Contributions for the next Number should be sent to Alex. Inkson M'Connochie, 74 Union Street, Aberdeen, as soon as possible, and not later than 15th November.

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EDITED BY
ALEX. INKSON M'CONNOCHIE

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THE TORRIDON HILLS.

BY WILLIAM BROWN, M.A., LL.B.

THE rugged mountain chain that stretches along the western seaboard of Ross-shire, rising landwards through a wild series of peaks and corries to the dominant summits of Mam Sodhail and Carn Eige, but exhibiting its grandest and most characteristic features within sound and sight of the Atlantic, contains nothing of greater interest to the mountaineer than the vast upheaval on the shores of Upper Loch Torridon, which the storms and rains of the west coast have carved into the rude architecture of the Torridon Hills.

Very striking is the contrast between those western giants and the round undulating mountains of the Central Highlands, whose topmost ridges are so frequently mere incidents on a high moorland region, in which the nearer and lower blots out the higher and more remote. How different are Liathaich and Beinn Eighe, Beinn Alligin and Beinn Dearg, whose clean-cut summits spring full-born from the sea, or tower majestically over the blue waters of Loch Maree. How different, also, from the dark hillsides of the Grampians and their black peat mosses and the browns and greens of the heather, are those quartzite slopes that glisten white as snow, in contrast with the black moorland out of which they rise.

To the geologist, also, as well as to the climber, these peaks are of interest. Here may be seen, in text-book perfection, the strata piled one above the other—the sandstone resting upon the Hebridean gneiss, and the quartzite upon

the sandstone—which gave rise to the historical controversy between Murchison and Nicol. In the same group, too, and lying side by side, are formations diametrically different, affording ample materials for a scientific discussion, as an interlude in the climbing. Beinn Eighe is a quartzite mountain; Liathaich is of sandstone; yet a strong man might throw the proverbial biscuit from the quartzite of the one to the sandstone of the other. These rapid changes in the character of the rock, so perplexing to the climber, who has suddenly to exchange the gritty sandstone, with its grand foot- and hand- holds, for the smooth treacherous quartzite, is nowhere better illustrated than on the summit ridge of Liathaich, where two out of the three summits are of quartzite and the third of sandstone. On Liathaich, too, the properties of the "Torridon Red" are most characteristically displayed. Looking up at the terraced cliffs which tower over dark Glen Torridon, one can trace the horizontal layers for miles along the glen, and on a spring or autumn day, after a fresh fall of snow, the appearance of the mountain is just as if a huge rake had been dragged carelessly across its face. Glacier action, too, has left its unmistakable impress all over this interesting region. Ice-worn rocks are abundant; huge boulders are perched everywhere, in the most incredible positions, on the hillsides, telling of an age when the ice and the mountains struggled for mastery; and in "the valley of the hundred hills", at the mouth of Allt a' Choire Dhuibh Mhoir, moraines are to be met with which are among the most remarkable in the country.

One difficulty which the mountaineer in this district will always have to reckon with, is the want of a really good centre, for Kinlochewe, which is usually recommended, is a centre only in name. It is situated at the most easterly extremity of the range, at a distance so remote from Beinn Alligin and Beinn Dearg, that if the ascent of those mountains is contemplated, it will be necessary for all but the strongest, to drive to and from Torridon, a distance of 24 miles. The alternative is to put up for a few nights at Torridon itself, but, so far as I know, there is only one

house where lodgings can be obtained, and, besides being somewhat rough, it will depend upon the mood of your prospective hostess, whether you are taken in or not. All things considered, Kinlochewe, with its snug little inn, and post and telegraph office hard by, is the safest, as well as the most comfortable, place to stay at, especially if an attack is to be made upon Slioch, and his neighbours, on the north side of Loch Maree.

Supposing, then, that the intending climber has arrived at Kinlochewe, what can he do in the course of a few days there? The answer to this, as well as to the further question, what should he attempt? must depend, to a large extent, upon his climbing ability, for the ascent of those wild quartzite mountains is not a thing to be lightly undertaken.

