THE BEERENBERG—JAN MAYEN

By R. SCOTT RUSSELL

Read before the Alpine Club, February 7, 1939

Jan Mayen lies in the Greenland Sea some 200 miles E. of Greenland at the latitude of 71° N. It is a small island, less than 35 miles long, so that it is rather insignificant by comparison with the better known Arctic region; none the less it has a special claim to the attention of mountaineers on account of the Beerenberg, the large extinct volcano which dominates the island. Like most volcanoes it is an easy mountain to climb, and none of the ascents I shall describe were of any great mountaineering difficulty. The only justification for this paper lies in the unusual nature of the mountain and the small amount of information which has been available about it hitherto.

The Imperial College of Science Expedition, of which I was a member, spent two summer months on the island last year. As the name implies, mountaineering was only one of our objectives, but I shall say little of the organization and scientific work of the expedition, which is described elsewhere,[1] as is also the history of the island.[2] I am told that we raised grave moral issues by attempting to combine mountaineering with scientific work, but, as we were careful to leave theodolites, ice-drills and the like several thousand feet below the summit of the mountain, we perhaps avoided the greater heresies. Be that as it may, the diversity of our interests made the expedition more varied, more enjoyable and, I believe, more worth while. The party had practically no previous experience of expedition work, and the harmonious combination of a wide range of activity was due to the skilful organization of Mr. Alexander King, who led the party. The expedition, the first of its type from any part of the University of London, owed its inception to King's enthusiasm.

Our party of ten sailed from Newcastle towards the end of June and travelled via Bergen and the Norwegian coast to Tromsö, where we embarked on the *Fortuna*, an old and heavy-timbered sealer of some 150 tons. Her age was unknown, but her chronometer bore the date 1807 and her boilers were replaced

[1] A. King, *Geographical Journal* (in the press).
[2] *Ibid.*, also J. M. Wordie, *Geographical Journal*, lix. 180, 1922.

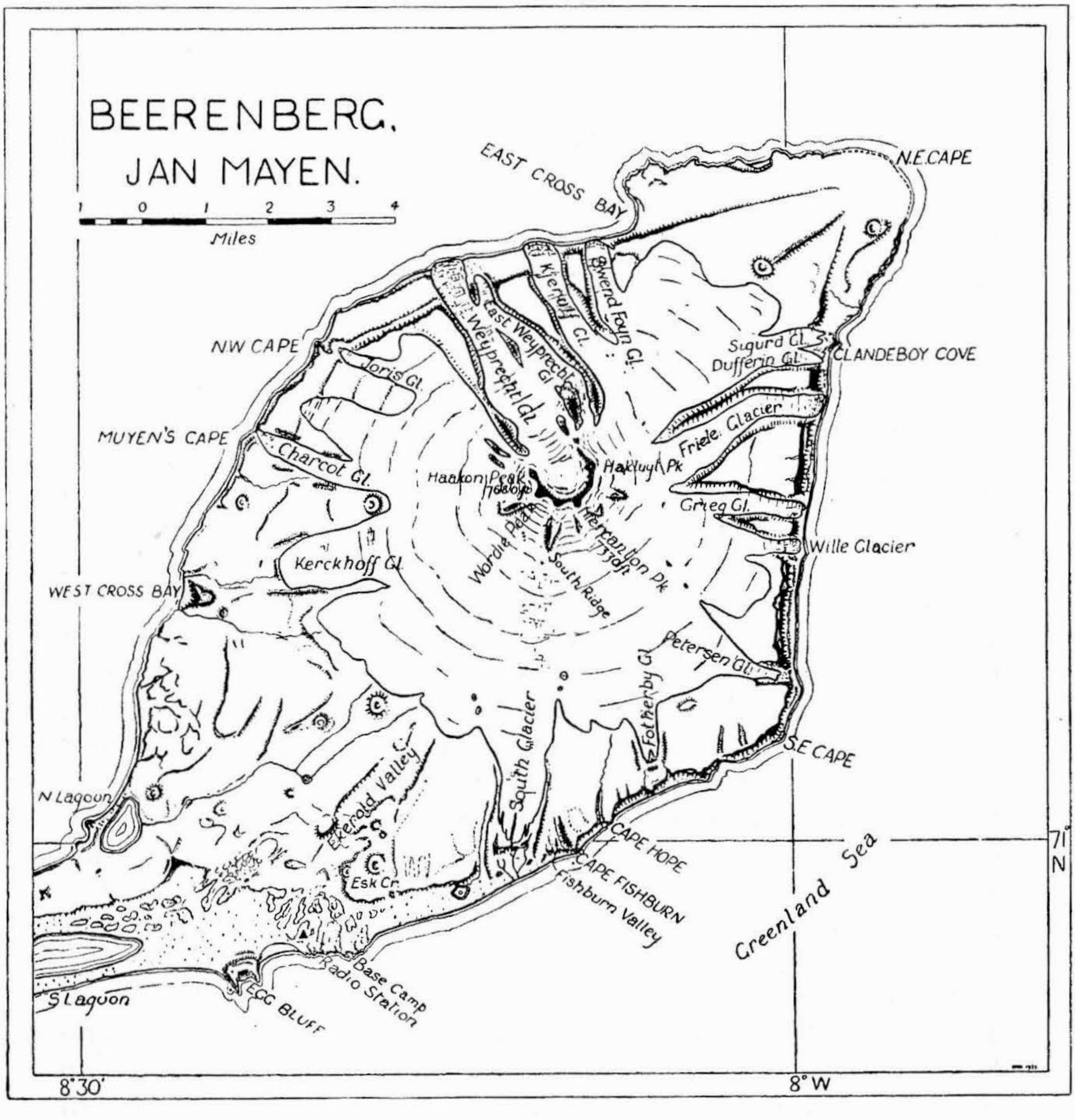
in 1886. I am told she is one of the oldest craft on the coast, and if the richness of her odours is any sign of antiquity, this must be so. To the stench of her bilges, apparently coeval with the ship, was added the aroma of *tosk fisk*, two sheep and some small pigs. This livestock was being sent to the Jan Mayen Meteorological Station, which the *Fortuna* was to relieve at the same time as landing our party. We sailed at 1 A.M. on Saturday, July 2, having delayed our departure for several hours to avoid the ill luck which is caused, according to local superstition, by sailing on Friday. Our quarters were in the fo'c'sle, but when we reached the open sea our party one by one came greenly on deck in search of purer air. For the remainder of the trip we camped on the hatch, the only alternative accommodation. Fortunately the weather was fine, but the long swell, catching the ship abeam, made her roll heavily. Under sail and steam we made about 4 knots.

