuartia biflora,* and *Taraxacum arcticum,* on a dolerite sill on Mureflota and below the dolerite sills in Rosenbergdalen. As already noted by DAHL, this species has been recorded for several localities between Kvalpynten and Siegelfjellet by PALIBIN, but he does not mention the more common *R. sulphureus.* It therefore seems likely that the two have been confused; this is also the case with *R. nivalis* collected in Franz Josef Land (see HANSSEN and LID 1932) and in Novaya Zemlya (see LYNGE 1923, p. 38).

Ranunculus pedatifidus SM.
(2)

D: D35a Drivdalsryggen

This is the first record we can find of this obviously rare plant; it was more or less co-dominant on the western side of the rookery with *Potentilla hyparctica* and *Festuca richardsonii.* The only other locality in which we have seen this plant is on the steep cliffs below the rookery on the western side of Forkastningsdalen, here accompanied by the rare plants, *Arabis alpina, Polemonium boreale,* and *Taraxacum brachyceras.* SIMMONS (1906), writing about the flora of Ellesmere Island says, "It grew on rock ledges below a nesting place of the glaucous gull, in a southern exposure, and in richly manured soil." This agrees with PORSILD (1955) who states that in the Western Canadian Archipelago this species (*sub nom R. pedatifidus* SM. var. *leirocarpus* (TRAUTV., FERN) is "strongly nitrophilous and in Banks and Victoria islands is rarely seen except on owl perches and below bird cliffs". This agrees with both of our habitats and with that of RESVOLL HOLMSEN (1913) who collected it, among other places on the rookery at Alkhornet, but is in contrast to the habitat for the locality in Jørgen Brønlund Fjord, Peary Land, given by HOLMEN (1957).

The naming and taxonomy of this plant in the literature is complex and rather confusing; it has been treated by SIMMONS (1906), LYNGE (1923), SØRENSEN (1933), and BÖCHER (1938). The plant found by us, and according to LYNGE (p. 36) identical to the other records from Svalbard, is that named *R. affinis* R. BR. by NATHORST (1883, p. 23), SIMMONS (1906, Plate 4, fig. 2), RESVOLL HOLMSEN (1913, p. 61), LYNGE (1923, Plate XXI), and SØRENSEN (1933, Plate IV, fig. 4), and *R. amoenus* LEBED. by ANDERSSON and HESSELMAN (1900, p. 49). This species seems to be distinct from what has been called *R. affinis* R. BR. ssp. *wilanderi* NATH. (SØRENSEN 1933, p. 54 and Plate III) or *R. auricomus* L. var. *glabrata* LYNGE (see LYNGE 1923, p. 36 and Plate XXII); this species collected by JØRGENSEN seems to be known only from his locality in Isfjorden (Kapp Thordsen).

Ranunculus pygmaeus WAHLENB.
(40)

A: A1 Mureflota; A3 Negerdalen; A5 Andréetangen
B: B7 Kuhrbreen moraine; B8 Risetrappa (DAHL, N); B9 Eilifdalen
C: C12 Olbogedalen; C13 Kraussbukta (SOMMERFELT, DAHL, N); C16a Årdalen; C24 Plurdalen
D: D27 Guldalen; D29 Uvdalen; D33 Mulefjellet; D38 Timertfjellet
E: E39b Rosenbergdalen; E40 Snøskardet; E41 Rosenbergdalen; E42 Dolerittneset (DAHL, N); E44 Arvedalen; E47 Skrukkedalen

A fairly common plant frequently found along with *Minuartia biflora* on small soil banks in reasonably sheltered positions.

Ranunculus spitsbergensis (NATH.) HADAČ
(10)

C: C13 Kraussbukta (MICHELMORE, DAHL, N); C16b Årdalen; C18 Grindane; C20 Grunnlinesletta
E: E39a Rosenbergdalen

This plant which was first recognized as a good species by HADAČ (1944) had previously been recorded as the hybrid *R. lapponicus* L. x *pallasii* SCHLECHT from several localities in Spitsbergen (see NATHORST 1883, p. 21; ANDERSSON and HESSELMAN 1900, p. 59 and Plate I; RESVOLL HOLMSEN 1913, p. 59) and from Edgeøya by MICHELMORE and by DAHL (see HADAČ 1944). It was found in massive quantities in the great marshes on Grunnlinesletta, usually accompanied by *Arctophila fulva, Dupontia fisheri, Eriophorum scheuchzeri* and *Ranunculus hyperboreus*. We have never seen flowering specimens.

Ranunculus sulphureus SOLAND.
(56)

A: A3 Negerdalen; A5 Andréetangen
B: B8 Risetrappa (DAHL); B9 Eilifdalen
C: C12 Olbogedalen; C13 Kraussbukta (SOMMERFELT, KÜKENTHAL, PALIBIN, DAHL, N); C16a Årdalen; C17 Grunnlinesletta; C19 Grunnlinesletta; C23 Siegelfjellet (ACHMATOV); C24 Plurdalen
D: D27 Guldalen; D29 Uvdalen; D30 Smelledalen; D34 Drivdalen; D37 Visdalen; D38 Timertfjellet
E: E39a Rosenbergdalen; E39b Rosenbergdalen; E41 Rosenbergdalen; E42 Dolerittneset (DAHL, N); E43 Leehovden; E44 Arvedalen; E45 Åmotsdalen; E46 Svingeldalen; E47 Skrukkedalen; E48 Meodden; E49 Kapp Heuglin (DAHL)

Saxifragaceae
Chrysosplenium tetrandum (N. LUND) TH. FR.

C: C13 Kraussbukta (KÜKENTHAL, MICHELMORE)
E: E42 Dolerittneset (MALMGREN)

This was one of the species not found by us, nor indeed by DAHL. The species is strongly nitrophilous and was certainly found by MICHELMORE in the area south of Habenichtbukta, studded with pools and small lakes near which many birds

may be found breeding – not dissimilar to our locality Ellingsenodden, in the north-western part of Ny Friesland. He himself merely says, "Beside a big pond with vertical, mossy banks in the moss bog on the Plain of the Russian Base."

Saxifraga caespitosa L.
(72)

A: A1 Mureflota; A3 Negerdalen; A5 Andréetangen
B: B6 Fløya; B7 Kuhrbreen moraine (MICHELMORE, N); B8 Risetrappa (DAHL, N); B9 Eilifdalen
C: C11 Grindane; C12 Olbogedalen; C13 Kraussbukta (SOMMERFELT, KÜKENTHAL, PALIBIN, DAHL, N); C14 Habenichtbukta; C15a Årdalen; C16 Årdalen; C19 Grunnlinesletta; C21 Bjørnholmane; C24 Plurdalen; C25 Gothavika (ACHMATOV)
D: D27 Guldalen; D29 Uvdalen; D30 Smelledalen; D31 Raddedalen; D33 Mulefjellet; D34 Drivdalen; D35a Drivdalsryggen; D37 Visdalen; D38 Timertfjellet
E: E39a Rosenbergdalen; E39b Rosenbergdalen; E40 Snøskardet; E41 Rosenbergdalen; E42 Dolerittneset (DAHL, N); E43 Leehovden; E44 Arvedalen; E45 Åmotsdalen; E46 Svingeldalen; E47 Skrukkedalen; E48 Meodden

The most common saxifrage, found at almost all localities throughout Edgeøya.

Saxifraga cernua L.
(68)

A: A1 Mureflota; A3 Negerdalen; A5 Andréetangen
B: B7 Kuhrbreen moraine (MICHELMORE, N); B8 Risetrappa (DAHL, N); B9 Eilifdalen
C: C11 Grindane; C12 Olbogedalen; C13: Kraussbukta; C16b Årdalen; C19 Grunnlinesletta; C21 Bjørnholmane; C22 Grunnlinesletta; C23 Siegelfjellet (ACHMATOV)
D: D27 Guldalen; D29 Uvdalen; D30 Smelledalen; D33 Mulefjellet; D34 Drivdalen; D35b Drivdalsryggen; D37 Visdalen; D38 Timertfjellet
E: E39a Rosenbergdalen; E39b Rosenbergdalen; E40 Snøskardet; E41 Rosenbergdalen; E42 Dolerittneset; E43 Leehovden; E44 Arvedalen; E45 Åmotsdalen; E46 Svingeldalen; E47 Skrukkedalen; E48 Meodden; E49 Kapp Heuglin (DAHL)

Saxifraga flagellaris WILLD. ssp. *platysepala*
(TRAUTV.) A. E. PORSILD
(46)

A: A1 Mureflota; A3 Negerdalen; A5 Andréetangen (MICHELMORE, N)
B: B8 Risetrappa (MICHELMORE, DAHL, N)
C: C12 Olbogedalen; C13 Kraussbukta (MICHELMORE, DAHL); C15a Årdalen; C16a Årdalen; C23 Siegelfjellet (ACHMATOV); C24 Plurdalen; C25 Gothavika (ACHMATOV)
D: D27 Guldalen; D29 Uvdalen; D30 Smelledalen; D32a Raddedalen; D37 Visdalen
E: E39a Rosenbergdalen; E39b Rosenbergdalen; E40 Snøskardet; E41 Rosenbergdalen; E42 Dolerittneset (MICHELMORE, DAHL, N); E44 Arvedalen; E46 Svingeldalen; E47 Skrukkedalen

More or less common over the whole area, usually on wet muddy places both near the sea and farther inland.

Saxifraga foliolosa R. BR.
(28)

A: A3 Negerdalen; A5 Andréetangen (MICHELMORE)
B: B8 Risetrappa (MICHELMORE, DAHL, N)

C: C13 Kraussbukta (SOMMERFELT, MALMGREN, KÜKENTHAL, MICHELMORE, DAHL, N); C15b Årdalen; C16b Årdalen; C20 Grunnlinesletta
D: D29 Uvdalen; D32b Raddedalen
E: E39a Rosenbergdalen; E39b Rosenbergdalen; E44 Arvedalen

Not a very common species except on patches of 'sneleier' in Negerdalen, and on wet mossy areas of Grunnlinesletta along with *Dupontia fisheri*.

Saxifraga hieraciifolia WALDST. & KIT.
(30)

B: B8 Risetrappa (MICHELMORE, DAHL, N); B9 Eilifdalen
C: C12 Olbogedalen; C13 Kraussbukta (PALIBIN, MICHELMORE, DAHL, N); C15a Årdalen; C16a Årdalen; C19 Grunnlinesletta
D: D27 Guldalen; D37 Visdalen; D38 Timertfjellet
E: E39a Rosenbergdalen; E39b Rosenbergdalen; E40 Snøskardet; E42 Dolerittneset (MICHELMORE, DAHL); E47 Skrukkedalen

Not a common species though widely distributed over the northern parts of the island, usually on ± favourable localities which are not too dry, though never in large numbers. The first record seems to be that of PALIBIN from Kraussbukta.

Saxifraga hirculus L.
(50)

A: A1 Mureflota; A3 Negerdalen; A5 Andréetangen
B: B8 Risetrappa (DAHL, N)
C: C13 Kraussbukta (SOMMERFELT, DAHL, N); C15a Årdalen; C19 Grunnlinesletta; C20 Grunnlinesletta; C22 Grunnlinesletta; C24 Plurdalen
D: D27 Guldalen; D28 Caltexfjellet; D29 Uvdalen; D30 Smelledalen; D32a Raddedalen; D34 Drivdalen
E: E39a Rosenbergdalen; E39b Rosenbergdalen; E40 Snøskardet; E42 Dolerittneset (MALMGREN, DAHL, N); E46 Svingeldalen; E47 Skrukkedalen; E48 Meodden

Especially common on Grunnlinesletta, among moss, but inland often in much drier habitats. Entered the wintering state almost immediately after the first frost on August 1, 1967. This plant may be identical with the *S. alpinus* of KÜKENTHAL but we have not included his record in the above list.