Naturally his first ambition will be the grand quartzite peak behind the hotel, which forms the near and visible end of bulky Beinn Eighe (the file mountain). To reach the highest top—Ruadh-Stac Mor (the big red stack, 3309)—one may either begin with the deerstalkers' path, which leaves the Gairloch road three-quarters of a mile west from the hotel, following it into the Toll a' Ghuibhais (hollow of the fir trees), whence the mountain may be climbed by its N.E. shoulder; or a longer but easier way may be found by driving to Bridge of Grudie, and tracking that stream to its source. Energetic climbers will, however, prefer to traverse the mountain from end to end, as Mr. Rose and I attempted to do early last April, when the winter's snow was still deep in the corries.

Leaving the inn at 9·30, we struck a bee line across the moor to the foot of the great white cone, which somehow or other has managed to cloak its identity under the inappropriate title, Creag Dubh (the black crag). The ascent of this buttress can be easily made by its northern or eastern ridges, or, if a steeper climb is desired, it can be scaled *en face*. We chose the latter route, in the belief that it would prove the most interesting, but the snow, with which it was covered, had for hours been subjected to a broiling sun, and was naturally very soft. Never, except

at the very top, where the gradient steepened to over 40°, was step-making a necessity, and then a few vigorous kicks did all that was needful. From the summit, which is just over 3000 feet, the ridge of the Fhir Duibh (black men) starts off in a south-westerly direction. For some distance it is broad and easy, and such as the veriest tyro in mountaineering can safely traverse. Quite suddenly, however, it narrows to a few feet, and then the conviction gains ground that the ascent of the Black Men is not the simple affair that it appears to be from below. For from this point onwards, the crest of the ridge is terribly shattered, and the climber is called upon to use his hands, feet, and wits, in negotiating a series of sharp teeth, which project like chimney cans from a house top. They cannot be avoided, if that be desired, as the slopes pitch precipitously downwards on either side, leaving no room for discretionary tactics. A rope, if the party is carrying one, will be found a reassuring companion at this stage.

The top of Sgurr an Fhir Duibhe (the peak of the black men) safely reached, we sat down to enjoy the wide mountain prospect that lay spread out in the perfect calm of this April day. All around, as far as the eye could penetrate the haze, a tumultuous assemblage of snow-capped peaks was all that was left to us, in this mountain solitude, of the busy world we had turned our backs upon a few short hours before. Slioch, the Fannichs, Sgurr a' Mhuilinn, the torn summits of Achnashallach, double-peaked Beinn Damh—they were all there and hundreds more, stretching into the shadowy south. But nearer and more interesting by far were the sister summits of Beinn Eighe and the other peaks of the Torridon range. It is only here, standing between comparative fertility on the one hand, and absolute sterility on the other, that one can realise the extreme barrenness of those storm-beaten heights. Words cannot describe how shattered and rent and verdureless is the northern face of Sgurr Ban, and the great eastern wall of Spidean Coire an Leacan, which resemble, in their ruin, the ramparts of some mediæval castle after a cannonading by modern artillery. Equally impressive, too, are the great bluff of Ruadh-Stac,

the rocky cone of Sail Mhor (the big heel, 3217), and, in the distance, the triple peaks of Liathaich, gathered from this standpoint into a single mass. Further west, Beinn Alligin and Beinn Dearg, and the lesser summits of Baosbheinn and Beinn an Eoin close the picture and our survey of the scene.

The ridge now turns to the west, and for almost two miles, till Spidean Coire an Leacan is reached, the "going" is rough to the verge of impracticability. First comes a drop of nearly 400 feet, where a single false step will start a jingling avalanche of stones and gravel. Then rock and scree lead steeply again to the top of Sgurr Ban (the white peak, 3188), the third in rank of the three principal summits of Beinn Eighe. There are the same features here and elsewhere along the broken ridge that winds thread-like round the great Coire an Leacan as are to be found in every nook and corner of this remarkable mountain. Truth to tell, there is not much to describe, except endless scree slopes, stretching sombre and gray among the black rocks and the virgin snow that gleams coldly in the corries far into summer. Timid pedestrians may think of their families while crossing some of the nastiest places on the ridge, but, for the most part, it is perfectly safe, and such even as ladies (with apologies for the adverb) would be justified in attempting.