It was noon on our fourth day out when we sighted the island. All morning a bank of light mist had lain over the ocean. Suddenly it parted, revealing the summit of the Beerenberg, a sunlit ridge of unbroken snow. Cloud still covered the lower slopes, exaggerating height so that the peak seemed to hang suspended above the ocean. Gradually the view widened and we could see the high cliffs of the coast, broken here and there by glaciers descending to sea-level. Skirting the S.E. corner of the island, we passed along the S. side of the mountain and dropped anchor about a mile off Jameson Bay, where the meteorological station is situated. The absence of any sheltered anchorage makes reasonably fine weather essential for landing, and we were fortunate to have good conditions. None the less it was a lengthy job ferrying ashore our two and a half tons of stores, equipment and instruments.

The meteorological station, established in 1921, is situated on a barren waste of volcanic ash, close to the shore. There is no less attractive or more windswept place on the island. The three men who staff the station are the sole inhabitants of Jan Mayen, and the year they spend there must be dreary in the extreme. Accurate observations are taken four times daily, and the reports they furnish are of the greatest use in weather forecasting. To our party they gave every assistance, including placing at our disposal a disused hut which was invaluable as a laboratory and depot.

The chart made by an Austrian expedition in 1884 has long been the standard map of Jan Mayen. In the central part of the island it is reasonably accurate, but elsewhere, especially in

the north where it is based on observations from the sea, much of the detail is imaginary. Bad visibility during the greater part of our expedition impeded the work of our surveyors, but the



PORTION OF MAP COMPILED FROM SURVEYS OF AUSTRIAN (1882–83) AND IMPERIAL COLLEGE (1938) EXPEDITIONS, BY W. H. WARD.

sketch-maps produced are, to say the least, a very great improvement on the older map.

In shape the island resembles a lop-sided dumb-bell. The larger northern end is entirely taken up by the Beerenberg. The mountain is 7680 ft. high,[3] and about 35 miles in circumference at sea-level. Its most outstanding feature is the crater, a mile

[3] Height as determined by the expedition survey.

wide and some 500 ft. deep. This basin now forms the névé of a glacier, the Weyprecht, which escapes through a huge gash in the N. side of the crater rim. The highest peak lies immediately to the W. of the Weyprecht, and facing it across the glacier is the second summit. On account of the distance between the peaks, half a mile as the crow flies or two and a half miles along the ridge, it seems desirable to give them individual names. We have therefore proposed the names Haakon and Hakluyt, and we understand that they are likely to be accepted by the Norwegian authorities. Thus the highest summit is named after the King of Norway and the second summit after the author of the famous *Voyages*. We selected the name Hakluyt because it is the earliest recorded name for the mountain,[4] though unfortunately it never came into popular use.

Approach to Peak Haakon is easiest from the S.W., and it was from this side that the three ascents prior to our visit were made. The mountain was first climbed in 1921 by Mr. J. M. Wordie, Professor Mercanton and Mr. T. C. Lethbridge.[5] I must acknowledge here the large degree in which our party was indebted to Mr. Wordie for his advice and assistance in organizing our expedition. In 1927 Finn Devold, the manager of the meteorological station, made the second ascent with two companions. Since then the meteorological officers have been forbidden to ascend the mountain. In 1933 Messrs. N. E. Odell and Walter A. Wood [6] found time to climb the mountain while travelling to Greenland with one of Miss Louise Boyd's expeditions. There is only one other party to which I need refer. At Easter 1934 a Norwegian fox-trapper, K. Gulbransen, with two companions carried out a ski expedition on the mountain. The published account of their ascent [7] does not make it clear what point on the summit ridge they reached.

I shall say little about the southern part of the island, although it was visited by several of our parties. A tangled mass of volcanic cones and lava fields, it rises to the height of some 3000 ft. No snow lies on the hills in summer, and travelling is for the most part laborious. Here and there are fine coastal views.

Our natural impatience to climb the Beerenberg was increased by the fact that we wished to expose plates for cosmic ray work on the summit for as many weeks as possible. To avoid delay we decided to dispense with a high camp and climb from the botanical camp 300 ft. above the sea in the sheltered Fishburn valley close to the South Glacier. This involved climbing

[4] Name given by Robert Fotherby in 1615.
[5] *Geographical Journal*, lix. 180, 1922.
[6] *A.J.* 46. 39.
[7] *Aftenposten*, Oslo, February 16, 1935.

rather more than 7300 ft., but the continuous daylight of the Arctic summer enabled us to take our time over it.