Saxifraga nivalis L.
(58)

A: A1 Mureflota; A3 Negerdalen; A5 Andréetangen
B: B8 Risetrappa (DAHL, N); B9 Eilifdalen
C: C12 Olbogedalen; C13 Kraussbukta (SOMMERFELT, KÜKENTHAL, PALIBIN, DAHL, N); C15a Årdalen; C16a Årdalen; C19 Grunnlinesletta; C23 Siegelfjellet (ACHMATOV); C24 Plurdalen
D: D27 Guldalen; D28 Caltexfjellet; D29 Uvdalen; D30 Smelledalen; D31 Raddedalen; D34 Drivdalen; D37 Visdalen; D38 Timertfjellet
E: E39a Rosenbergdalen; E39b Rosenbergdalen; E41 Rosenbergdalen; E42 Dolerittneset (DAHL, N); D44 Arvedalen; E45 Åmotsdalen; E46 Svingeldalen; E47 Skrukkedalen; E48 Meodden

Obviously common in the valleys of Diskobukta, usually on more or less dry localities.

Saxifraga oppositifolia L.
(74)

A: A3 Negerdalen; A5 Andréetangen
B: B6 Fløya; B7 Kuhrbreen moraine (MICHELMORE, N); B8 Risetrappa (DAHL, N); B9 Eilifdalen
C: C13 Kraussbukta (SOMMERFELT, KÜKENTHAL, PALIBIN, DAHL, N); C14 Habenichtbukta; C15a Årdalen; C16a Årdalen; C19 Grunnlinesletta; C23 Siegelfjellet (ACHMATOV); C24 Plurdalen
D: D27 Guldalen; D28 Caltexfjellet; D29 Uvdalen; D30 Smelledalen; D31 Raddedalen; D32a Raddedalen; D33 Mulefjellet; D34 Drivdalen; D35a Drivdalsryggen; D36 Blankodden; D37 Visdalen; D38 Timertfjellet
E: E39a Rosenbergdalen; E39b Rosenbergdalen; E40 Snøskardet; E41 Rosenbergdalen; E42 Dolerittneset (DAHL, N); E43 Leehovden; E44 Arvedalen; E45 Åmotsdalen; E46 Svingeldalen; E47 Skrukkedalen; E48 Meodden; E49 Kapp Heuglin (DAHL)

Again seemingly more common in the Diskobukta area where it was found at every locality which we visited.

Saxifraga rivularis L.
(20)

A: A3 Negerdalen
B: B8 Risetrappa (DAHL)
C: C11 Grindane; C13 Kraussbukta (KÜKENTAHL, DAHL, N); C16a Årdalen; C21 Bjørnholmane
E: E41 Rosenbergdalen; E42 Dolerittneset; E43 Leehovden; D44 Arvedalen

We have made no attempt to separate this from *S. hyperborea*. This species is far from common though we note its occurrence in the rather barren parts of Negerdalen, on the small exposed hill-top on Grindane, along with *S. caespitosa, S. cernua, Cardamine bellidifolia, Stellaria crassipes, Luzula arctica, Phippsia algida,* and *Poa alpina,* and at 320 m a.s.l. on Leehovden, with *S. tenuis* and *Phippsia algida* among others. It is significantly less common than in Nordaustlandet where it had a distribution frequency of 52%.

Saxifraga tenuis (WAHLENB.) H. SM.
(36)

A: A1 Mureflota; A2 Negerdalen (MICHELMORE); A3 Negerdalen
B: B8 Risetrappa (DAHL)
C: C12 Olbogedalen; C13 Kraussbukta (DAHL, N); C15a Årdalen; C16a Årdalen
D: D27 Guldalen; D29 Uvdalen; D37 Visdalen
E: E39a Rosenbergdalen; E39b Rosenbergdalen; E40 Snøskardet; E41 Rosenbergdalen; E43 Leehovden; E44 Arvedalen; E47 Skrukkedalen

The first record of this is that of MICHELMORE, who was the first to separate it in Edgeøya material, from *S. nivalis*. This must be a fairly robust species as evidenced by its plentiful occurrence on the summit plateau of Leehovden.

Rosaceae
Dryas octopetala L.
(38)

C: C12 Olbogedalen; C13 Kraussbukta (SOMMERFELT); C15a Årdalen; C16a Årdalen; C17 Grunnlinesletta; C18 Grindane; C19 Grunnlinesletta; C23 Siegelfjellet (ACHMATOV, N); C24 Plurdalen

D: D27 Guldalen; D29 Uvdalen; D33 Mulefjellet; D34 Drivdalen; D37 Visdalen
E: E39b Rosenbergdalen; E40 Snøskardet; E42 Dolerittneset (MICHELMORE, DAHL); E45 Åmotsdalen; E47 Skrukkedalen

This plant was first collected by KEILHAU (SOMMERFELT 1832) in Kraussbukta, though ACHMATOV who collected it on Siegelfjellet, failed to find it to the south. It is noticeably absent from the wet south-western areas, but is not uncommon around Kraussbukta in favourable localities, nor in dry inner parts of the great valleys in Diskobukta and farther north. It was never found in association with *Carex nardina* or *Carex rupestris* which are both extremely rare in Edgeøya, though in Plurdalen where the locality was moderately wet, we found both *Carex misandra* (new to Edgeøya) and *Eutrema edwardsii* (new to Edgeøya). It was never found in large quantities such as are common in Spitsbergen, nor developed into Dryadion communities (see RØNNING 1965).

Potentilla hyparctica MALTE
(34)

A: A1 Mureflota; A5 Andréetangen
C: C12 Olbogedalen; C13 Kraussbukta (SOMMERFELT, DAHL, N); C16a Årdalen; C19 Grunnlinesletta; C23 Siegelfjellet (ACHMATOV, N); C25 Gothavika (ACHMATOV)
D: D27 Guldalen; D29 Uvdalen; D35a Drivdalsryggen
E: E39a Rosenbergdalen; E39b Rosenbergdalen; E40 Snøskardet; E41 Rosenbergdalen; E42 Dolerittneset (MALMGREN, MICHELMORE, DAHL, N); E44 Arvedalen, E47 Skrukkedalen

By no means a common species, though distributed over most of the area. Many of the above localities were on dolerite sills, e. g. Mureflota, Andréetangen, Kraussbukta, Grunnlinesletta, Dolerittneset, Rosenbergdalen, but we hesitate to suggest that it is specific to such localities. Prolific only on the rookery on the south side of Drivdalsryggen.

Potentilla pulchella R. BR.
(22)

A: A5 Andréetangen (MICHELMORE)
B: B7 Kuhrbreen moraine (MICHELMORE, N)
C: C13 Kraussbukta (MICHELMORE); C23 Siegelfjellet
D: D26 Guldalen; D28 Caltexfjellet; D35a Drivdalsryggen; D36 Blankodden
E: E41 Rosenbergdalen; E42 Dolerittneset (MALMGREN, MICHELMORE, DAHL, N); E47 Skrukkedalen

Always on dry localities and apparently well adapted to existence on dry salt crusted areas such as the moraines of Kuhrbreen, or areas of dry mud in the valleys, eg. Rosenbergdalen. We have noted this in other places, e.g. Ulladalen and Nathorstmorena (Van Keulenfjorden) and in Grønhorgdalen (Dickson Land).

Papaveraceae
Papaver dahlianum NORDH.
(70)

A: A3 Negerdalen; A5 Andréetangen
B: B6 Fløya; B7 Kuhrbreen moraine (MICHELMORE, N); B8 Risetrappa (DAHL, N); B9 Eilifdalen

C: C11 Grindane; C12 Olbogedalen; C13 Kraussbukta (SOMMERFELT, KÜKENTHAL, PALIBIN, DAHL, N); C15a Årdalen; C16a Årdalen; C19 Grunnlinesletta; C22 Grunnlinesletta; C23 Siegelfjellet (ACHMATOV); C24 Plurdalen

D: D27 Guldalen; D28 Caltexfjellet; D29 Uvdalen; D30 Smelledalen; D33 Mulefjellet; D34 Drivdalen; D35a Drivdalsryggen; D36 Blankodden; D37 Visdalen; D38 Timertfjellet

E: E39a Rosenbergdalen; E39b Rosenbergdalen; E40 Snøskardet; E41 Rosenbergdalen; E42 Dolerittneset (DAHL, N); E43 Leehovden; E44 Arvedalen; E46 Svingeldalen; E47 Skrukkedalen; E48 Meodden

Cruciferae

Braya purpurascens (R. BR.) BUNGE

(24)

A: A4 Bjørnbukta

B: B6 Fløya; B7 Kuhrbreen moraine (MICHELMORE, N)

C: C22 Grunnlinesletta; C23 Siegelfjellet (ACHMATOV); C24 Plurdalen

D: D27 Guldalen; D28 Caltexfjellet; D34 Drivdalen; D35a Drivdalsryggen; D36 Blankodden

E: E42 Dolerittneset (DAHL, N)

As noted by MICHELMORE, usually on fine deposits such as the moraines of Kuhrbreen, river deltas like that of Plurelva, or rather dry parts of the valleys in Diskobukta. Rather uncommon; first recorded by ACHMATOV (PALIBIN 1903).

Cardamine bellidifolia L.

(24)

A: A3 Negerdalen

B: B8 Risetrappa (DAHL, N)

C: C11 Grindane; C13 Kraussbukta (KÜKENTHAL, DAHL); C15a Årdalen; C23 Siegelfjellet (ACHMATOV)

D: D27 Guldalen

E: E40 Snøskardet; E42 Dolerittneset (DAHL, N); E43 Leehovden; E44 Arvedalen; E47 Skrukkedalen

It seems to us that this plant is surprisingly rare, though found in rather unfavourable localities like Negerdalen, Grindane and Leehovden. On Grindane associated with robust species such as *Papaver dahlianum, Luzula arctica, Phippsia algida, Saxifraga cernua, S. caespitosa,* and *S. rivularis.* These are the sort of plants which can be found almost anywhere in Nordaustlandet where this plant is very much more common. It is usually found only in small numbers of individuals, and SCHOLANDER (1934) states that it is not found on dolomite soils; these are not, however, found on Edgeøya.

Cardamine nymani GAND.

(26)

A: A2 Negerdalen; A5 Andréetangen (MICHELMORE)

B: B8 Risetrappa (MICHELMORE, N)

C: C13 Kraussbukta (KÜKENTHAL, MICHELMORE, DAHL, N); C20 Grunnlinesletta

D: D27 Guldalen

E: E39a Rosenbergdalen; E39b Rosenbergdalen; E40 Snøskardet; E42 Dolerittneset (DAHL, N); E47 Skrukkedalen; E49 Kapp Heuglin (DAHL)

Usually on wet marshy places, and always as sterile rosettes typical of such localities. SIMMONS (1906) says: "The plant does not flower in its northernmost

stations and becomes more or less a submerse water-plant." This agrees with our observations and for example, in Negerdalen we found it in pools of running water along with *Deschampsia alpina, Phippsia algida* and *Ranunculus hyperboreus.* In the much richer locality on Grunnlinesletta, in the marsh itself it was associated with: *Alopecurus alpinus, Carex subspathacea, Dupontia fisheri, Eriophorum scheuchzeri, Ranunculus hyperboreus, R. spitsbergensis, Saxifraga foliolosa,* and *S. hirculus.* It is significantly less common in the much drier valleys around Diskobukta.

Cochlearia officinalis L.
(52)

A: A3 Negerdalen
B: B7 Kuhrbreen moraine (MICHELMORE, N); B8 Risetrappa (DAHL, N)
C: C13 Kraussbukta (SOMMERFELT, KÜKENTHAL, PALIBIN, MICHELMORE, DAHL, N); C16b Årdalen; C21 Bjørnholmane; C22 Grunnlinesletta; C23 Siegelfjellet (ACHMATOV)
D: D28 Caltexfjellet; D29 Uvdalen; D32a Raddedalen; D35a Drivdalsryggen; D35b Drivdalsryggen; D38 Timertfjellet
E: E39a Rosenbergdalen; D39b Rosenbergdalen; E40 Snøskardet; E41 Rosenbergdalen; E42 Dolerittneset (DAHL, N); E43 Leehovden; E44 Arvedalen; E45 Åmotsdalen; E46 Svingeldalen; E47 Skrukkedalen; E48 Meodden; E49 Kapp Heuglin (DAHL)

Distributed over the whole area, though except on the rookery at Drivdalsryggen, never abundant — one of the few plants collected by six out of the seven botanists who have visited Kraussbukta. It is represented in our material uniformly by the var. *groenlandica* (L.) GEL.