It was now 4 o'clock. We had reached Spidean Coire an Leacan, and the ridge was but half traversed. Away westwards we could see it wending a tortuous course towards Coinneach Mor and the Ruadh-Stac, with little prospect of being able to follow its lead; for already the the curse of a late start was upon us. So we resolved to leave the western tops for a future occasion and descend at once to the Torridon road over Stuc Coire an Laoigh, a subsidiary peak bounding Spidean on the east. Between the peaks is a large corrie carrying immense quantities of snow, over which we glissaded merrily, starting a great eagle, which flew slowly and majestically across our path, not fifty yards distant. Racing down the lower slopes, we reached the road at 6 o'clock, and Kinlochewe an hour and a half later.

One impression at least our day on Beinn Eighe had done much to strengthen; and that was the unquestionable superiority of Liathaich (the gray one) over all its fellows. It is *the* mountain of this wild mountain group, grand, wonderful, and unique, from whatever quarter you approach it. Nothing could be more sternly impressive than its aspect from Torridon, where its shattered cliffs seem to hang over the houses, threatening them with instant destruction, or more majestic than the great bluff that overlooks Loch Clair, rising, as one writer says, "uncompromisingly bold and steep from the moraine-strewn corrie, like the stem of some mighty vessel plunging in a tempestuous sea".

Starting next morning at 9·20, we drove six miles up the Torridon road to the entrance of Choir Dhuibh Mhoir (the big black corrie), over which the great eastern peak of Liathaich keeps watch and ward. This summit—Spidean a' Choire Dhuibh Bhig—is probably just over 3000 feet, although no height is mentioned on the Ordnance maps. Viewed from below the way up it is not very obvious; and anyone who has peered over its steep, craggy summit will be inclined to pronounce the same opinion as to the way down. Yet both are comparatively easy, though excessively arduous. The first stage of the ascent consists of grassy slopes of enormous steepness, broken here and there by the terraced crags which are so characteristic of the mountain. Then comes a zone of rocks, drawing a complete cordon round the hill, and above all a steep scree slope, passing from sandstone into quartzite as the top is neared. The rocks alone present any real difficulty; and bad generalship and a certain awkwardness in climbing might convert them into a very serious obstacle.

Beyond the summit, the crest of the ridge has worn very thin, a fact which is always coincident with a return to the sandstone. Broken and crumbly rocks abound, and great care has to be exercised. Further on the quartzite again asserts itself, and the ridge becomes sensibly broader and easier, and the rocks less numerous.

At last, at 1·30, after many ups and downs, and rough scrambles over the sandstone rocks, we land on the

summit of the final peak—Spidean a' Choire Leith (peak of the gray corrie, 3456)—a beautiful pyramid of glistening snow that draws sharply and evenly upwards from every side. Hardly are we arrived there when a hail storm, which has been gathering in the west, bears down upon us, and mars the prospect of a perfect view. Before, however, the obscurity is complete, a panorama of southern mountains, with Sgurr Ruadh as centre piece, stands out, as in a frame, with a clearness which gathers intensity from contrast with the surrounding gloom. A moment later and Baosbheinn shows dimly through the advancing clouds, a curl of mist twisting and twining along its summit ridge. Further north the rain-bars fall in a dense phalanx, showing in places a gleam of sunlit mountains beyond. Suddenly the sun, whose presence we could only guess at from its reflections on the distant hills, bursts the thick mantle of cloud overhead, and throws a golden radiance over the dull gray slopes of Beinn Liath Mhor, beyond, and to the right of which, we can catch a glimpse of the rocky point of Fuar Tholl, projected like a blot of ink upon the expanse of sunlit haze. Eastwards the vast bulk of Beinn Eighe blots out the distant scene, which is presently further obscured by the advance of a dense smoke-like cloud, which, straying from the main army, seems to be moving southward on some mission of its own. Then the clouds part again, and over the eastern bluff of the mountain is to be seen a bright vision of green and gold, the oasis on the desert of rock and heath, that tells of the presence of Strathbran. Far away in the west the jagged edge of the Coolins can be seen at intervals, fretting the sky, and the islands of Rona and Raasay floating in a sea of haze. Opposite, between Moruisg and Sgurr a' Chaoruinn, the blue blackness of the retreating rain-cloud has a very awesome appearance, and, as it shows no signs of brightening, we gladly turn our gaze towards the blue waters of Loch Maree, where they break from their mountain fastness below Talladale.