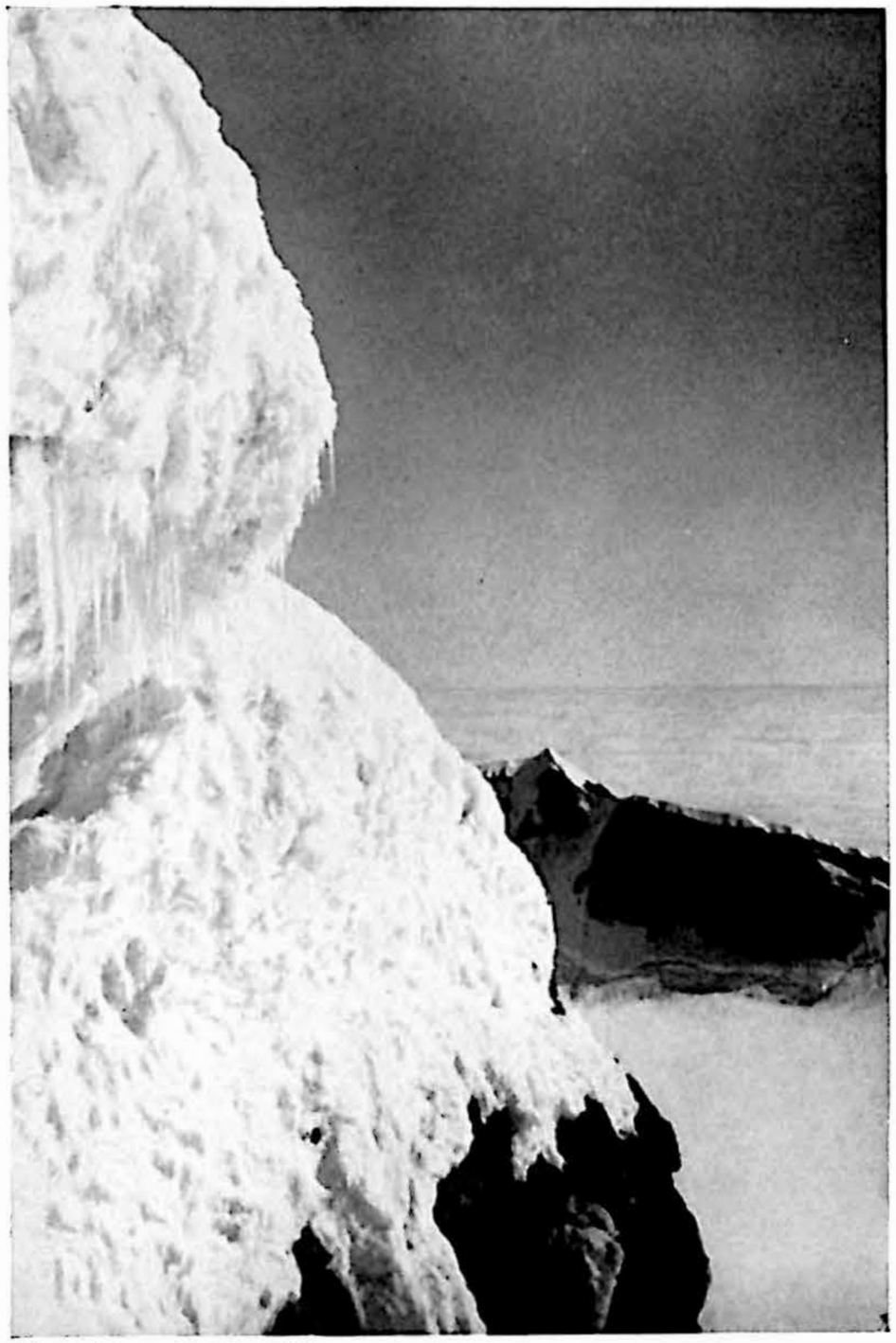
On July 12 we started at the unconventional hour of 7 P.M. and crossed the snow slopes and moraine behind our camp to reach the South Glacier, which rises gently to about 5000 ft., giving access to the steeper final slopes of the mountain. We took an oblique line up the glacier, making for a prominent outcrop of rock slightly to the left of the head of the névé. Above this the ill-defined S. ridge offered a good approach to the crater rim. An uneventful 4 hours' march brought us to the rocks, where we halted for a meal, memorable only on account of the melancholy discovery that our ration of sugar had been left behind. Meanwhile the weather had been deteriorating rapidly, and when we resumed the climb the entire upper part of the mountain was covered in dense cloud which made route-finding difficult. To gain the S. ridge we bore to the left through a small icefall, thus avoiding a face of rotten rock which prevented a more direct approach. Snow conditions on the upper part of the mountain were bad. We sank deeply into soft snow, and the crevasses were insecurely bridged. It was snowing when we reached the summit. Through the mist we obtained but a meagre impression of the great crater basin, and I shall therefore postpone describing it till a later ascent when conditions were more favourable. On the descent we attempted to follow a more direct route on the South Glacier by keeping well to the E. of our upward tracks. Like most short cuts this was unwise, for the apparently unbroken snowfield we had seen from above was undermined by many wide crevasses, difficult to detect and thinly covered. For a short time the weather relented and our windproofs were nearly dry until heavy rain set in, continuing intermittently for the rest of the day. Hurrying down the lower slopes, we regained the camp after an absence of 19 hours. What impressed me most on this climb was the monotony of unchanging light. Starting, climbing, returning as we did in daylight, the expedition seemed without beginning and without end. There appears to be some positive merit, apart altogether from expediency, in the familiar candle-lit Alpine start.

The snow conditions we experienced were of a type which is, so far as I know, unfamiliar in most European mountains. Some description may therefore be of interest. On the Beerenberg, as on many maritime mountains, much of the precipitation is in the form of hoar or rime.[8] The summit itself is festooned with

[8] See *Snow Structure and Ski Fields*, by G. Seligman, for a discussion of these 'aerian' deposits. I make no attempt to distinguish here between the two types of deposit.

Photo, R. Scott Russell.]