Once again the *Draba* material has been determined by Mr. D. P. SPICER, University of Leicester; the limitation of species approximates rather closely to that used in our paper on the vascular plants of Nordaustlandet. The details of this extensive taxonomic study are being prepared for publication by Mr. SPICER who has nevertheless given up his valuable time to examination of our material. The naming of the species follows that used by RØNNING (1964) except that we replace *Draba cinerea* by *Draba arctica.* Because of the difficulties in this group and the fairly confusing situation in respect of older records, we have taken the somewhat high handed position of including only our own records in the following lists, making only parenthetical remarks on earlier records; no doubt in the final paper many of these early determinations will be revised but this is far beyond our competence.

Draba alpina L.

B: B8 Risetrappa
D: D27 Guldalen; D38 Timertfjellet
E: E42 Dolerittneset (DAHL, N)

Draba arctica J. VAHL ssp. *groenlandica* (EKMAN) BÖCHER

D: D35a Drivdalsryggen
E: E42 Dolerittneset (DAHL)

This rare species has been noted before by DAHL as *D. cinerea;* it is usually confined to the rookeries as in both of the above localities.

Draba bellii HOLM.

A: A2 Negerdalen
B: B7 Kuhrbreen moraine; B8 Risetrappa
C: C12 Olbogedalen, C16a Årdalen
D: D29 Uvdalen; D37 Visdalen
E: E39b Rosenbergdalen; E41 Rosenbergdalen; E42 Dolerittneset (DAHL); E44 Arvedalen; E45 Åmotsdalen; E46 Svingeldalen; E47 Skrukkedalen

Draba daurica DC.

A: A4 Bjørnbukta
B: B9 Eilifdalen
D: D38 Timertfjellet

This species is new to Edgeøya, though recorded by DAHL from Barentsøya, and by us from one locality in Nordaustlandet; it seems to be confined to rather favourable localities.

Draba gredinii EKMANN

A: A2 Negerdalen; A4 Bjørnbukta
B: B6 Fløya; B8 Risetrappa; B9 Eilifdalen
C: C12 Olbogedalen; C13 Kraussbukta; C15a Årdalen; C17 Grunnlinesletta; C18 Grindane; C23 Siegelfjellet
D: D29 Uvdalen; D30 Smelledalen; D32a Raddedalen; D34 Drivdalen; D35a Drivdalsryggen D37 Visdalen; D38 Timertfjellet
E: E39b Rosenbergdalen; E40 Snøskardet; E41 Rosenbergdalen; E42 Dolerittneset; E44 Arvedalen; E45 Åmotsdalen; E46 Svingeldalen; E47 Skrukkedalen

This species has not previously been recorded from Edgeøya, though it has been recorded from several places in Spitsbergen, and Nordaustlandet (see NEILSON 1968, p. 38).

Draba lactea ADAMS

A: A2 Negerdalen
B: B8 Risetrappa; B9 Eilifdalen
C: C12 Olbogedalen; C13 Kraussbukta; C16a Årdalen
D: D29 Uvdalen
E: E39b Rosenbergdalen; E40 Snøskardet; E41 Rosenbergdalen; E42 Dolerittneset; E44 Arvedalen

This species has a fairly wide distribution, but was seemingly not noted by DAHL; he, however, states that it had been previously recorded by MALMGREN from Kraussbukta as *D. wahlenbergii,* and without detailed localities by MICHELMORE.

Draba micropetala HOOK.

B: B6 Fløya; B9 Eilifdalen
C: C13 Kraussbukta
D: D27 Guldalen; D29 Uvdalen; D32b Raddedalen
E: E40 Snøskardet; E44 Arvedalen; E45 Åmotsdalen; E47 Skrukkedalen; E49 Kapp Heuglin (DAHL)

Draba nivalis LILJEBL.

B: B9 Eilifdalen
C: C17 Grunnlinesletta
E: E39b Rosenbergdalen; E42 Dolerittneset

This somewhat rare species which seems to prefer nitrophilous habitats has been recorded from Kraussbukta by MALMGREN and KÜKENTHAL, but not by DAHL from Edgeøya.

Draba subcapitata SIMM.

B: B8 Risetrappa
C: C15a Årdalen; C16a Årdalen
D: D37 Visdalen; D38 Timertfjellet
E: E41 Rosenbergdalen; E42 Dolerittneset (DAHL); E46 Svingeldalen; E47 Skrukkedalen

Eutrema edwardsii R. BR.

C: C24 Plurdalen

This is a new species to Edgeøya, and is obviously very rare; we found it on low wet slopes at the entrance to Reddikskeidet along with another new and rare species, *Carex misandra*.

Caryophyllaceae

Arenaria pseudofrigida (OSTF. & DAHL) JUZ.

(26)

C: C15a Årdalen; C16a Årdalen; C17 Grunnlinesletta; C19 Grunnlinesletta; C22 Grunnlinesletta; C23 Siegelfjellet; C24 Plurdalen
D: D27 Guldalen; D37 Visdalen
E: E39b Rosenbergdalen; E42 Dolerittneset (DAHL); E46 Svingeldalen; E47 Skrukkedalen

Significantly more common than suggested by DAHL's single record; it was quite common on the dry terraces in Årdalen and Skrukkedalen and on the dark shale screes in Rosenbergdalen.

Cerastium arcticum LGE.

(66)

A: A1 Mureflota; A3 Negerdalen (MICHELMORE, N); A5 Andréetangen
B: B6 Fløya; B7 Kuhrbreen moraine; B9 Eilifdalen
C: C12 Olbogedalen; C13 Kraussbukta (SOMMERFELT, KÜKENTHAL, PALIBIN, DAHL, N); C15a Årdalen; C16a Årdalen; C19 Grunnlinesletta; C21 Bjørnholmane; C22 Grunnlieesletta; C23 Siegelfjellet (ACHMATOV); C24 Plurdalen; C25 Gothavika (ACHMATOV)
D: D27 Guldalen; D28 Caltexfjellet; D29 Uvdalen; D31 Raddedalen; D32a Raddedalen; D34 Drivdalen; D35a Drivdalsryggen; D35b Drivdalsryggen; D36 Blankodden; D38 Timertfjellet
E: E39b Rosenbergdalen; E40 Snøskardet; E41 Rosenbergdalen; E42 Dolerittneset (DAHL, N); E44 Arvedalen; E45 Åmotsdalen; E46 Svingeldalen; E47 Skrukkedalen

We have used this name to include all the varieties elucidated by HULTÉN. See also RØNNING (1961).

Cerastium regelii OSTF.
(44)

A: A3 Negerdalen; A5 Andréetangen
B: B7 Kuhrbreen moraine (MICHELMORE); B8 Risetrappa
C: C11 Grindane; C13 Kraussbukta (DAHL, N); C22 Grunnlinesletta
D: D27 Guldalen; D29 Uvdalen; D30 Smelledalen; D31 Raddedalen; D32a Raddedalen; D34 Drivdalen; D37 Visdalen
E: E39b Rosenbergdalen; E40 Snøskardet; E41 Rosenbergdalen; E43 Leehovden; E44 Arvedalen; E46 Svingeldalen; E47 Skrukkedalen; E48 Meodden

Most common in the large valleys in Diskobukta, though not usually flowering; freely flowering specimens, however, were observed in the favourable localities on Grunnlinesletta and in Visdalen. We have already quoted (NEILSON 1968) the pertinent remarks of LYNGE (1923). A plant described as the hybrid, *C. alpinum* x *regelii* has been tentatively noted by MICHELMORE from Risetrappa (Keilhaubukta), and by DAHL from Dolerittneset (Rosenbergdalen). Our flowering material is quite typical and there is no confusion possible with the sterile rosettes so typical of wet, barren, solifluction slopes.

Melandrium affine J. VAHL

D: D27 Guldalen

The specimen was collected by PEDER BJØRKLAND, Naturgeografiska Institutionen, Stockholm, on dry low-lying slopes in the area between Guldalen and Raddedalen. This species has not previously been recorded from Edgeøya, though noted by HEUGLIN from "Ostküste des Storfjordes".

Melandrium apetalum (L.) FENZL ssp. *arcticum* (FR.) HULT.
(42)

B: B6 Fløya; B7 Kuhrbreen moraine (MICHELMORE, N); B8 Risetrappa (MICHELMORE, DAHL, N)
C: C13 Kraussbukta (DAHL, N); C12 Olbogedalen; C15b Årdalen; C16a Årdalen; C22 Grunnilnesletta; C24 Plurdalen
D: D27 Guldalen; D28 Caltexfjellet; D29 Uvdalen; D30 Smelledalen; D32a Raddedalen; D34 Drivdalen; D37 Visdalen; D38 Timertfjellet
E: E39a Rosenbergdalen; E39b Rosenbergdalen; E42 Dolerittneset (MALMGREN, MICHELMORE, DAHL, N); E47 Skrukkedalen

Fairly common throughout the area though never in large numbers – apparently absent from the less favourable areas on the south-east coast. Usually in moderately wet places.

Minuartia biflora (L.) SCHINZ. & THELL.
(36)

A: A1 Mureflota
B: B8 Risetrappa; B9 Eilifdalen
C: C12 Olbogedalen; C13 Kraussbukta (DAHL); C16a Årdalen; C19 Grunnlinesletta; C24 Plurdalen
D: D27 Guldalen; D29 Uvdalen; D33 Mulefjellet; D37 Visdalen; D38 Timertfjellet

E: E39b Rosenbergdalen; E41 Rosenbergdalen; E42 Dolerittneset (MALMGREN, DAHL, N); E44 Arvedalen; E47 Skrukkedalen

Usually accompanied by *Ranunculus pygmaeus* on dry soil banks with a favourable exposure.

Minuartia rubella (WAHLENB.) HIERN
(46)

A: A2 Negerdalen
B: B7 Kuhrbreen moraine; B8 Risetrappa (DAHL, N)
C: C12 Olbogedalen; C13 Kraussbukta (SOMMERFELT, DAHL); C22 Grunnlinesletta
D: D27 Guldalen; D28 Caltexfjellet; D29 Uvdalen; D30 Smelledalen; D31 Raddedalen; D34 Drivdalen; D37 Visdalen; D38 Timertfjellet
E: E39b Rosenbergdalen; E40 Snøskardet; E41 Rosenbergdalen; E42 Dolerittneset (DAHL, N); E44 Arvedalen; E45 Åmotsdalen; E46 Svingeldalen; E47 Skrukkedalen; E49 Kapp Heuglin (DAHL)

Not especially common though apparently more so in the drier parts of the valleys in Diskobukta – often in the same type of locality in which *Poa abbreviata* is found.

Sagina intermedia FENZL
(46)

A: A3 Negerdalen; A5 Andréetangen
B: B6 Fløya; B7 Kuhrbreen moraine; B8 Risetrappa (DAHL)
C: C11 Grindane; C13 Kraussbukta (DAHL, N); C14 Habenichtbukta; C21 Bjørnholmane; C23 Siegelfjellet; C24 Plurdalen
D: D28 Caltexfjellet; D29 Uvdalen; D31 Raddedalen
E: E39a Rosenbergdalen; E39b Rosenbergdalen; E41 Rosenbergdalen; E42 Dolerittneset (MALMGREN, DAHL, N); E44 Arvedalen; E46 Svingeldalen; E47 Skrukkedalen; E48 Meodden; E49 Kapp Heuglin (DAHL)

Distributed over the whole area, usually not far from the sea, and never in large numbers.

Silene acaulis (L.) JACQ.
(36)

A: A1 Mureflota; A5 Andréetangen
B: B8 Risetrappa (DAHL); B9 Eilifdalen
C: C12 Olbogedalen; C13 Kraussbukta (SOMMERFELT, KÜKENTHAL, PALIBIN, DAHL, N); C15a Årdalen; C16a Årdalen; C17 Grunnlinesletta; C18 Grindane; C22 Grunnlinesletta; C24 Plurdalen
D: D27 Guldalen; D30 Smelledalen; D36 Blankodden
E: E39b Rosenbergdalen; E42 Dolerittneset (DAHL, N); E47 Skrukkedalen

Seemingly most common in the middle western sector, becoming common in the Diskobukta area only in the most westerly parts. This may be consistent with MICHELMORE's suggestion that this plant tends to be associated with dolerite sills which are absent in the inner part of Diskobukta.