While this marvellous panorama is passing slowly before us an hour or more has slipped rapidly away. We are now reminded of the flight of time and the necessity of continuing

our journey without further delay by the advance of a second storm more threatening even than the first. So we clatter down the scree slopes on the further or western side of the summit, and presently reach the famous Spidean nam Fasarinen, the weathered pinnacles on the crest of the ridge that present so fantastic an appearance from below. To climb over these one by one is an exercise in gymnastics which may be recommended to everyone who cares for good rock climbing; but probably most members of the Club will find sufficient sensation in the easier route that winds brokenly round their base. Half an hour's hard scrambling carried us over most of the difficulties, and then, a tempting gully presenting itself, someone counselled a descent, without including the remaining, or Torridon summit, Mullach an Rathain (the ridge of the horns, 3356). The suggestion was adopted, and, with infinite difficulty, for the slopes are tremendously steep and broken, we descended into Glen Torridon, four miles west of Allt a' Choire Dhuibh Mhoir, and ten, by the road, from our quarters at Kinlochewe.

Of the remaining mountains in the group it is impossible to treat at length within the compass of this paper. Beinn Alligin (the jewel mountain, 3232) may be easily ascended from Torridon, where its black, massive crags, plunging straight into the depths of Coire Mhic Nobuil, have a grim and forbidding appearance, not easily forgotten by one who has seen them in a day of storm, with the mist seething and eddying in the Toll a' Mhadaidh (the wolf's hole); or if Gairloch be the starting point, the ascent may be made by Lochs Bhealaich and Toll na Beiste by an excellent bridle path which runs from Shieldaig to within three miles of its base. Beinn Dearg (the red hill, 2995) is accessible from the same points and by much the same routes; while of Baosbheinn (the hill of faces, 2869) and Beinn an Eoin (the hill of birds, 2801) it is enough to say that they can be ascended almost anywhere on the Gairloch side if spring or early summer be the season selected. Later in the year the adventurous climber will find his movements as closely watched by the keepers as those of the deer, whose shrine these mountains then are.

A HILL WALK IN NORWAY.

By John Geddie.

Norway is only eighteen hours' sail from the headquarters of the Cairngorm Club. Its nearest fjords open gates of access to some of the finest mountaineering grounds in Scandinavia; and one can get to the foot of the Folgefond almost as soon as to the crown of Ben Muich Dhui, and with far less trouble. A few notes on a walk which a friend and I took across a section of the fjelds of Southern Norway, which can be reached with peculiar ease from Aberdeen, may be of service in encouraging others to follow in our steps, and thus enjoy, in addition to the other manifold pleasures of Norwegian travel, an experience of hill climbing which will give zest to excursions nearer home. I had convinced myself in the previous summer that Baedeker is egregiously wrong in his dictum that Norway is not a country for pedestrians; and discovered that the round trip with the North of Scotland and Orkney and Shetland Company's steamers through the fjords can be pleasantly varied by walks, and even by some hill work, in the choicest parts of the west coast. An eager desire then aroused to put this opinion to more severe proof had a good deal to do with the fact that, on 27th July, 1892, my companion (Mr. W. Drummond Young, artist) and I found ourselves at Borte, in Telemarken, in the very centre of Southern Norway, preparing to leave the beaten paths, and to take *paa Heia*—to the hills.

Thus far we had come by road and water, the most rememberable incidents of our journey from Christiania being a pleasant interview with Dr. Nansen at Lysaker; a survey of the Polar ship "Fram", lying on the stocks at Rekevik, near Laurvig; the voyage up an enchanted lake—the Farris Vand, and the exploration of the beautiful valley beyond—the Slemdal, which reminded us of the finest part of Upper Deeside. We had tried to carry out Mr. Matthews Williams' directions, in "Through Norway with a Knapsack",