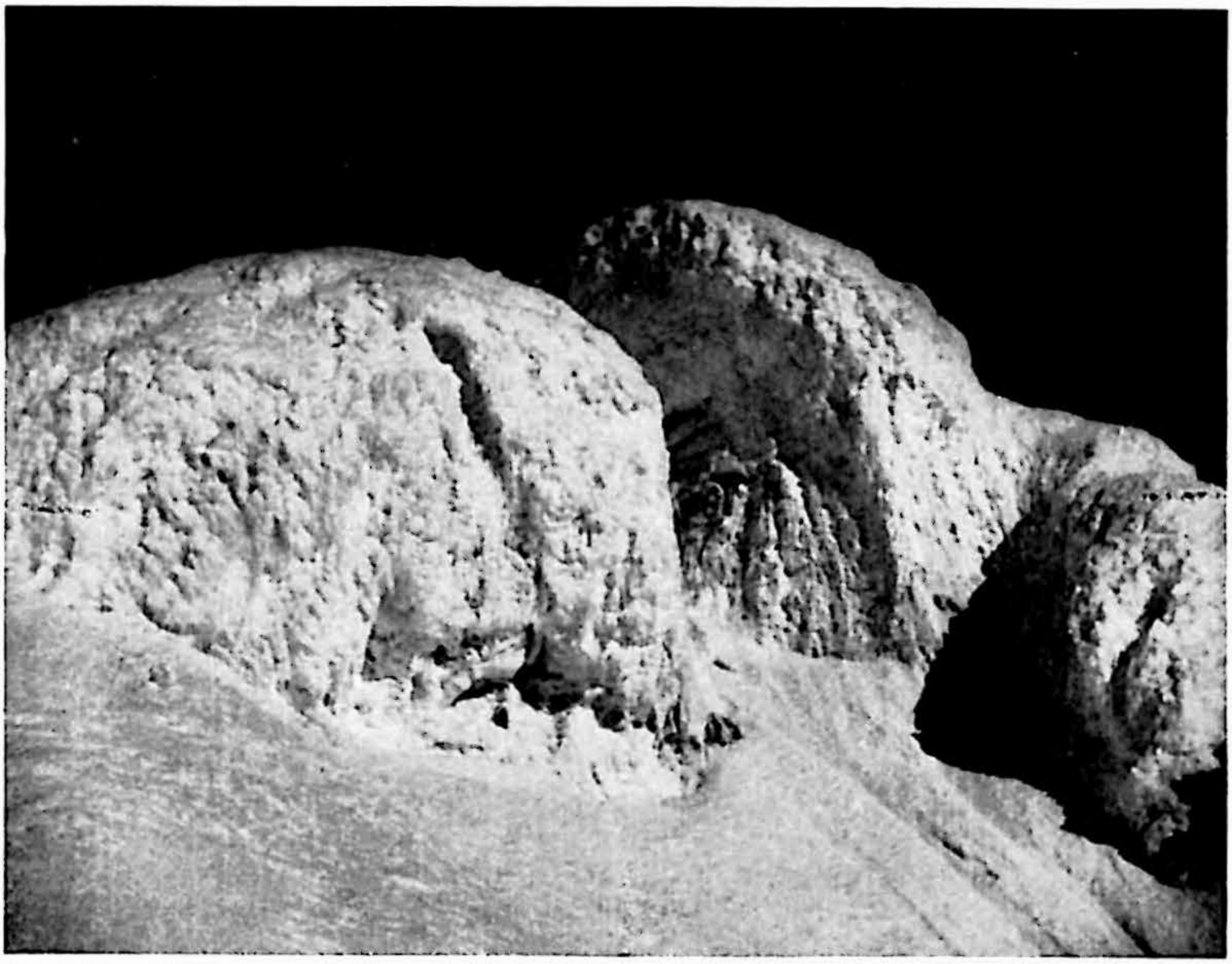
TERMINAL FACE OF FRIELE GLACIER.



Photo, R. Scott Russell.]

RIME FORMATION ON THE CRATER RIM, BEERENBERG.

[*To face p.* 22.



Photo, W. H. Ward.]

SUMMIT OF BEERENBERG, PK. HAAKON, SHOWING RIME DEPOSITS.

Photo, D. F. Ashby.]

S.W. FACE OF BEERENBERG FROM 2500 FT.

S. ridge on right, summit on left, Austrian nunatak in centre.

mushroom-like accumulations which are almost entirely of this type, and everywhere, at any rate on the S.W. face of the mountain, much rime is present above the altitude of 4500 ft. Large granules develop and the snow tends to be open and 'fibrous' in texture, with a more or less crusted surface. This layer varies from six inches to one or two feet in thickness. As the season advances it consolidates rapidly, but in mid-July this process has not proceeded far. On the steeper slopes surface avalanches often occurred, exposing the consolidated layers below. It was surprisingly difficult to judge the strength of snow bridges, for the friction of the large granules against the ice-axe shaft gave a false impression of firmness. The only safe rule was to expect all bridges to collapse, as they usually did. If last year may be taken as a guide, snow conditions are best in mid-August, provided of course that no heavy falls of snow occur in the summer months.

Before leaving England we had obtained a few photographs, taken from the sea, of the northern face of Beerenberg. Much steeper than the other sides of the mountain, it promised an interesting route to the unclimbed Peak Hakluyt. For several other reasons we were attracted to the northern end of the island; it was the least known part of Jan Mayen, and we knew that the map was quite unreliable. Also we were anxious to extend our botanical and ornithological surveys to include this area, while Jennings, the glaciologist, was eager to examine the glaciers. We therefore decided to make a journey round the Beerenberg, travelling outwards by the comparatively easy southern and eastern coasts. A party of five, we left the Fishburn camp early on July 26 with heavy packs and, proceeding eastwards, kept to the gentle slopes above the cliff line. Heavy fog lay on the coast, reducing visibility to a few yards, and after a couple of hours we were surprised suddenly to find ourselves on a fairly large glacier, unmarked on the map although it descends almost to the sea. A fortunate clearing in the mist enabled us to mark its approximate position. Three hours later we passed South-East Cape and the fog rolled back, revealing the great sweep of the east coast. Here the mountain falls steeply to the coast and the only feasible route for our laden party was along the narrow beach beneath the cliffs. A series of steep scree gullies led us to the shore near Cape Niell. Fortunately the tide was out and we met with little difficulty. We passed several fine glaciers which descend to the sea between high cliffs of friable rock riven into fantastic shapes. The terminal face of the Friele Glacier was particularly impressive. A cliff of clear ice over 100 ft. high, it is separated from the sea by a narrow beach uncovered only at low tide. In some places rock-

falls were frequent and we hurried apprehensively past. Almost all the cliffs on the Jan Mayen coast are crumbling, and at various times our parties had lucky escapes. Thirteen hours after leaving Fishburn we camped on the flatter country at the northern end of the island.