Stellaria crassipes HULT.
(64)

A: A1 Mureflota; A5 Andréetangen
B: B6 Fløya; B7 Kuhrbreen moraine (MICHELMORE); B8 Risetrappa; B9 Eilifdalen
C: C11 Grindane; C12 Olbogedalen; C13 Kraussbukta; (SOMMERFELT, PALIBIN, DAHL, N); C16a Årdalen; C19 Grunnlinesletta; C21 Bjørnholmane; C22 Grunnlinesletta; C24 Plurdalen
D: D27 Guldalen; D28 Caltexfjellet; D29 Uvdalen; D30 Smelledalen; D34 Drivdalen; D38 Timertfjellet
E: E39a Rosenbergdalen; E39b Rosenbergdalen; E40 Snøskardet; E41 Rosenbergdalen; E42 Dolerittneset (DAHL, N); E43 Leehovden; E44 Arvedalen; E45 Åmotsdalen; E46 Svingeldalen; E47 Skrukkedalen; E48 Meodden; E49 Kapp Heuglin (DAHL)

More or less common, though usually not flowering except in rather favourable localities such as Årdalen, Eilifdalen, Rosenbergdalen and Arvedalen; this seems generally to be the case with this species.

Stellaria humifusa ROTTB.
(10)

A: A5 Andréetangen
C: C13 Kraussbukta (KÜKENTHAL, DAHL); C14 Habenichtbukta; C21 Bjørnholmane
E: E42 Dolerittneset (MALMGREN, N)

A rare plant, and one of the few halophytes, often associated with *Puccinellia phryganodes, Carex ursina* and, less commonly, *Carex glareosa* (see SØRENSEN 1933, p. 113).

Polygonaceae
Koenigia islandica L.

A: A5 Andréetangen (MICHELMORE)
C: C13 Kraussbukta (DAHL)
D: D42 Dolerittneset (DAHL)

This plant was first recorded from Edgeøya by MICHELMORE "on a rather damp, muddy part of a patch of fjaeldmark on shale between two dolerite outcrops," but as ever this plant has eluded our search. Possibly we may take consolation from DAHL's comment, "Does not appear to be common in moist or wet places in South-eastern Svalbard, although it has no doubt been overlooked many times."

Oxyria digyna (L.) HILL
(72)

A: A1 Mureflota; A3 Negerdalen; A5 Andréetangen
B: B6 Fløya; B7 Kuhrbreen moraine (MICHELMORE, N); B8 Risetrappa (DAHL, N); B9 Eilifdalen
C: C12 Olbogedalen; C13 Kraussbukta (KÜKENTHAL, PALIBIN, DAHL, N); C15a, C15b Årdalen; C16a Årdalen; C19 Grunnlinesletta; C22 Grunnlinesletta; C23 Siegelfjellet (ACHMATOV); C24 Plurdalen
D: D27 Guldalen; D28 Caltexfjellet; D29 Uvdalen; D30 Smelledalen; D31 Raddedalen; D33 Mulefjellet; D34 Drivdalen; D35a Drivdalsryggen; D35b Drivdalsryggen; D36 Blankodden; D37 Visdalen; D38 Timertfjellet

E: E39b Rosenbergdalen; E41 Rosenbergdalen; E42 Dolerittneset (DAHL, N); E44 Arvedalen; E45 Åmotsdalen; E46 Svingeldalen; E47 Skrukkedalen; E48 Meodden

Ubiquitous, and sometimes dominant as on the dry scree slopes north of Blankodden; on dry localities usually deep red in colour.

Polygonum viviparum L.
(66)

A: A1 Mureflota; A3 Negerdalen; A5 Andréetangen
B: B7 Kuhrbreen moraine (MICHELMORE, N); B8 Risetrappa (DAHL, N); B9 Eilifdalen
C: C12 Olbogedalen; C13 Kraussbukta (SOMMERFELT, KÜKENTHAL, PALIBIN, DAHL, N); C15a Årdalen; C16a Årdalen; C19 Grunnlinesletta; C22 Grunnlinesletta; C23 Siegelfjellet; C24 Plurdalen
D: D27 Guldalen; D28 Caltexfjellet; D29 Uvdalen; D30 Smelledalen; D32a Raddedalen; D33 Mulefjellet; D34 Drivdalen; D35a Drivdalsryggen; D37 Visdalen; D38 Timertfjellet
E: E39a Rosenbergdalen; E39b Rosenbergdalen; E40 Snøskardet; E41 Rosenbergdalen; E42 Dolerittneset (DAHL, N); E44 Arvedalen; E45 Åmotsdalen; E46 Svingeldalen; E47 Skrukkedalen

Common, usually on dry slopes with a favourable exposure, and often co-dominant with *Festuca richardsonii* e.g. Drivdalsryggen rookery, Visdalen, Siegelfjellet; also on sandy areas near the sea e.g. Dolerittneset.

Salicaceae
Salix polaris WAHLENB.
(66)

A: A1 Mureflota; A3 Negerdalen; A5 Andréetangen
B: B6 Fløya; B7 Kuhrbreen moraine (MICHELMORE, N); B8 Risetrappa (MICHELMORE, DAHL, N); B9 Eilifdalen
C: C12 Olbogedalen; C13 Kraussbukta (SOMMERFELT, KÜKENTHAL, PALIBIN, DAHL, N); C16a Årdalen; C19 Grunnlinesletta; C21 Bjørnholmane; C22 Grunnlinesletta; C24 Plurdalen
D: D27 Guldalen; D29 Uvdalen; D30 Smelledalen; D32a Raddedalen; D33 Mulefjellet; D34 Drivdalen; D37 Visdalen; D38 Timertfjellet
E: E39a Rosenbergdalen; E39b Rosenbergdalen; E40 Snøskardet; E41 Rosenbergdalen; E42 Dolerittneset (DAHL, N); E43 Leehovden; E44 Arvedalen; E45 Åmotsdalen; E46 Svingeldalen; E47 Skrukkedalen; E48 Meodden

Scrophulariaceae
Pedicularis hirsuta L.
(58)

A: A1 Mureflota; A3 Negerdalen; A5 Andréetangen
B: B7 Kuhrbreen moraine; B8 Risetrappa (DAHL, N); B9 Eilifdalen
C: C12 Olbogedalen; C13 Kraussbukta (SOMMERFELT, PALIBIN, DAHL, N); C15a Årdalen; C16a Årdalen; C17 Grunnlinesletta; C22 Grunnlinesletta; C23 Siegelfjellet (ACHMATOV); C24 Plurdalen; C25 Gothavika (ACHMATOV)
D: D27 Guldalen; D29 Uvdalen; D30 Smelledalen; D32a Raddedalen; D37 Visdalen; D38 Timertfjellet
E: E39b Rosenbergdalen; E40 Snøskardet; E41 Rosenbergdalen; E42 Dolerittneset (MALMGREN, DAHL, N); E44 Arvedalen; E46 Svingeldalen; E47 Skrukkedalen

Fairly common, especially on damp areas with relatively high plant cover.

Compositae

Arnica alpina (L.) OLIN

(2)

E: E39b Rosenbergdalen

This is the first record of this plant from Edgeøya; it was found on a steep grassy south facing bank under the upper dolerite sill in Rosenbergdalen (see Fig. 4) and was very local. The locality was not otherwise remarkable in rare species.

Erigeron humilis GRAH.

(4)

D: D27 Guldalen

E: E42 Dolerittneset (DAHL, N)

First recorded by DAHL (*sub nom. E. unalaschkensis* (DC.) VIERH.) from the rookery below the dolerite sill at the north-west entrance to Rosenbergdalen; it was accompanied there on the grassy slopes by *Ranunculus pygmaeus, Minuartia biflora, Festuca richardsonii* var. *cryophila* and *Poa alpigena*. Our new locality was on a rich east facing soil bank above Vingla, and it was there growing in large numbers along with: *Arenaria pseudofrigida, Dryas octopetala, Minuartia biflora, Silene acaulis, Festuca richardsonii* var. *cryophila Poa alpigena* var. *colpodea* and *Trisetum spicatum*. This habitat closely resembles those found by us elsewhere, e.g. Davisdalen (Van Keulenfjorden), Landingsdalen, Kartdalen (Wijdefjorden).

Taraxacum arcticum (TRAUTV.) DAHLST.

(3)

B: B6 Fløya; B7 Kuhrbreen moraine (MICHELMORE)

C: C16a Årdalen; C17 Grunnlinesletta; C23 Siegelfjellet

D: D28 Caltexfjellet; D30 Smelledalen; D35a Drivdalsryggen; D36 Blankodden; D38 Timertfjellet

E: E39b Rosenbergdalen; E41 Rosenbergdalen; E42 Dolerittneset (MALMGREN, MICHELMORE, DAHL, N); E45 Åmotsdalen

Not uncommon and occurring in fairly large numbers on south-facing scree slopes along the north side of Diskobukta; most of the above localities are not especially nitrophilous, which contrasts with the commonest habitat for this species.

Taraxacum brachyceras DAHLST.

(2)

B: B9 Eilifdalen

This appears to have been recorded by HEUGLIN from the "Ostküste des Storfjordes" (see NATHORST 1883, p. 9; RESVOLL HOLMSEN 1913, p. 76, who list it as *T. officinale* and *T. croceum* respectively). As pointed out by DAHL, however, the description of the locality is quite ambiguous, including as it does, both Barentsøya and Edgeøya. We have no knowledge of the botanical work on the western side of Barentsøya, nor are we aware of any other record of this showy plant prior

to our own.[1] The plants grew in large numbers on steep south facing scree slopes c. 150 m a.s.l. below the rookery, and were easily seen some way off; they were accompanied by a lush vegetation consisting mainly of *Poa alpigena* and *Trisetum spicatum,* both typical of such localities. This species which appears to be distributed over the whole of Svalbard except Nordaustlandet, is known otherwise *sensu stricto,* only from Greenland (see BÖCHER et al. 1966, p. 211; GELTING 1934, p. 141; BÖCHER 1938, p. 198) and possibly Novaya Zemlya (LYNGE 1923).

MONOCOTYLEDONEAE

Juncaceae

Juncus biglumis L.

(46)

A: A3 Negerdalen
B: B7 Kuhrbreen moraine (MICHELMORE, N); B8 Risetrappa (DAHL, N)
C: C13 Kraussbukta (SOMMERFELT, DAHL, N); C15b Årdalen; C22 Grunnlinesletta; C24 Plurdalen
D: D26 Guldalen; D27 Guldalen; D28 Caltexfjellet; D29 Uvdalen; D32a Raddedalen; D35b Drivdalsryggen; D37 Visdalen
E: E39a Rosenbergdalen; E39b Rosenbergdalen; E40 Snøskardet; E42 Dolerittneset (DAHL, N); E44 Arvedalen; E46 Svingeldalen; E47 Skrukkedalen; E48 Meodden; E49 Kapp Heuglin (DAHL)

Usually in wet, muddy places, though found only in the more favourable parts of Negerdalen. Always quite diminutive in size.

Luzula arctica BLYTT

(48)

A: A5 Andréetangen
B: B8 Risetrappa; B9 Eilifdalen
C: C11 Grindane; C13 Kraussbukta (SOMMERFELT, KÜKENTHAL, DAHL, N); C15a Årdalen; C16a Årdalen; C17 Grunnlinesletta; C24 Plurdalen
D: D27 Guldalen; D29 Uvdalen; D30 Smelledalen; D32a Raddedalen; D34 Drivdalen; D37 Visdalen
E: E39b Rosenbergdalen; E40 Snøskardet; E41 Rosenbergdalen; E42 Dolerittneset (DAHL); E44 Arvedalen; E46 Svingeldalen; E47 Skrukkedalen; E48 Meodden

Fairly common, and found over the whole of the area.

Luzula confusa (HARTM.) LINDEBL.