having a shirt to wear and a shirt to wash, with results that were comical rather than encouraging; and we had met with many helpful people and agreeable adventures. Our last stage had been from Dalen, at the head of the Bandaks-canal navigation; and we reached Borte Hotel, fifteen miles, early in the afternoon, our intention being to strike off here from the road which, a little further on, joins the main route across Southern Norway by the Haukelid's Fjeld, and to follow the Bortedal ten miles to the highest of its *saeters*, or summer shielings, at Hestehomene. From this, and from our idea of proceeding by way of Brevig to the Suldals Vand (a vicinity familiar to visitors to Western Norway), without the aid of a guide, we were dissuaded by the excellent landlord at Borte, Mr. Nilsen. Nor had we reason to repent of changing our minds when we had opportunity afterwards of examining the nature of *saeter* accommodation, and had experience of the way and of the companionship of our trusty *Tolk*, Od Odsen, of Nordbö. Mr. Nilsen, who speaks English well, and whose hostelry is as pretty and comfortable a halting-place as the traveller need wish, pointed out to us that, by making an early start, we could easily cover the distance of nearly thirty miles to Brevig in one stage; and so we tarried overnight, nothing loath, to enjoy the beautiful sunset effects as evening fell on the crystal Borte lake and its steep enclosing hills—to say nothing of the famous *fiske-boller-i-humeroos* (fish balls with lobster sauce) of this inn, which Mr. Goodman, in his "Best Tour", has praised none too highly.

The start was not made quite so early as we intended, and it was seven o'clock before we were fairly afoot in the narrow valley of the Borte river. We had lightened ourselves of all articles of clothing that could be spared, and sent them round to meet us on the high road in a parcel which, owing to an accident to the label, afterwards hunted us through Western Norway, and finally caught us up as we were stepping on board our steamer at Bergen. Overcoats and other wraps had already been sent round before us by sea, in spite of the remonstrances of our Christiania friends, who assured us that we would perish of cold on

the fjelds. The only complaint we had to make of the weather, even at the highest altitudes, was that it was too warm. In addition to one light knapsack, we carried a small Kodak.

A hill track in Norway (as in the Scottish Highlands) is much easier to see on the map than in nature. This through the Bortedal was rough enough, and the one thing more difficult than keeping it seemed to be finding it after it was lost. All this, however, we could leave to the *Tolk*. Not the least of the advantages of having a guide is that it enables you to enjoy the surroundings without being troubled with intruding cares about losing the way. In the valley, of course, it was not possible to go far wrong, and, higher up, in the waste reaches of tableland, there are the *vaerks*, or cairns of stones, placed to direct the traveller. My opinion was that, barring mist and snowstorm, we should have managed to hit off our line, and reach our destination. My companion, on the other hand, was convinced that we should infallibly have gone astray. His is the safer notion to act upon in a country where there is no human dwelling for twenty miles.

The Bortedal is enclosed on the south—our left hand—by the range of the Kvan Fjeld, and on the opposite side by the fine rugged cliffs and slopes of the Bruggene and the Borte Heiene, all rising over the 4000 feet line, and plentifully patched and streaked with snow. In the depression between the two latter masses we fancied that we caught a glimpse of the white summit of the Store Midt Fjeld, which reaches a height of 4600 feet. Two hours' walking brought us to the first snow in the valley. It formed a *snæ-bro* (a bridge) over the stream in a narrow defile, just below where the Borte dashed in a waterfall over the rocks; and here, to the horror of the guide, we enjoyed a delicious bath and *douche*, afterwards cooling ourselves in the indigo-blue depths of the ice grotto. A little further on is the *saeter* station of Home.

Families and flocks at this season have moved up to these higher pastures, and an idyllic group of *saeter* women and children, cattle, and sheep, gathered about us, full of

wonder and benevolent curiosity. We halted at the last of these temporary habitations in the valley, Hestehomene, for our mid-day meal; and the kindly hands of the guid-wife and her daughter were soon engaged in preparing fragrant coffee, while huge wooden cogs of *flöte*, a kind of clotted cream, were set on the ground before us. Round this we sat on stools, and scooped up the contents of the bickers with fragments of *flatbrod*, or with daintily carved wooden skimmers. The fare was primitive, but satisfying, and the welcome hearty; and it was with renewed strength that we held on to the summit of the watershed, coasting desolate lochans with margins strewn with boulders, or fringed with melting ice and snow, and picking our way along the shoulders and across the spurs of the hills with the help of the friendly *vaerks*. A good deal of snow was lodged on the divide, near the 3500 feet line, between the Bortedal and the basin of the Otteraa. On the top a magnificent prospect burst upon us. Along the western and round to the northern horizon, rose ranges of snow-covered summits, marking in the former direction the distant margin of the tableland, towards the Rykfylde fjords. To the north there was a haze in the atmosphere, as from fires; but the most outstanding peaks, Vasdals-eggen, 5765 feet, overlooking Haukelid's Saeter, and the nearer Selsnut and Laage Fjeld were plain to see. The ground fell away gently—a monotonous tableland covered near at hand by grey reindeer moss; but dark shadows indicated the course of the Otteraa river, here close to its sources, and in the middle distance was the isolated form of Galten, a capital mark by which to steer on our way to the river. A path branches off to the south-east under the snowy Braud Fjeld, towards the Botnedal and Mo, which we had passed on our previous day's walk. The bare fjeld in front of us is pastured by herds of reindeer, but neither on this, nor on the following day, were we able to get a glimpse of the *rener*, or of their Lapp herdsmen, although footprints on the snow and moss showed that they had been over this ground at an earlier hour.