It was near here that Lord Dufferin landed on his famous voyage in 1856, and no paper on the island would be complete without some reference to his visit. It is one of the most picturesque incidents in the history of the island. His delightful account in *Letters from High Latitudes* is probably, in this country at any rate, the best known description of the island and the inspiration of many subsequent visitors. He gives a vivid impression of his arrival at the island, the summit of Beerenberg appearing unexpectedly through the mist, and as a memento of his visit he placed the old figurehead of his schooner on the cliffs. Unfortunately this relic had disappeared, presumably dislodged by a rockfall, before our visit.

The night we reached the northern end of the island the weather became bad, and next day showed no sign of improving. It would be necessary to wait for good weather before proceeding further, and as our supply of stores was limited, King decided to return at once to the base by our outward route with two companions. This generous arrangement left the maximum of stores for Jennings and me to complete the journey. Owing to a high tide, King's party met with considerable difficulties on the east coast, and reached the base after a long and adventurous march. Soon after they had left the weather improved unexpectedly, and from a short distance up the hillside we watched the clouds rolling back from the Beerenberg. It became warm and brilliantly sunny. For the first time since our arrival on the island the weather seemed really settled, and we decided to proceed at once to East Cross Bay in the hope of climbing Peak Hakluyt next day. The route lay over a lava field, country which from a distance promised easy travelling but was in reality a purgatory of loose cinder and hollows disguised by lichens. It was warm work and we enjoyed a bathe, our first for some weeks, in a small tarn. A young arctic fox, apparently astonished by our ablutions, came close to watch. These amusing creatures are the only mammals on the island. Fortunately they are now protected against indiscriminate trapping.

Next day, July 29, the weather was still favourable and we left camp at 8 A.M. The main problem in reaching our peak was to make a route up the cliffs, and we had travelled about two miles along the coast past the Swend Fohn Glacier and across the

Kjerulf when we found a snow slope leading to a steep and narrow snow couloir breaching the cliff. After three-quarters of an hour's steady step-kicking we reached the cliff top, where we had our first view of the N. face of the mountain. Five thousand feet above us the Weyprecht Glacier emerged from the crater to fall steeply to the sea. Almost everywhere its surface was much broken, and from its snout a flotilla of small icebergs drifted slowly with the tide. East of the glacier the summit of Peak Hakluyt rose, a smooth double cone of snow, above a steep rock face.

An easy ridge of rock and snow led us to the final slopes, where careful step-kicking was necessary in uncertain, double-crusted snow. The one difficult part of the climb was above the berg-schrund, where an insecure curtain of snow and hoar covered steep ice. Across the crater Peak Haakon stood out boldly above clouds which covered the coast and stretched to the horizon. It was sufficiently warm for me to enjoy an undisturbed pipe while Jennings worked hard taking compass bearings. Making a leisurely descent, we reached camp at 1.30 A.M. Although the climb was less difficult than we expected it was much more interesting than our earlier ascent, and parties visiting the island would do well to approach the mountain from this side. There is a reasonable anchorage off East Cross Bay, and the shell of a trapper's hut makes a convenient camp.

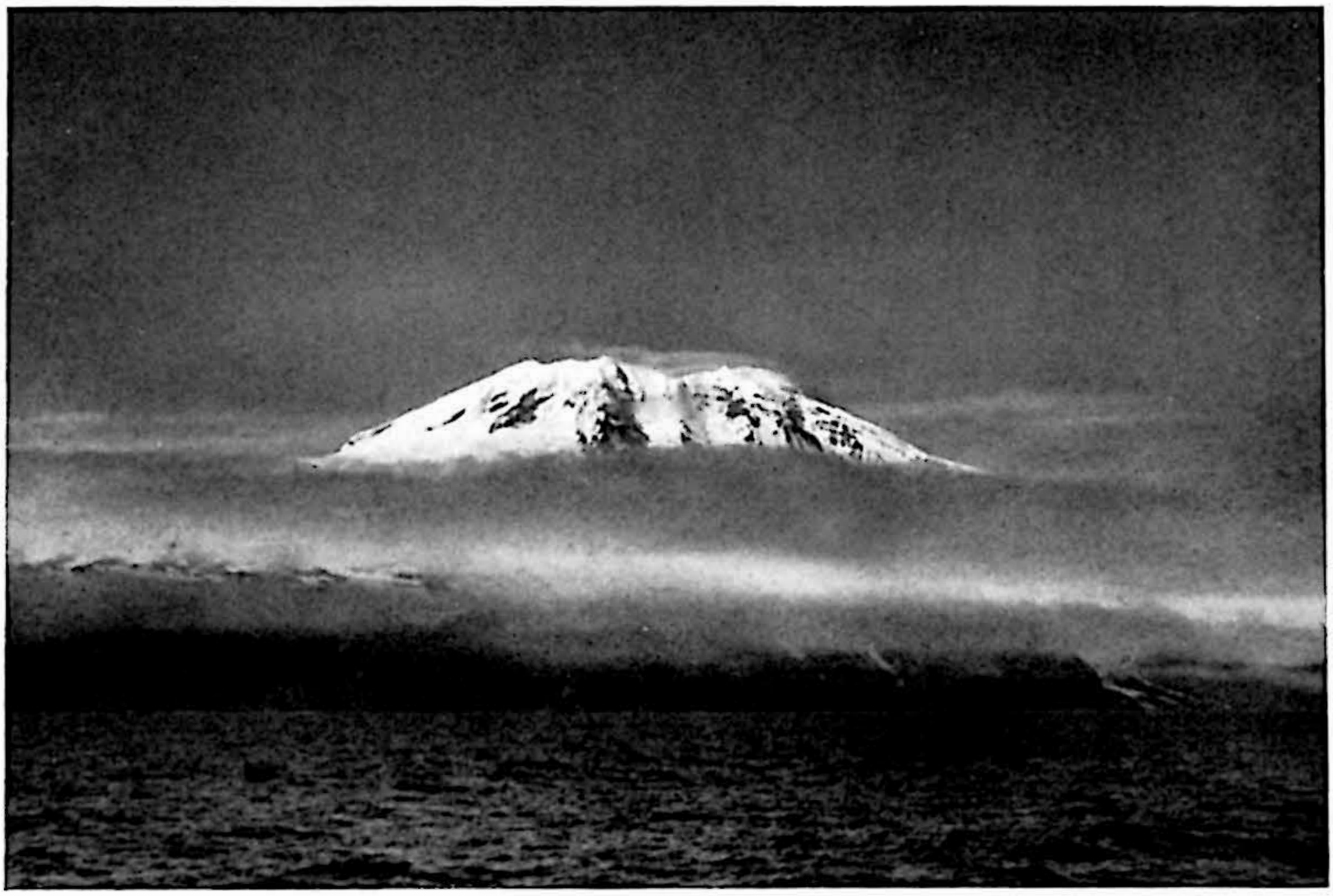
Good weather was essential for crossing the Weyprecht Glacier, which was the main obstacle in the remaining part of our journey round the mountain. Consequently when, 15 hours after the climb I have just described, bad weather seemed to be approaching we decided to start immediately. At 10.30 P.M. we had crossed the lateral moraine to reach the glacier ice some 300 ft. above the sea, where the surface was a little less broken than elsewhere. Much step-cutting was necessary, and for 2 hours we had the finest climbing of the expedition. The convex surface of the glacier made it possible to see but a short distance ahead and sustained the uncertainty whether we would succeed in making the crossing. Progress was at first slow, cutting up one sérac and across on to the next, and in the first hour we made about 300 yards. Under different conditions we would no doubt have made much better time, but here our 35-lb. packs were a great handicap. Moreover, to save weight we had brought only one pair of crampons. Towards midnight we found easier going rather more than half-way across the glacier, and our difficulties were suddenly at an end.