(38)

A: A1 Mureflota; A3 Negerdalen; A5 Andréetangen
B: B8 Risetrappa (DAHL); B9 Eilifdalen
C: C12 Olbogedalen; C13 Kraussbukta (SOMMERFELT, KÜKENTHAL, PALIBIN, DAHL, N); C16a Årdalen; C19 Grunnlinesletta; C21 Bjørnholmane
D: D29 Uvdalen; D38 Timertfjellet
E: E39a Rosenbergdalen; E39b Rosenbergdalen; E40 Snøskardet; E41 Rosenbergdalen; E42 Dolerittneset (DAHL, N); E44 Arvedalen; E47 Skrukkedalen

Somewhat less common than *L. arctica* and apparently fairly rare in Diskobukta.

[1] This plant has been recorded recently from one locality in south-west Barentsøya (HOFMANN 1968); this could possibly be identical to that noted without detail by HEUGLIN (1870).

Cyperaceae

Carex glareosa WAHLENB.

C: C14 Habenichtbukta; C21 Bjørnholmane

This was found only as part of a halophilic community in two rather rich areas, along with *Puccinellia phryganodes, Carex ursina* and *Stellaria humifusa*. This has not previously been recorded from eastern Svalbard.

Carex lachenalii SCHKUHR.

C: C16a Årdalen

This was found on soily hollows between blocks on the dolerite sill on the north side of Årelva, along with some rather uncommon species including *Lycopodium selago, Dryas octopetala, Silene acaulis, Melandrium apetalum, Saxifraga hieraciifolia, Potentilla hyparctica* and *Poa arctica*. This appears to be the first record from Edgeøya.

Carex maritima x *parallela* HADAČ

D: D27 Guldalen

This plant was found on a flat area near the shore on the south side of Gulelva; neither of the parent species was found in the same area. This hybrid was identified by Dr. G. HALLIDAY, University of Lancaster, and the identification has been confirmed by Konservator JOHANNES LID, Botanisk Museum, Universitetet i Oslo. This extremely rare plant has been previously noted from Spitsbergen, in Sassenfjorden by HADAČ (1944) who raised it to the specific rank *C. lidii,* and again by us in van Keulenfjorden (unpublished observations 1967). HADAČ suggested the possible identity of this plant with that collected by GELTING (1934) at Hird Bay, Clavering Island, Central East Greenland, and called by him *C. incurva* x *parallela* (*C. incurva* LIGHT. is synonymous with *C. maritima* GUNN.). It seems, however, that this species is not the same as *C. incurva* ssp. *arctica* (DEINB.) HARTM. which is suggested by SØRENSEN (1933) as being possibly synonymous with *C. dioica* x *incurva* ALMQ., and from which this differs from our plant especially in fruiting normally, having one male and three female spikelets.

Carex misandra R. BR.

C: C15a Årdalen; C24 Plurdalen

Again a rare plant found in two rather different types of habitat; the first was on the dry banks of Årelva below the terraces, whereas the second locality was much more typical, being low, wet, slopes within the valley, on which we also found the rare plant *Eutrema edwardsii*. Not previously recorded from Edgeøya.

Carex nardina FR.

C: C15a Årdalen

Found on pure alluvial sand on the terraces above the river; no other species were present to any significant extent. Not previously recorded from Edgeøya.

Carex rupestris ALL.

C: C18 Grindane
E: E42 Dolerittneset (DAHL)

This was found on a dry bank on Grunnlinesletta below some dolerite blocks along with *Dryas octopetala, Silene acaulis* and *Pedicularis hirsuta*. We did not find this plant near Dolerittneset so we have no idea of that habitat. Obviously very rare, and found only over a very limited area.

Carex saxatilis L.

C: C15b Årdalen; C19 Grunnlinesletta

The marsh on the south side of Årelva had a rich flora of aquatic plants including *C. saxatilis, C. subspathacea, Dupontia fisheri, Eriophorum scheuchzeri, Deschampsia alpina,* and *Saxifraga foliolosa*. The locality on Grunnlinesletta was a wet area below a small dolerite sill and we found there also *Ranunculus spitsbergensis* and *Dupontia fisheri*.

Carex subspathacea WORMSK.

C: C13 Kraussbukta (DAHL); C14 Habenichtbukta; C15b Årdalen; C20 Grunnlinesletta
D: D26 Guldalen; D32b Raddedalen
E: E39b Rosenbergdalen

More widespread than the other sedges, usually in wet, and often saline habitats.

Carex ursina DEW.

A: A5 Andréetangen (MICHELMORE, N)
B: B7 Kuhrbreen moraine
C: C14 Habenichtbukta; C21 Bjørnholmane
E: E39b Rosenbergdalen; E42 Dolerittneset (DAHL)

A typical halophilic sedge, often found along with *Puccinellia phryganodes;* the occurrence of this plant on Kuhrbreen moraine may be a little surprising but this may simply be on account of its ability to withstand high sodium concentrations, typical of moraine salt crusts.

Eriophorum scheuchzeri HOPPE
(26)

A: A5 Andréetangen (MICHELMORE)
B: B7 Kuhrbreen moraine
C: C13 Kraussbukta (SOMMERFELT, KÜKENTHAL, DAHL, N); C14 Habenichtbukta; C15b Årdalen; C16b Årdalen; C20 Grunnlinesletta; C22 Grunnlinesletta; C24 Plurdalen
D: D26 Guldalen; D27 Guldalen
E: E39a Rosenbergdalen; E42 Dolerittneset (DAHL)

In wet, usually fairly sheltered localities, and often accompanied by *Deschampsia alpina, Dupontia fisheri* and *Carex subspathacea.*

Gramineae

Alopecurus alpinus SM.

(64)

A: A1 Mureflota; A3 Negerdalen; A5 Andréetangen
B: B7 Kuhrbreen moraine (MICHELMORE, N); B8 Risetrappa (DAHL, N); B9 Eilifdalen
C: C13 Kraussbukta (KEILHAU, KÜKENTHAL, DAHL, N); C15b Årdalen; C16a Årdalen; C19 Grunnlinesletta; C20 Grunnlinesletta; C21 Bjørnholmane; C22 Grunnlinesletta; C23 Siegelfjellet (ACHMATOV); C24 Plurdalen
D: D27 Guldalen; D28 Caltexfjellet; D29 Uvdalen; D32a Raddedalen; D34 Drivdalen; D37 Visdalen; D38 Timertfjellet
E: E39a Rosenbergdalen; E39b Rosenbergdalen; E40 Snøskardet; E41 Rosenbergdalen; E42 Dolerittneset (MALMGREN, DAHL, N); E43 Leehovden; E44 Arvedalen; E45 Åmotsdalen; E46 Svingeldalen; E47 Skrukkedalen; E48 Meodden

A common and widespread species. For some reason SOMMERFELT has not included this in his list of plants from Edgeøya, though in his comments on the vegetation KEILHAU says "The place before the houses (in Habenichtbukta) was so rich that the grass *Alopecurus ovatus* characteristic of such latitudes was more than 2 ft. high". *A. ovatus* was the name used by HORNEMANN in "*Nomenclatura Florae Danicae Emendata*", København 1827.

Arctagrostis latifolia (R. BR.) GRISEB.

E: E42 Dolerittneset (DAHL)

An extremely rare species which has been recorded only from this locality by DAHL (in DAHL and HADAČ 1946). It is otherwise known from localities in Isfjorden and Wijdefjorden (see RESVOLL HOLMSEN 1913, p. 41; WULFF 1903, p. 52).

Deschampsia alpina (L.) R. & S.

(52)

A: A1 Mureflota; A2 Negerdalen; A3 Negerdalen; A5 Andréetangen
B: B7 Kuhrbreen moraine; B8 Risetrappa (DAHL, N)
C: C12 Olbogedalen; C13 Kraussbukta (DAHL, N); C15b Årdalen; C16a Årdalen; C19 Grunnlinesletta; C22 Grunnlinesletta; C24 Plurdalen
D: D26 Guldalen; D28 Caltexfjellet; D28 Uvdalen; D30 Smelledalen; D32a Raddedalen; D35b Drivdalsryggen; D37 Visdalen
E: E39a Rosenbergdalen; E39b Rosenbergdalen; E41 Rosenbergdalen; E42 Dolerittneset (MALMGREN, DAHL, N); E46 Svingeldalen; E47 Skrukkedalen

Common in wet places with gently running water. Massive areas of Grunnlinesletta are dominated by *Deschampsia alpina, Dupontia fisheri,* and *Ranunculus spitsbergensis.*

Dupontia fisheri R. BR.

(28)

B: B8 Risetrappa (DAHL)
C: C13 Kraussbukta (DAHL, N); C14 Habenichtbukta; C15b Årdalen; C16b Årdalen; C18 Grindane; C20 Grunnlinesletta; C21 Bjørnholmane; C24 Plurdalen

D: D27 Guldalen; D32a Raddedalen
E: E39a Rosenbergdalen; E39b Rosenbergdalen; E42 Dolerittneset (DAHL)

The var. *psilosantha* has been recorded by MALMGREN from Dolerittneset and by DAHL from Kraussbukta, but we have made no attempt to separate this in our material. The plant is always found in marshy places, such as the great marshes on Grunnlinesletta, the low-lying parts of Raddedalen, and the southern entrance to Rosenbergdalen. Associated in the first two with *Arctophila fulva, Carex subspathacea,* and *Saxifraga foliolosa.*

Festuca brachyphylla SCHULTES
(56)

A: A2 Negerdalen; A4 Bjørnbukta; A5 Andréetangen
B: B6 Fløya; B7 Kuhrbreen moraine (MICHELMORE, N); B8 Risetrappa; B9 Eilifdalen
C: C12 Olbogedalen; C13 Kraussbukta; C15a Årdalen; C16a Årdalen; C19 Grunnlinesletta; C22 Grunnlinesletta; C23 Siegelfjellet (ACHMATOV, N)
D: D27 Guldalen; D28 Caltexfjellet; D29 Uvdalen; D30 Smelledalen; D34 Drivdalen; D35a Drivdalsryggen; D37 Visdalen
E: E39b Rosenbergdalen; E41 Rosenbergdalen; E42 Dolerittneset (DAHL, N); E44 Arvedalen; E45 Åmotsdalen; E46 Svingeldalen; E47 Skrukkedalen

This plant is fairly common on dry sheltered slopes, in the same sort of localities in which *Poa abbreviata* is found.

Festuca richardsonii R. BR. ssp. *cryophila* (KRECZ. & BOBR.) L. & L.
(42)

B: B6 Fløya; B7 Kuhrbreen moraine; B8 Risetrappa; B9 Eilifdalen
C: C13 Kraussbukta (MALMGREN, DAHL); C15a Årdalen; C16a Årdalen; C19 Grunnlinesletta; C22 Grunnlinesletta; C23 Siegelfjellet
D: D27 Guldalen; D34 Drivdalen; D35a Drivdalsryggen; D36 Blankodden; D38 Timertfjellet
E: E39b Rosenbergdalen; E40 Snøskardet; E41 Rosenbergdalen; E42 Dolerittneset (MALMgren, DAHL, N); E45 Åmotsdalen; E46 Svingeldalen

A common species on dry scree slopes, and sometimes co-dominant with *Polygonum viviparum* e.g. in dry gullies on Siegelfjellet and on the exposed terraces on the north side of Visdalen. On the Drivdalsryggen rookery associated with *Potentilla hyparctica* and *Ranunculus pedatifidus.*

Festuca vivipara (L.) SM.

A: A2 Negerdalen; A5 Andréetangen
B: B7 Kuhrbreen moraine; B8 Risetrappa
C: C12 Olbogedalen; C13 Kraussbukta (KÜKENTHAL, N); C17 Grunnlinesletta; C19 Grunnlinesletta; C23 Siegelfjellet
D: D30 Smelledalen; D32a Raddedalen; D37 Visdalen
E: E40 Snøskardet; E41 Rosenbergdalen; E42 Dolerittneset (DAHL); E44 Arvedalen; E45 Åmotsdalen; E46 Svingeldalen; E47 Skrukkedalen

Appears more common from the above list than expected from the small number of previous records, and seemingly distributed over the whole area. Seems to prefer the upper parts of valleys often on areas which must be snow covered quite late.