No sign of the presence of man or even a tree was to

be descried in this desolate landscape until we had descended some distance the little stream draining to the Otteraa and approached the main river, which is here some 3000 feet above sea level and over 200 miles from its mouth at Christiansand. Where we struck it, it was running in a broad and rapid but shallow current of ice-cold water, and in this state of the stream might easily be forded to the *saeter* hut of Hofden, thus saving a fatiguing bit of road. The stones in its bed, however, as we abundantly tested by bathing in it, are remarkably slippery. We continued down the stream, skirting a dead pine forest, whose naked limbs reminded us of skeleton trees we had seen in Glen Derry and Glen More, and crossing by a wooden bridge over a raging fall, pursued our way laboriously along an old moraine strewn with boulders and covered with coppice, right glad at length to come suddenly, through a gap in the hill, upon Brevig, a picturesque group of old wooden buildings scrambling up the hillside overlooking its lake.

Brevig is a mountain hostel as well as a *gaard*. Glancing over the pages of the Visitors' Book it could be seen that a thin stream of tourist traffic flows past it. There are rough mountain paths to the Haukelid high road, to the head of the Lyse Fjord, and down the Saetersdal, as well as to Borte and to Roalquam, on the Suldal Lake. Rarely do our countrymen come this way; but it happened that, luckily for us, an Englishman had lighted on Brevig the previous night on a fishing excursion; and we shared the fine dish of trout he had caught in the lake. Otherwise the fare was rough and plain enough. The *gaard* is an old one handed down from father to son through many generations. The buildings—*staburs*, woodsheds, byres, stables, and farmhouses, old and new—seemed to have been arrested while dancing a wild jig down to the water's edge, and their quaint gables projected in all directions. The woodwork of the more ancient of the dwelling-houses, which had the date 1691 (I think) carved above the doorway, was as black as bog oak with the weather. Within were strange specimens of old-fashioned Norwegian furniture, ranges of wonderful bedsteads, painted, in strong blues and reds, with pious

inscriptions and family records; venerable chairs, stools, and kitchen, farm, and sporting utensils. Stowed away in a loft, we came upon curious old chests, painted with characteristic Telemark designs. Evidently the old order had begun to give place to the new; the fragments of one of the antique bedsteads were propped against one of the walls, ready to be made into firewood. But change can only come by slow degrees to Brevig. The nearest road for wheels is twenty miles off, down the Otteraa; the children have to go thirteen or fourteen miles each way to school, and, of course, can only attend during the winter months, when they can use their *skis* or snowshoes. All around the place looked green and flourishing, in spite of the great elevation. The mass of the Stejne-hei looked down from a height of 1500 feet on the opposite shore of the lake, and at its upper end flashed more than one white waterfall.

But the mosquitos were in millions, and bit ferociously.

Up at an early hour, refreshed by a sound sleep, we started briskly to cover the 27 miles across the Meien Fjeld to the Suldal. There is a marvellous exhilaration in the mountain air at this height, and the steep climb through brushwood and heather to the top of the ridge at the further end of the lake was taken at a good pace. Mr. Logie Robertson's lines in his "Norwegian Sonnets", allowing for the fact that we did not, like him, outrise the sun and were fifty or sixty miles higher up the valley, describe our feelings and our experiences:—

"Steep was the climb from Vallé; far below
The Saeter we had left lay bathed in mist,
And still the height rose higher than we wist
Above the ravings of the Otteraa.
And now a thin bleak wind began to blow,
And now the bridle path to turn and twist,
Here round a *taern* by summer never kissed
And there behind a hide of hoarded snow.
The stars dissolved anon; and airy trills
Of wavering music showed the day begun.
We toiled to meet the morn, o'er rocks, o'er rills,
And breathless, but at last, our wish we won—
The top, and lo! a countless herd of hills
Tossing their shining muzzles in the sun".