The weather, which had previously caused us anxiety, now

seemed more settled ; high grey cloud covered the sky, reducing colour to flat monochrome and exaggerating distance. The one hint of colour was low on the northern horizon where the sun broke dimly through the clouds. The mountain behind us looked cold and lifeless. You can perhaps imagine our astonishment when suddenly a large liner came into view, passing slowly eastwards close to the shore. It seemed absurdly small and unreal in these surroundings. Not expecting to be noticed, we waved and shouted, and to our surprise three puffs of steam rose beside the ship's funnel and the sound of her whistle echoed incongruously from the cliffs. For the sake of my story it is a pity that we were too far off to hear the strains of her dance band, which was no doubt playing the *Lambeth Walk*. The ship, which we heard later was the cruising liner *Atlantis*, had soon passed, heading out to sea.

A short distance beyond the glacier high cliffs made us follow a narrow beach of large ankle-wrenching boulders. Stones fell occasionally, and the sea-birds circling above seemed to mock us. The fulmar petrels had a particularly disconcerting habit of diving swiftly behind our heads, making a sound scarcely distinguishable from that of a falling stone. Eventually an undercut wall falling into deep water barred our advance. Retreating some distance, we scrambled up the side of a small glacier to the higher slopes. At 6.30 A.M. we pitched our tent and in mid-afternoon resumed the march to reach the base camp at midnight.

Our final climb on Beerenberg was made direct from our base camp in Jameson Bay. We were a party of four, my three companions not having previously been on the mountain. Late on August 16 we started up the broad lava slopes of Ekerold valley, which offer a particularly easy approach to the mountain. Heavy cloud lay on the lower slopes, but at 1 A.M. we suddenly climbed out of the mist and the mountain stood out in bold silhouette against a pale unclouded sky. It was now so late in the season that the sun was below the horizon for a short time at midnight ; sunset and sunrise were continuous, no period of darkness intervening. Soon the great ocean of fog below us, stretching unbroken to the horizon, was lit with colours more delicate and more lasting than are seen in temperate regions. It was a perfect morning, clear, cold and windless ; the snow was crisp and sound. Our route lay well to the W. of the bad crevasses of the South Glacier, and ascending little broken slopes we reached some rocks at the foot of the first cone which Wordie has named ' Austrian Nunatak.' They lie about half a mile



Photo, J. N. Jennings.]

BEERENBERG FROM S.E.