Phippsia algida (SOLAND.) R. BR.
(32)

A: A2 Negerdalen; A3 Negerdalen
B: B7 Kuhrbreen moraine (MICHELMORE, N); B8 Risetrappa (DAHL)
C: C11 Grindane; C13 Kraussbukta (KÜKENTHAL, DAHL. N); C21 Bjørnholmane
D: D32a Raddedalen; D35b Drivdalsryggen
E: E39b Rosenbergdalen; E42 Dolerittneset (DAHL, N); E43 Leehovden; E46 Svingeldalen; E47 Skrukkedalen; E48 Meodden; E49 Kapp Heuglin (DAHL)

This plant is much less common than we had expected and is significantly less common than in Nordaustlandet (32% vs. 59%). It becomes dominant only in the wet muddy parts of Negerdalen where it is associated with: *Deschampsia alpina, Ranunculus hyperboreus, Saxifraga tenuis, Saxifraga foliolosa*. It was, as expected, also one of the few species found on the small exposed hilltop on Grindane, and at 320 m a.s.l. on Leehovden.

Phippsia concinna (TH. FR.) LINDB.
(10)

B: B8 Risetrappa
C: C13 Kraussbukta (DAHL)
E: E42 Dolerittneset (DAHL); E44 Arvedalen; E49 Kapp Heuglin (DAHL)

This species is, as usual, more or less uncommon, the first record being that of DAHL. We found it on wet parts of the terraces Risetrappa, along with *Cardamine nymani, Festuca vivipara,* and *Juncus biglumis,* and in a rather similar habitat in Arvedalen. We have excluded in the list the record of what PALIBIN designates "*Catabrosa concinna*" from Kraussbukta. He does not record the much commoner *Phippsia algida* (*Catabrosa algida*), and we follow HANSSEN and LID who, in their account of the flora of Franz Josef Land, have already suggested that the two species have been confused. This seems to be an essentially eastern species (see HULTÉN 1964).

Trisetum spicteum (L.) RICHT.
(14)

B: B9 Eilifdalen
C: C13 Kraussbukta (DAHL); C17 Grunnlinesletta; C23 Siegelfjellet (ACHMATOV, N)
D: D27 Guldalen; D38 Timertfjellet
E: E42 Dolerittneset (MICHELMORE, N)

In all localities except Siegelfjellet and Guldalen, associated with a rookery; on Siegelfjellet co-dominant with *Polygonum viviparum* and *Festuca richardsonii*.

Poa abbreviata R. BR.
(28)

C: C23 Siegelfjellet; C24 Plurdalen
D: D28 Caltexfjellet; D30 Smelledalen; D33 Mulefjellet; D34 Drivdalen; D36 Blankodden
E: E39b Rosenbergdalen; E40 Snøskardet; E41 Rosenbergdalen; E44 Arvedalen; E45 Åmotsdalen; E46 Svingeldalen; E47 Skrukkedalen

This plant is surprisingly rare, being confined to the dry, south facing scree slopes in the northern part of the area, and definitely more common in the areas

around Diskobukta and Freemansundet, than to the south. In Smelledalen, *Poa alpina* var. *vivipara, Poa arctica,* and the above were all growing close together. This is the first record of the plant from Edgeøya, though previously noted by DAHL from Kapp Wojeikow, Barentsøya. He also comments on its apparent rarity in south-eastern Svalbard.

The identification of material belonging to the *Poa alpigena–Poa alpina–Poa arctica* group presents a very real problem; this has most clearly been enunciated by SCHOLANDER (1934), and not being taxonomists we can make only some general remarks here.

The difficulty seems to arise from two facts; in the first place there is a more or less continuous series between typical *Poa arctica* and *Poa alpigena,* and in the second, all species exist in viviparous forms which may in some cases be distinct species. So while, for example, there is no difficulty in classifying typical members of the species *Poa alpigena, Poa alpina* and *Poa arctica,* and indeed also the viviparous varieties viz. *Poa alpigena* var. *colpodea, Poa alpina* var. *vivipara* and *Poa arctica* var. *vivipara,* in fact very little of the actual material collected will fall nicely into these classes. Under the various species listed we have tried to indicate what variations we have accepted and in the various illustrations we try to show both typical and non-typical material. In Edgeøya there is a substantial occurrence of *Poa alpina* (usually in the viviparous form) and this has made the problem rather more difficult than in Nordaustlandet material where *Poa alpina* is extremely rare.

Poa alpigena (FR.) LINDM.
(3)

B: B9 Eilifdalen
C: C13 Kraussbukta (DAHL); C17 Grunnlinesletta
D: D27 Guldalen; D28 Caltexfjellet; D33 Mulefjellet; D35a Drivdalsryggen; D36 Blankodden; D37 Visdalen; D38 Timertfjellet
E: E39a Rosenbergdalen; E39b Rosenbergdalen; E41 Rosenbergdalen; E42 Dolerittneset (DAHL, N); E46 Svingeldalen

Most of the material is quite typical (see Fig. 18.1), though there is some with a more spread panicle, and other with larger spikelets rather closer to *Poa arctica* (see Fig. 18.2). This is quite consistent with what has been found by many previous authors, e.g. SCHOLANDER (1934, p. 94).

Not uncommon, though seemingly absent in the most southerly and less favourable parts of the island. We can do no better than quote DAHL, "It prefers places under bird-cliffs, but is also found in other localities." This agrees exactly with our observations.

Poa alpigena var. *colpodea* (TH. FR.) SCHOL.
(48)

A: A3 Negerdalen; A4 Bjørnbukta; A5 Andréetangen
B: B6 Fløya; B8 Risetrappa; B9 Eilifdalen
C: C12 Olbogedalen; C13 Kraussbukta; C14 Habenichtbukta; C16a Årdalen; C19 Grunnlinesletta; C22 Grunnlinesletta

D: D27 Guldalen; D28 Caltexfjellet; D33 Mulefjellet; D34 Drivdalen; D35a Drivdalsryggen; D36 Blankodden; D38 Timertfjellet

E: E39a Rosenbergdalen; E41 Rosenbergdalen; E42 Dolerittneset (DAHL, N); E46 Svingeldalen; E47 Skrukkedalen

Although some of the material is quite typical with a ± lanceolate panicle, small numerous flowers and well-marked stolons (see Fig. 18.3), other is less typical (see Fig. 18.4). This has a less compact panicle, rather larger flowers, and is less markedly stoloniferous; it may be regarded as a form with tendencies towards *Poa arctica*. This is a robust species, and seems to be distributed over the whole of Edgeøya, and in a variety of habitats.

Poa alpigena (E. FR.) LINDM. var. *vivipara* (MALMG.) SCHOL.
(10)

A: A5 Andréetangen

C: C23 Siegelfjellet

D: D28 Caltexfjellet; D37 Visdalen

E: E47 Skrukkedalen

It is with real hesitation that we so designate our plants; they are, however, very distinctive, and unlike any other we have ever seen. They are rather small, upright plants, essentially glaucous, with ± small spikelets like *Poa alpigena;* the spikelets are freely viviparous, but the long subterranean runners typical of var. *colpodea* are absent, and the plant is altogether more densely tufted (see Fig. 18.5).

It was always found on dry, exposed localities, almost identical to many of those from which in Nordaustlandet we have recorded the var. *colpodea,* i.e. dry sandy river terraces, dry low-lying scree slopes.

Poa alpina L.
(58)

A: A2 Negerdalen

B: B6 Fløya; B7 Kuhrbreen moraine; B8 Risetrappa; B9 Eilifdalen

C: C11 Grindane; C12 Olbogedalen*; C13 Kraussbukta; C15a Årdalen C19 Grunnlinesletta; C22 Grunnlinesletta

D: D27 Guldalen; D29 Uvdalen; D30 Smelledalen; D31 Raddedalen; D33 Mulefjellet; D34 Drivdalen*; D35a, D35b Drivdalsryggen; D36 Blankodden; D38 Timertfjellet

E: E39b Rosenbergdalen; E41 Rosenbergdalen*; E42 Dolerittneset (DAHL, N); E44 Arvedalen; E45 Åmotsdalen; E46 Svingeldalen; E47 Skrukkedalen*; E49 Kapp Heuglin (DAHL)

Most of the above material is ± typical with short basal leaves, and the crowded base covered by persistent white sheaths (see Fig. 18.8). As pointed out, however, by SCHOLANDER and others (see SCHOLANDER 1934, p. 92), the basal parts may be much less typical in more favourable localities e.g. Fig. 18.9. Except for examples collected at localities marked with an asterisk, the material belongs to var. *vivipara*. Non-viviparous *Poa alpina* is rare in Svalbard (see RØNNING 1961) and the arctic in general (see LINDMAN in LYNGE 1923, p. 117; GELTING 1934, p. 201). We have not been able clearly to associate these varieties with different habitats (cf. GELTING 1934, p. 203; BÖCHER 1938, p. 215) though it does seem that, in agreement with the observations in Greenland, *Poa alpina* prefers drier, and essentially more favourable localities than var. *vivipara* which is typically a 'sneleie' plant.

Fig. 18.1

Fig. 18.2

Fig. 18.3

Fig. 18.6

Fig. 18.5

Fig. 18.4

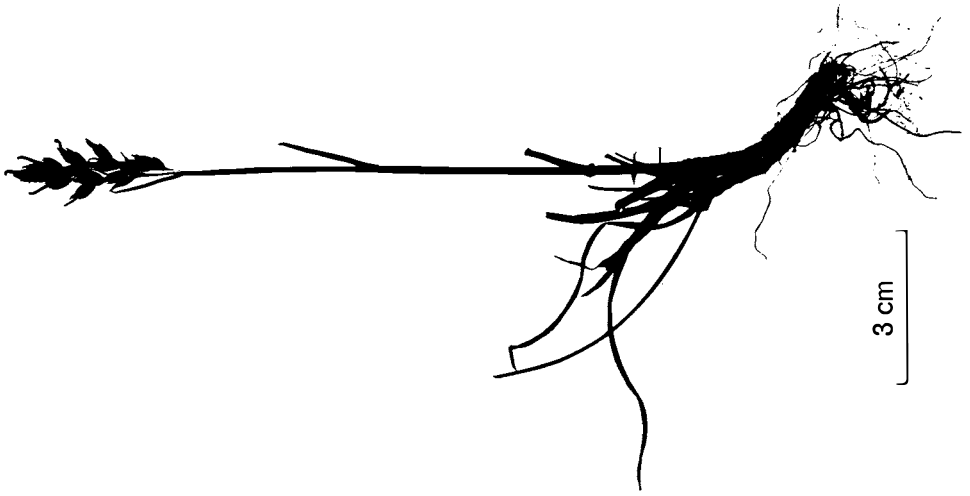

Fig. 18.9

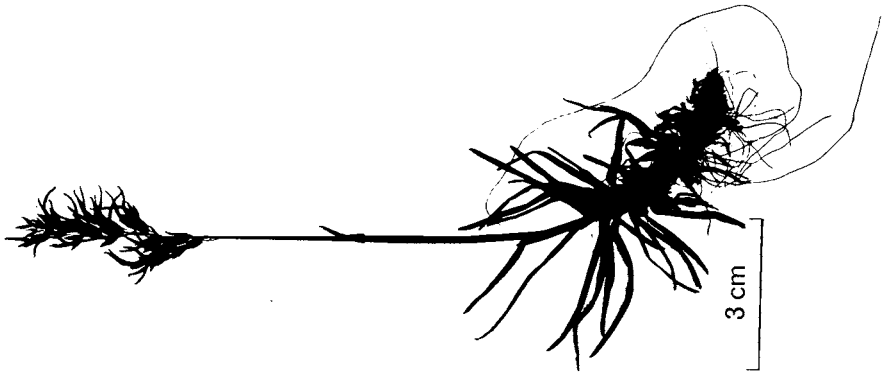

Fig. 18.8

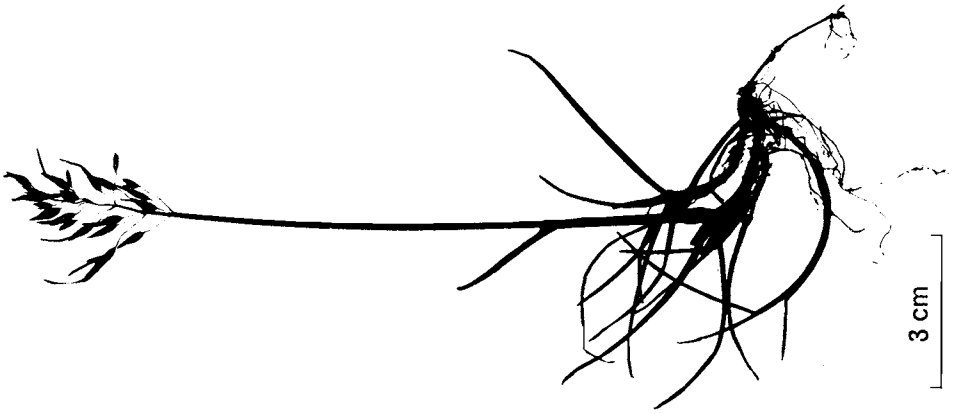

Fig. 18.7

Poa arctica R. Br.
(24)

A: A3 Negerdalen
B: B8 Risetrappa (Dahl, N)
C: C13 Kraussbukta (Dahl); C16a Årdalen; C19 Grunnlinesletta
D: D27 Guldalen; D30 Smelledalen
E: E39a Rosenbergdalen; E39b Rosenbergdalen; E42 Dolerittneset (Dahl, N); E44 Arvedalen; E47 Skrukkedalen

The material is usually quite typical with large dark-coloured spikelets, usually 1- or 2-flowered, though in many examples the panicle is somewhat compressed; a typical example is shown in Fig. 18.6.