The trail, partly owing to the circumstance that ponies had been over it on the previous day, was much more clearly marked than that from Borte. The two spots shown on the map at Nystol and Fiskebek have no longer any existence, except as ruined *saeter* huts. The stream issuing from the Vaerings Vand is crossed by a bridge, and a little farther on we came to Vaerings Saeter. In fact we nosed it almost as soon as we saw it, and we found the little hovel of sod and timber festooned with the offal of reindeer. The door was open, but the Lapp occupants were absent on the more distant fells. Round the desolate margin of the Vaering, and other lakes, we toiled, always moving upwards, and by and by our mark became the Runde Nut, a prominent *arête* on the slope of the Meien Fjeld. We crossed a large field of snow, and ascended by the left shoulder of the peak, past a series of small lochs, covered with deep snow and ice, until at last we were looking down upon the Nut—a mere excrescence in a vast landscape of bare or snow-streaked hills.

We were now considerably over the 4000 feet line, and touched the 5000 feet level before beginning to descend. It is worth while, perhaps, to note, for the benefit of those consulting Norwegian maps on which the height is marked in feet, that as the Norwegian foot is slightly over 12 inches, an addition of some 30 feet has to be made to each 1000 to give the height in English measurement. A more serious error is involved in accepting the Norsk mile (11 kilometers), as the equivalent of our English mile. In walking through Slemdal, we had been informed, to our surprise and delight, that Skien, where we meant to sleep, was only "a good mile and a half" distant. We counted on reaching it soon after eight, and did not arrive until midnight had struck. But to return to the crest of the Meien Fjeld. It is occupied, where the path crosses it, by a large snow field—an incipient glacier, which sidles down through a gap in the plateau wall at a steepish incline. This was the only "queer" looking spot on the walk. The snow was ridged up into a sharpish edge like a roof, and on either side, next the rock, there was a miniature

bergschrund. But it was perfectly soft, safe, and easy travelling, and we almost regretted the change when we got down upon the shelving and slippery rocks on the right hand side. Progress then became a continual clambering down smooth flights of stairs, and the guide, whom we had pitied as he trudged barefoot through the snow, now became the object of our envy. My friend had a nasty fall, and injured his knee, and the pace became slower. We were not ill pleased when, at 4 p.m., we reached the *saeter* of Bleskestadr. A beautiful meadow, dotted over with birch and alder, where cows were grazing, and *saeter*-girls making hay; an ice-cold stream of water in which to plunge and swim; a new "Tourist Hut", erected only a week or two before by the Stavanger Club, with fresh smelling walls of pine deals, and clean beds; *flöte* and *flatbrod* galore. What more could the hearts of weary men wish? We fixed ourselves at Bleskestadr for the night, and spent a memorable and delightful time, drinking in the pure mountain air, and the wonderful beauty of the scene.

Next day we had a scramble of eight or nine miles down the Kvandal to Roalquam, one of the calling places of the Suldal Lake steamers. We took the sawmiller away from his work to row us in the teeth of the wind round to Naes (he refused to take more than the regulation fee), where we came upon the tourist track, and upon tourist fare and tourist manners. The glory of our excursion was over, in spite of the magnificent scenery through which our further route passed. We put up at Seiland's; followed the Bratlandsdal to Breifond, crossed the Horre-braekker (on which there was still, on the last day of July, a good deal of snow); slept to the thunderous roar of the Laatefos, and made a Sabbath day's journey to Odde, where we took the fjord steamer through Hardanger to Bergen. Here the kindness of old friends made our brief stay delightful, and we sailed in the good ship St. Rognvald for home. In Norway, as elsewhere, the winter of 1892 was long and lingering, and in normal years less snow may be found on the track across the Meien Fjeld. On the other hand we could not have had better luck in weather.

FOR THE HILLS.

(A Rough-Shod Rhyme of Desire.)