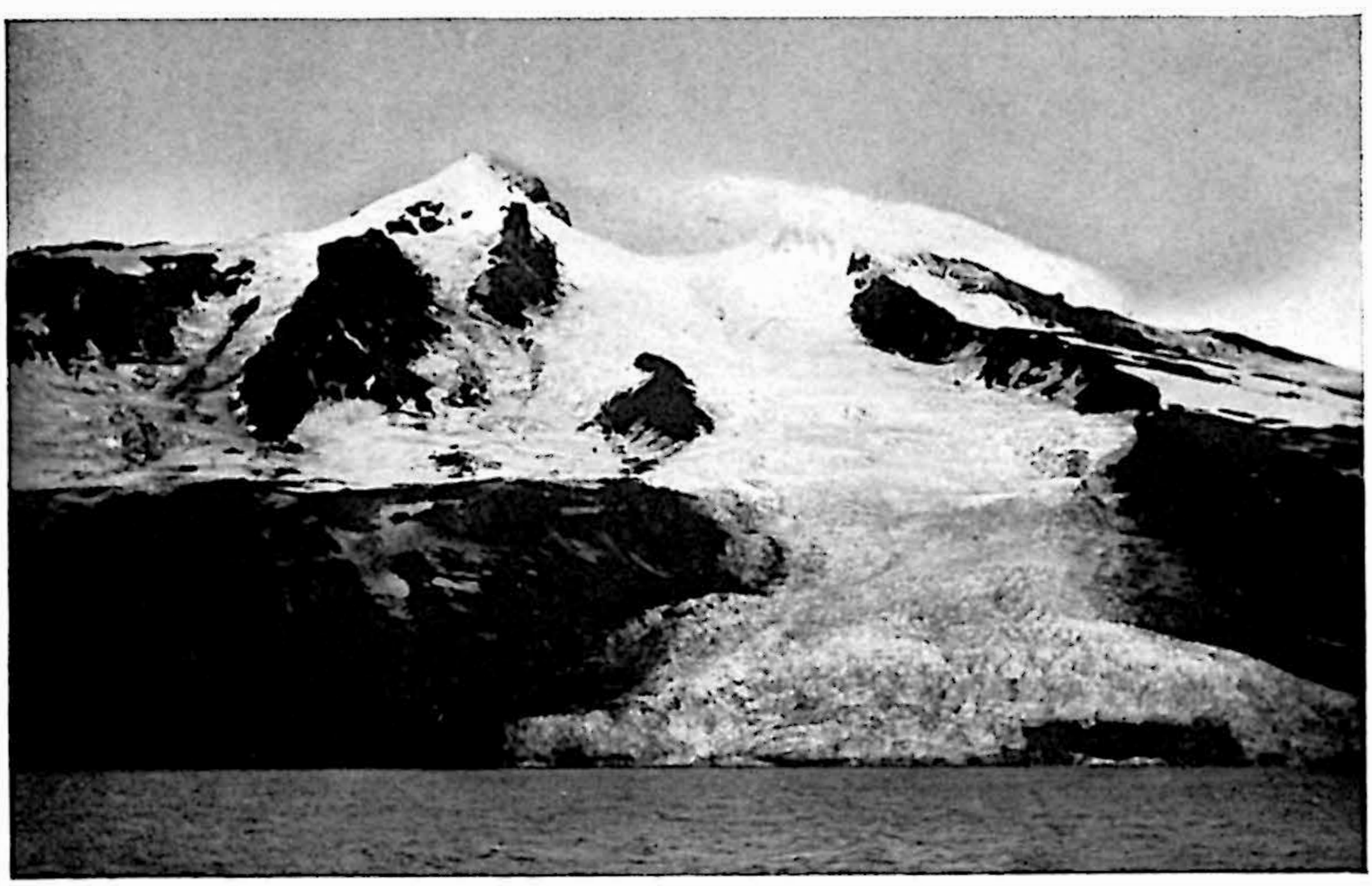
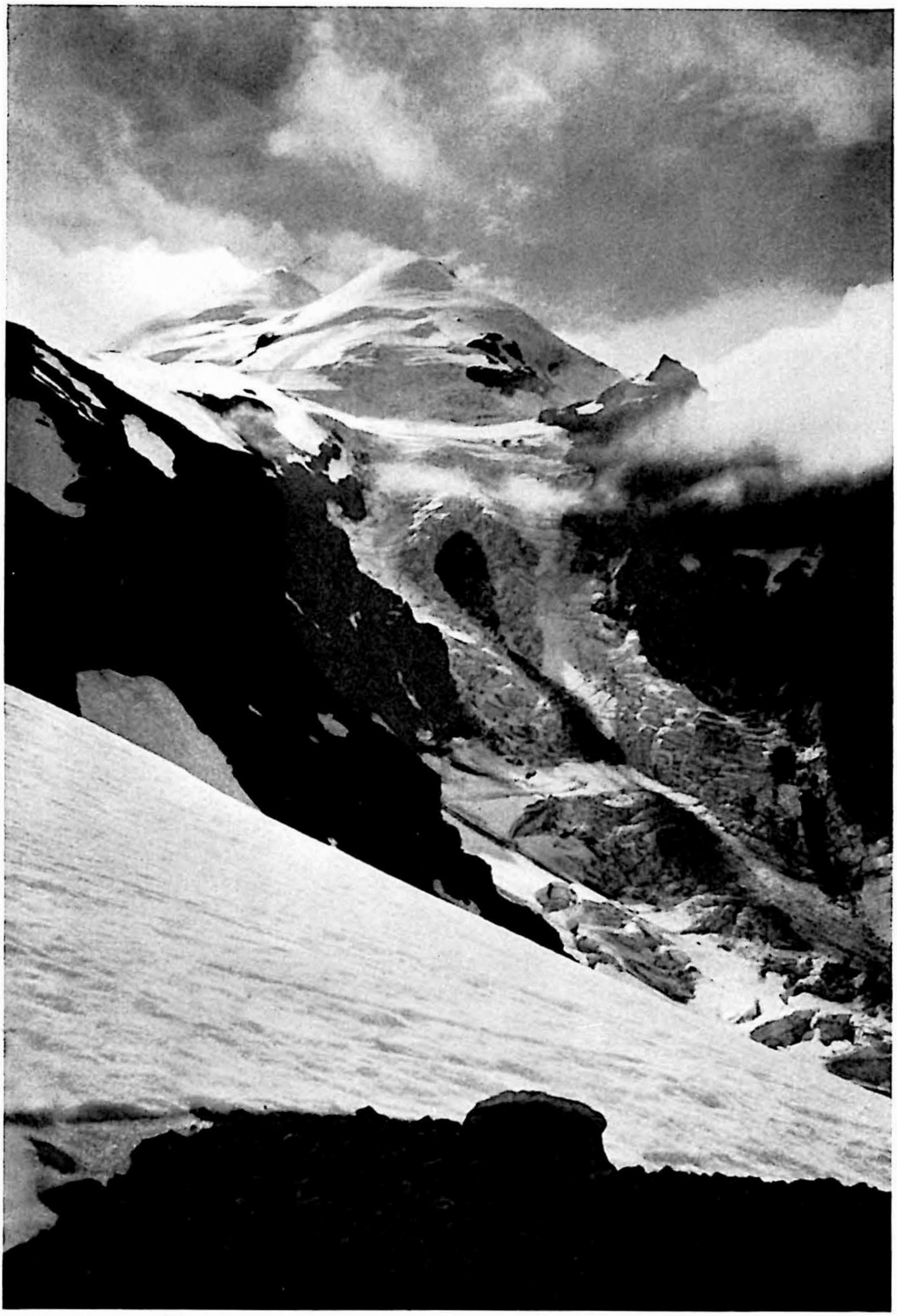


Photo by courtesy of Royal Mail Lines Ltd.]