This species is not especially common contrary to what seems to be implied in Dahl's comments; it is significantly less common than in Nordaustlandet (24% vs. 47%).

Poa arctica R. Br. var. *vivipara* Hook
(6)

D: D33 Mulefjellet; D36 Blankodden; D38 Timertfjellet

The above specimens are quite typical (see Fig. 18.7). This is a rare plant in Edgeøya, seemingly not previously recorded from there though known from Barentsøya (Dahl); this plant is often associated with rookeries, though of our localities only Timertfjellet comes into this classification.

We summarize the figures illustrating the above comments.

Poa alpigena
18.1 Typical plant. Timertfjellet 1.8.1968 (SN 829)
18.2 Plant with larger spikelets, tending to *P. arctica*. Rosenbergdalen 25.7.1968 (SN 822)

Poa alpigena var. *colpodea*
18.3 Typical plant. Timertfjellet 1.8.1968 (SN 829)
18.4 Plant with panicle shorter and less compact, rather large flowers, and less well developed stolons. Svingeldalen 5.8.1968 (SN 835).

Poa alpigena var. *vivipara*
18.5 Caltexfjellet 16.8.1967 (SN 774)

Poa arctica
18.6 Typical plant. Dolerittneset 27.7.1968 (SN 825)

Poa arctica var. *vivipara*
18.7 Typical plant. Timertfjellet 1.8.1968 (SN 829)

Poa alpina
18.8 Typical viviparous plant. Kuhrbreen moraine 13.8.1967 (SN 767)
18.9 Plant much less tufted at the base, basal leaves much less typical. Timertfjellet 1.8.1968 (SN 829)

Arctophila fulva (TRIN.) ANDS.

A: A5 Andréetangen
C: C16b Årdalen
D: D32a Raddedalen

New to Edgeøya, and though not common, fairly widespread. We found it usually in small pools, but freely flowering specimens were found only on the marsh below the dolerite sills on the north side of Årdalen.

Puccinellia angustata (R. BR.) RAND. & REDF.

B: B7 Kuhrbreen moraine; B8 Risetrappa (MICHELMORE)
C: C23 Siegelfjellet; C24 Plurdalen
D: D26 Guldalen; D27 Guldalen; D32b Raddedalen; D34 Drivdalen; D35a Drivdalsryggen; D36 Blankodden; D37 Visdalen
E: E41 Rosenbergdalen; E42 Dolerittneset (MALMGREN, MICHELMORE, DAHL, N); E46 Svingeldalen; E47 Skrukkedalen

This was found in massive quantities on the moraines of Kuhrbreen, and is otherwise fairly common in the northern, but not seemingly in the southern area.

Puccinellia phryganodes (TRIN.) SCRIBN. & MERR.

A: A5 Andréetangen
C: C13 Kraussbukta (DAHL); C14 Habenichtbukta; C21 Bjørnholmane
D: D37 Visdalen
E: E42 Dolerittneset (MALMGREN, DAHL, N); E49 Kapp Heuglin (DAHL)

First recorded by MALMGREN as *Glyceria vilfoidea* (ANDS.) TH. FR., this is one of the few typical halophytes, most commonly found in soily areas among dolerite blocks by the sea, and often accompanied by *Stellaria humifusa,* and less commonly, *Carex glareosa* and *Carex ursina.*

Colpodium vacillans (TH. FR.) POLUNIN

C: C13 Kraussbukta (DAHL)
E: E42 Dolerittneset (DAHL)

First recorded by DAHL as *Puccinellia vacillans* (TH. FR.) SCHOL., this species was one of the few not found by us, and is rather rare in Edgeøya.

Colpodium vahlianum (LIEBM.) NEVSKI

A: A4 Bjørnbukta
C: C24 Plurdalen
D: D28 Caltexfjellet
E: E42 Dolerittneset (MICHELMORE, DAHL); E47 Skrukkedalen

This seems first to have been recorded by MICHELMORE as *Puccinellia vahliana* (LIEBM.) SCRIBN. & MERR., and though not common seems to be distributed over the whole of Edgeøya.

Types of vegetation

1. *Vegetation associated with dolerite sills*

(a) Dolerites are exposed along the shore at several places on the west coast of Edgeøya and usually it is only among the blocks and on the small patches of intervening soil that there is any development of halophytes. *Puccinellia phryganodes* and *Stellaria humifusa* are the most common, being found in association on the sills at the northern side of Bjørnbukta, on the south side of Habenichtbukta, on Bjørnholmane and at Dolerittneset. At the second and third localities we also found the sedge *Carex glareosa* which is a new record to Edgeøya and otherwise extremely rare, though typical of such localities (see SØRENSEN 1933, p. 113). The first sedge recorded from Edgeøya was the halophyte *Carex ursina,* noted by MICHELMORE from the dolerite sill on Andréetangen; we have also found it there, on the sill near Habenichtbukta, and at the mouth of Rosenbergelva. All of these sills resemble very closely both in appearance and vegetation that which is exposed at Depotodden in Brennevinsfjorden and which is shown in Fig. 13 of a previous publication (NEILSON 1968).

(b) Dolerites are also exposed at many points inland, though they seem to be absent from the inner parts of Diskobukta. The vegetation among the dolerite blocks has already been commented upon by PALIBIN who says "The flora is richer on stony hummocks somewhat above the level of the strand plateau; between diabase blocks are different plants and xerophyllic mosses such as *Rhacomitrium lanuginosum, Hylocomnium splendens* var. *alascanum,* and *Stereodon revolutus* growing as green pillows. Between the mosses there is *Salix polaris,* which otherwise grows in isolation; other plants common here are, *Saxifraga caespitosa, Oxyria digyna, Stellaria crassipes, Saxifraga nivalis, Saxifraga hieraciifolia, Silene* and others typical of dry places." We may note again that this is the first record of *Saxifraga hieraciifolia* from Edgeøya.

We have investigated such dolerite sills at three places. On Mureflota somewhat west of Lønøodden there is a line of dolerite sills running in an approximately north-south direction. There is a fairly rich vegetation among the blocks and on the small areas of soil; the commoner plants were, *Equisetum variegatum, Minuartia biflora, Pedicularis hirsuta,* and *Silene acaulis.* Of special interest, however, were the extremely rare *Lycopodium selago* first reported by KEILHAU from Kraussbukta and not again recorded until our visit, and *Ranunculus nivalis* and *Potentilla hyparctica,* the first of these being a rare plant and the second seemingly almost confined to the dolerites in Edgeøya.

There is also a series of dolerite sills on the north side of Årelva, see Fig. 3, and it may well have been this area which was described by PALIBIN and we would guess almost certainly the locality where KEILHAU found his *Lycopodium selago.* There are mossy hollows and small banks of soil; on such we have noted *Dryas octopetala, Silene acaulis, Minuartia biflora, Potentilla hyparctica, Melandrium apetalum, Taraxacum arcticum, Saxifraga hieraciifolia, Arenaria pseudofrigida, Lycopodium selago, Carex lachenalii,* and *Poa arctica.*

MICHELMORE has suggested that the richness of the marshes on Grunnlinesletta is also due to the presence of dolerite sills and though highly plausible this

is rather difficult to prove. We found that on Grunnlinesletta the thickness of the moss was so great that we were unable to get a soil sample using a 20 cm corer. We shall discuss the marsh vegetation separately.

We have already commented upon the halophilic vegetation of the dolerite sill exposed along the coast at Dolerittneset; there are, however, several sills exposed higher up (see Fig. 4). On south facing soil banks below one of these sills we found *Erigeron humilis, Minuartia biflora, Ranunculus pygmaeus,* and *Trisetum spicatum;* the first of these has already been noted from the same locality by DAHL, and the last by MICHELMORE.

2. *The vegetation of a whale bone beach*

The northern part of Grunnlinesletta, on the north side of Plurelva, is littered with whale bones (see Fig. 6). In the vicinity of these there is a rich vegetation of which we note *Carex ursina, Arenaria pseudofrigida, Braya purpurascens, Cerastium regelii* flowering freely, *Melandrium apetalum, Minuartia rubella, Silene acaulis* and *Festuca richardsonii.* The most notable fact is the flowering of the *C. regelii* which rarely flowers except in favourable localities, and never in the wet, muddy solifluction slopes where it may be dominant.

3. *Marsh vegetation*

The marshes on Grunnlinesletta have been graphically described by KEILHAU who says "Great parts of the wet lowland are composed of earth made up of clay and mixed with pebbles, and in parts peaty. This area is thickly covered with a thick soft carpet of moss up to 6–8 inches deep which was the height of *Hypnum cuspidatum* and *Mnium turgidum* which together make up most of the mosses in the areas with poor drainage..... Where the water can run away more or less freely, the vegetation becomes more varying and here other higher plants grow between the mosses. If the water is collected into small running streams and creeks, the mosses become less common, and grasses, sedges and saxifrages become dominant." This refers to the southern part of Grunnlinesletta where marsh vegetation reaches its peak development in Edgeøya. The vascular flora consists of massive areas of *Deschampsia alpina, Dupontia fisheri* and *Ranunculus spitsbergensis* apparently found only in this locality and on the south side of Rosenbergdalen, and noted first by MICHELMORE and later by DAHL. On the western side of Årelva we noted also *Eriophorum scheuchzeri, Equisetum arvense, Carex subspathacea* and *Carex lachenalii,* the last new to Edgeøya and a rare plant indeed; on the eastern side of the river in the marsh below the dolerite sill we noted *Arctophila fulva* flowering freely, also a new record and otherwise, e.g. Andréetangen, not flowering. There is quite a well developed marsh on the south side of Rosenbergdalen and somewhat north of the lower slopes of Timertfjellet. From this we recorded *Ranunculus spitsbergensis, Ranunculus hyperboreus,* and *Dupontia fisheri,* locally co-dominant on very wet mossy areas; we also noted *Eriophorum scheuchzeri, Saxifraga foliolosa* and *Deschampsia alpina,* again characteristic of such habitats. We did not find *Koenigia islandica* at all but it must also

be classified as a typical marsh plant. This covers most of the plants more or less specific to such places; others such as *Saxifraga hirculus* have a rather wider distribution.

4. *Valley vegetation*

(a) Wet valleys: Negerdalen has a rather depauperate flora, the whole area consisting of very wet muddy clay, except on the higher slopes of the mountains, and the valley floors have typical 'sneleie' vegetation. The area round the northern entrance to the valley on the north side of the river had a rather limited flora of 14 species including *Deschampsia alpina, Equisetum variegatum, Juncus biglumis, Pedicularis hirsuta, Saxifraga hirculus,* and *Saxifraga flagellaris.* The areas of 'sneleie' vegetation consisted almost solely of plants typical of such localities, *Deschampsia alpina, Juncus biglumis, Phippsia algida, Saxifraga foliolosa,* and *Saxifraga tenuis.* The last three are hardly common elsewhere in Edgeøya though common in areas with late melting snow, for example in Nordaustlandet. The higher slopes of the mountains on the north side of the valley support a hardly much richer flora; of 15 species, including *Phippsia algida,* none is other than common throughout Svalbard.

The southern entrance to Negerdalen is rather similar and in small pools of gently running water we found *Cardamine nymani, Deschampsia alpina, Phippsia algida,* and *Ranunculus hyperboreus,* the first as usual for such habitats, in non-flowering condition.

The wet parts of the valleys in Diskobukta support a rather richer flora; wet marshy parts of Raddedalen have *Arctophila fulva, Carex subspathacea, Dupontia fisheri,* and *Saxifraga foliolosa,* while nearer the mouth of the river a larger range of species is found including *Equisetum arvense, Eriophorum scheuchzeri, Juncus biglumis, Ranunculus hyperboreus,* and *Saxifraga hirculus.* It will be seen that very few of these plants are to be found in the southern valleys near Negerpynten.

(b) Dry valleys: Although Plurdalen has rather a rich vegetation including such rare species as *Carex misandra* and *Eutrema edwardsii,* the greatest development of valleys seems to be in the northern part of the island. We investigated the area between Diskobukta and Freemansundet in some detail and carried out work in most of the great valleys of this area. Here we are concerned primarily with the vegetation of the drier parts of them.

Guldalen has a rich vegetation; on the fairly well drained slopes of Strandsåta we noted *Braya purpurascens, Dryas octopetala* (not an especially common plant around Diskobukta), *Melandrium apetalum, Minuartia biflora, Saxifraga flagellaris, Saxifraga hieraciifolia, Festuca richardsonii.* On an east facing slope above Vingla we found a locally very rich flora with *Arenaria pseudofrigida, Erigeron humilis,* and *Trisetum spicatum.* On flat screes south of Caltexfjellet we noted *Poa abbreviata* becoming quite common for the first time. Generally this grass is more or less common on dry, reasonably favourable localities in Nordaustlandet, but it is common in Edgeøya only in the northern areas. *Taraxacum arcticum* is quite common on the south facing scree slopes of Baerberget in Smelledalen, on Mulefjellet, and in the valleys between Rosenbergdalen and Freemansundet. *Silene acaulis* is found in Smelledalen, but is not common again till we reach the slopes

west of Blankodden; it is noted in Rosenbergdalen and in Skrukkedalen. Similarly, *Dryas octopela* is hardly common in the area though found in the dry inner parts of Uvdalen, Drivdalen, Rosenbergdalen, Åmotsdalen and Skrukkedalen.

It will be noticed that the valleys in the most northerly part of the island support quite a rich vegetation, at least in places. Rosenbergdalen is a massive valley, somewhat barren in its upper parts; even so we recorded *Arnica alpina* from steep grassy slopes under one of the dolerite sills near the entrance (see Fig. 4), *Arenaria pseudofrigida* on dark shales a little to the north, and from a small area about 9 km inland we noted around 38 species including *Minuartia biflora, Taraxacum arcticum, Festuca brachyphylla,* and *Poa abbreviata*. The valleys between Rosenbergdalen and Freemansundet are not especially rich in the number of species though *Dryas octopetala* was noted on the south facing slopes of Åmotsdalen. More surprising is the comparative richness of the valleys running southwards from Freemansundet; these valleys have a rather unfavourable exposure facing approximately north, but Skrukkedalen especially has a remarkably rich flora containing species like *Dryas octopetala, Silene acaulis, Minuartia biflora,* and *Arenaria pseudofrigida,* which is not an especially common plant in Edgeøya.

In general the flora of all these northern valleys is not especially rich in the number of species; *Dryas octopetala* and *Silene acaulis* are found though are not widespread, but *Poa abbreviata* and *Festuca brachyphylla* become quite common for the first time.

5. *The vegetation of rookeries*

We made a fairly short visit to the rookery on the western side of Eilifdalen; this was situated on the highest part of the steep sandstone cliff (see Fig. 5), and the collections were made rather lower down, around 170 m a.s.l. The most dramatic find was of masses of *Taraxacum brachyceras* which we have noted also in a similar locality on the western side of Forkastningsdalen though we are uncertain whether this plant is essentially nitrophilous. There was also rich development of *Trisetum spicatum* and *Poa alpigena* both of which are quite typical in such localities. Lower down on the sandstone/shale slopes there was also a rich vegetation of which we note only *Saxifraga hieraciifolia*. There is a fine kittiwake rookery east of Blankodden on the southern slopes of Drivdalsryggen; there is a spectacular gorge (shown in Fig. 11) and the vegetation on each side of it is dramatically different. The western slopes consist of fairly steep dry screes and are dominated by *Draba arctica, Festuca richardsonii, Potentilla hyparctica, Taraxacum arcticum,* and *Ranunculus pedatifidus,* the last new to Edgeøya, and again found on the rookery of the west side of Forkastningsdalen. By contrast, the eastern slopes have a limited flora dominated by *Cerastium arcticum, Cochlearia officinalis, Oxyria digyna, Saxifraga cernua* and *Poa alpina* var. *vivipara. Phippsia algida* was common on the low, flat slopes below, no doubt flooded during the spring melt. Thus the dry parts of these two south facing rookeries have a rich vegetation including two species new to Edgeøya, while the green, eastern slopes of Drivdalsryggen correspond much more to the vegetation of rookeries investigated by us in Nordaustlandet. These slopes have a

luxuriant vegetation, rather limited in the variety of species, and with none other than common ones among them.

On the steep south-west facing slopes below the rookery on the dolerite sill on Timertfjellet we noted *Trisetum spicatum, Draba daurica,* and *Poa arctica* var. *vivipara,* the last two new to Edgeøya.

6. *The vegetation of moraines*

In connection with an interest in the development of the micro-organism flora of moraines, we spent some time on the great moraines of Kuhrbreen; these had already been visited by MICHELMORE. We comment here only on the vascular flora. The vegetation of the Kuhrbreen moraines was strikingly similar to that of the massive moraines of Nathorstbreen in Van Keulenfjorden; on the more recent parts there were large areas of wet concrete-like clay, with only *Puccinellia angustata* growing on them. On rather more stable parts, consisting of fine, much drier deposits there is the development of a miniature landscape with mountains, valleys and small lakes (see Fig. 9). On wet areas near these pools we found *Carex ursina, Deschampsia alpina, Equisetum variegatum,* and *Juncus biglumis.* On the drier hillocks there is quite a rich vegetation of around 18 species including *Braya purpurascens, Festuca richardsonii, Festuca vivipara, Minuartia rubella, Poa alpina* var. *vivipara,* and *Sagina intermedia.* These are all typical of dry and reasonably favourable localities. On older and more stable moraines farther east may also be found *Melandrium apetalum, Pedicularis hirsuta,* and *Ranunculus pygmaeus.* In general the vegetation is surprisingly rich, especially on the more stable areas and it would seem that conditions must be fairly reasonable for such development; it would be highly interesting to know the situation 100 years from now.

Conclusions and comparisons with the vascular flora of Nordaustlandet

It is hardly profitable to make detailed comparison with previous work, except by noting the following species new to Edgeøya:

Arctophila fulva
Arnica alpina
Carex glareosa
Carex lachenalii
Carex maritima x *parallela*
Carex misandra
Carex nardina
Carex saxatilis
Draba daurica
Draba gredinii
Eutrema edwardsii
Melandrium affine
Ranunculus pedatifidus
Taraxacum brachyceras
Poa abbreviata
Poa arctica var. *vivipara*

The four species recorded by previous workers, but not by us are:

Chrysosplenium tetrandum (MALMGREN, KÜKENTHAL, MICHELMORE)
Colpodium vacillans (DAHL)
Koenigia islandica (MICHELMORE, DAHL)
Arctagrostis latifolia (DAHL)

Carex species are rare in Edgeøya (with the possible exception of the halophilic sedges *C. subspathacea* and *C. ursina*), but most especially these three (*C. misandra*, *C. nardina,* and *C. rupestris*) which take part in Dryadion communities in many parts of Spitsbergen (see RØNNING 1965). The other new species are also rare, being found generally only at one locality, usually quite comparable to that in which the species is found in Spitsbergen; this has already been noted for *Ranunculus pedatifidus* and *Taraxacum brachyceras*.

Since we had spent the two summers previous to our visits to Edgeøya, in Nordaustlandet, it is natural for us to try and make a comparison between the vascular flora of the two. Our comments are based entirely on subjective, qualitative observations and would no doubt be modified in detail if quantitative data were available. But we do not think our conclusions would be drastically altered.

The two islands are probably not dissimilar climatically though we have no data from Edgeøya to support this assumption. Geologically, however, they are completely different; the rocks of Nordaustlandet belong almost entirely to the Hecla Hoek formation of metamorphic rocks, and have enormous structural complexity. By contrast those of Edgeøya belong to the Triassic formation and are of extreme structural simplicity, being more or less horizontal over most of the island. Both areas are extensively intruded by dolerite sills. The topography of the two islands is therefore quite different, the small steep-sided bays characteristic of the northern parts of Nordaustlandet being replaced by wide open bays in Edgeøya. The latter is steep-to at many places, but in most there is a wide flat coastal area often leading gently into the great valleys. As already noted, large valleys are practically absent in Nordaustlandet.

The most striking feature about the vegetation is the much higher cover in many parts of Edgeøya; many areas are green and luxuriant, especially near the coast, though inland the cover becomes much lower. In really exposed areas like Leehovden or the small hill-top in Grindane, or rather poor areas like Meodden in Freemansundet or Negerdalen, the vegetation of the two islands is quite similar; the first two localities are ± dry, exposed areas, while the last two have areas of late-melting snow and extreme exposure to wind.

The species which we have described as new to Edgeøya, and some others, e.g. *Arenaria pseudofrigida* and *Carex ursina,* are not known in Nordaustlandet; a few species though very rare in the latter are unknown in Edgeøya e.g. *Carex maritima, Erigeron eriocephalus*, *Festuca baffinensis,* and *Minuartia rossii*. Of more common species, the following are significantly less common in Nordaustlandet (distribution frequencies in Nordaustlandet are given first):

Cardamine nymani	(1, 20)	*Minuartia biflora*	(7, 34)
Equisetum arvense	(3, 36)	*Saxifraga hirculus*	(9, 50)
Equisetum variegatum	(5, 42)	*Saxifraga hieraciifolia*	(1, 28)
Festuca brachyphylla	(8, 48)	*Trisetum spicatum*	(1, 12)
Festuca vivipara	(9, 36)		
Festuca richardsonii var. *cryophila*	(2, 40)		

Some of these have a distinct preference for ± wet, though not unfavourable

localities which are probably more common in Edgeøya; the three *Festuca* species are not, however, in this class, and yet are uniformly more common in Edgeøya.

Conversely some plants are less common in Edgeøya, the most obvious differences being in the following species:

Lycopodium selago	(10, 4)	*Carex misandra*	(32, 4)
		Carex nardina	(13, 2)
		Carex rupestris	(9, 4)

We have already noted that *Lycopodium selago* may be confined to areas of metamorphic rocks (see PORSILD 1955), and that Dryadion communities hardly exist in Edgeøya. The *Carex* species noted above prefer either more or less wet (*C. misandra*), or dry and wind-swept localities (*C. nardina* and *C. rupestris*); it is not obvious to us why these species are so rare in Edgeøya – it is not for want of searching on our part. We might also note that, while *Festuca brachyphylla* is fairly common in Edgeøya, *Poa abbreviata* which often accompanies it in Nordaustlandet and elsewhere, has not previously been recorded from Edgeøya, and becomes common only on dry scree slopes in the northern part of the area.

In summary we may say that the vascular flora of the two areas is comparable as far as the commoner species are concerned, but that generally the distribution frequencies are higher in Edgeøya. Species which in Spitsbergen require favourable conditions e.g. *Arabis alpina, Cystopteris dickieana, Polemonium boreale* etc. are found in neither area. The flora of Nordaustlandet is characterized by the fairly common occurrence of *Carex* species, and the rare occurrence of *Festuca* species; the converse is true in Edgeøya.

Obviously we do not expect any species to reach its northern limit in Edgeøya; we do not find, however, species such as *Ranunculus glacialis* and *Salix herbacea,* which may be considered characteristic southerly species.

Index of genera of vascular plants

(In the text the species are arranged alphabetically under the genus)

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