N. FACE OF BEERENBERG. WEYPRECHT GLACIER AND PK. HAKLUYT ON LEFT, AND PK. HAAKON IN CLOUD ON RIGHT.

[*To face p.* 26.



Photo, R. Scott Russell.]

PEAK HAKLUYT (N.E. PEAK) FROM THE N.

N.W. and a few hundred feet higher than the rock where we halted on our first climb. Above the rocks we swung to the left through a fairly broken area and, picking up the line of our earlier climb, continued up the S. ridge. The bergschrund had opened considerably during the last six weeks, but perfect snow conditions made the climb very easy. The great moment of any ascent of the Beerenberg is when one reaches the summit ridge, for the rather dull climb gives no hint of the extraordinary view of the great crater basin which is suddenly revealed. The crater rim, which we followed for about three-quarters of a mile to the summit, presented little difficulty. Large deposits of rime assuming many unexpected shapes festoon the ridge, and the summit itself is a double dome of foam-like hoar draped in places with large icicles. We retrieved the cosmic ray apparatus safely, but I do not yet know whether we caught any of these mysterious and illusive rays.

I shall conclude this description of the Beerenberg by showing you a panorama from Peak Haakon, which is the finest view-point on the crater rim. On the E. side of the peak cliffs fall steeply to the Weyprecht icefall, which is walled on its further side by the long ridge of rock culminating in Peak Hakluyt. The upper limit of the Weyprecht is marked by three huge crevasses, at least 100 ft. wide, stretching right across the basin. Beyond this the floor of the crater is a level stretch of unbroken snow. Here and there the great horseshoe of the crater rim is corniced, and everywhere steep slopes ringed by an open bergschrund fall to the crater floor. It was a matter of regret that we did not have time to complete the circuit of the crater rim. A particularly fine though not difficult expedition would be to traverse the mountain from East Cross Bay to Jameson Bay, combining the two routes I have described. It is undoubtedly possible to find much more difficult routes on the mountain, but the attraction of Beerenberg lies in the remarkable views and shapes I have attempted to describe rather than in the difficulty of the climbing.

We were most fortunate to have such perfect weather for our last ascent. The day following a northerly gale broke and at times reached hurricane force. Tents were demolished, their poles snapped and canvas torn. When the storm had passed deep drifts of new snow lay on the mountain. No sooner was this gale over than another sprang up, this time from the south. We were due to leave in a couple of days, and such high seas were running that it would be impossible to embark from the southern coast. Our last days on the island were therefore spent relaying our baggage—in all about two tons in weight—

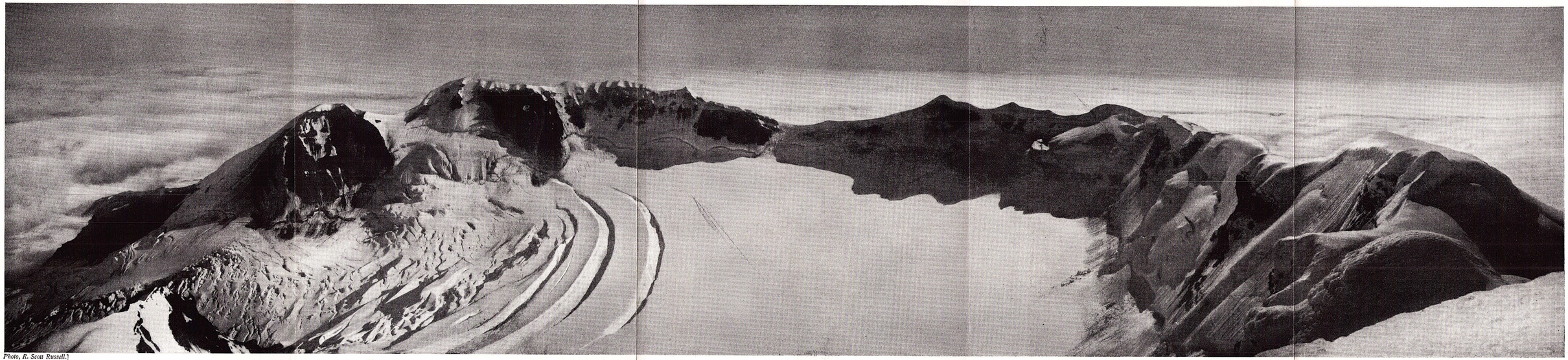
across the island. It was a pleasant contrast a few days later to be back in the more placid Norwegian waters.

The curtain was rung down on our endeavours by a friendly old lady who sat near us at dinner on the *Vega* crossing the North Sea. Leaning across the table she inquired kindly, ' And have you dear boys been hiking ? '

Note on the Flora of Jan Mayen

Although the flora of Jan Mayen is of considerable interest from several points of view, it contains comparatively few plants of interest to the Alpine gardener. The flora is small. Only fifty-five species of flowering plants occur and some of them are confined to limited areas. Shrubs are absent, the vegetation being entirely herbaceous. Over the greater part of the island the vegetation is stunted and predominantly moss, but in certain restricted areas there is more abundant vegetation. From the viewpoint of the gardener the most interesting plants are : *Ranunculus glacialis*, *Saxifraga oppositifolia*, *S. caespitosa*, *S. rivularis*, *S. cernua*, *S. nivalis*, *S. tenuis*, *S. foliolosa*, *Alchemilla glomerulans* and *Potentilla alpestris*. Several of these plants are now being grown in the open in England, and it will be interesting to see if such plants as *Ranunculus glacialis* acclimatize more readily from sea level on Jan Mayen than from high altitudes in the Alps.

A detailed study of the vegetation is being published elsewhere.



Photo, R. Scott Russell.]

CRATER BASIN, BEERENBERG, FROM PK. HAAKON. WEYPRECHT GLACIER ON LEFT.

[*To face p.* 28.