THE fever 's on me heavy, an' my heart is drummin' "Go"!
An' every tightened fibre 's makin' answer to the call;
There 's a red-hot tingle wakin' every finger, every toe,
An' my shackled soul is hammerin' its chains against the wall.
Slip the bolt an' let me out, man, for this "brick-an'-mortar" kills;
Let me feel the heather under me, the blue above my head!
O! the Town may cheat an' chaffer! Set my face unto the hills,
An' to-day I 'll be a Kaiser though to-morrow I be dead.

An' it 's O! O! O! for the hills, for the hills,
For the hills o' my ain countrie;
An' it 's O! for the spring o' the heather an' the ling
On the hills o' my ain countrie.

Let me shut my eyes a minute! I can see the peaty burns,
I can see the Glas Allt glancin' in a flame o' silver streaks,
An' I hear its cry o' freedom as it bickers an' it turns
To the lazy loch a-lappin' round the heathery bends an' creeks.
I can see the Lord o' Loftiness a-liftin' to the sky,
Wi' his misty hair a-streamin' an' his mighty crown o' cairn;
An', on t' other side, the yellow windin' pathway holds my eye
That takes you to the Paradise o' Pines at Bachnagairn.

O! to lay me down an' slumber in the shelter o' the heather,
Wi' the wind that fans the Footstool waffin' freely on my face,
An' my clinkered soul a-drinkin' from the sunny summer weather
Forgetfulness o' strivin' an' the wearin', tearin' pace.
O! to grip my stick an' whistle on my dog an' start to climb,
An' swing across the corries till I 'm ready for to drop,
An' to sniff the breezes burdened wi' the scent o' broom an' thyme,
That keep the heart alive in me until I reach the top.

When there comes a blink o' sunshine here it isn't all a blessin',
For it minds me o' the sun that shines across the norlan' hills,
O' the lochs that kiss the mountains' feet, a-croonin' an' caressin',
O' the drumlie tumblin' torrents an' the silver-threadin' rills.
Then the torment tugs my heart-strings, an' my nerves go all to war,
An' the City presses round me, makin' soul an' body sick—
O! a ten-year lease o' life I'd give to look on Lochnagar,
An' the shakin' o' the shadows o'er the ripples o' the Muick!

An' it 's O! O! O! for the hills, for the hills,
For the hills o' my ain countrie;
An' it 's O! for the day when I 'll bundle an' away
To the hills o' my ain countrie!

London, 1894. W. A. MACKENZIE.

I. L.

OUTLYING NOOKS OF CAIRNGORM.—No. I.

By the Rev. William Forsyth, D.D.

Ciste Mhaireараid.

This corrie is on the north-east shoulder of the hill, away from the sun. As it is somewhat off the usual track taken to the top, it is not often visited. It is notable as one of the places where the snow lies longest; never, even in the hottest summer, does it altogether disappear.* A small stream runs in at the top, and gradually wears a way for itself. From the force of the water below, and the melting of the snow above, the channel is widened, and forms at last a sort of tunnel some ten feet in height and more than a hundred feet in length. Once when there with a friend in the month of August we were able to enter at the bottom and pass up and out at the top. The gloom and chilliness, and the closeness of the over-arching snow, gave quite a funereal character to the place, corresponding to its name of "Margaret's Coffin". Who "Margaret" was is not known. One story is that the corrie was the haunt long ago of some miserable hag who had been driven from society for her crimes, and that here she tended a flock of goats. Another tradition connects the place with the Witch of Moy, commemorated in Moritt's ballad. It is curious that there is a corrie in Badenoch of the same name with the same legend attached to it.

Mudachan (Siomlairean) Chadha-no.

These are huge masses of granite seamed and worn so that they resemble chimney stalks. They stand at the top of the stupendous cliffs that rise wall-like from the deep bed of the Garbh Allt,

> "Precipitous, black, jagged rocks,
> For ever shattered, and the same for ever".

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* James Grant, late keeper (Rebhoan), who has known the hill, man and boy, for more than fifty years, says that he never saw it without snow; one year there was but a patch left, which he could almost cover with his plaid.

At one time there were four or more "stalks". Two are said to have fallen in the great earthquake of 1816, and at the same time the others lost something of their height. This bit of rock scenery is very striking and well worthy of a visit.

STAC NA H-IOLAIRE, the "Eagle's Cliff", is a bold cliff on the south side of Mam Suim (2394), facing Cairngorm. Eagles have built their nests here from time immemorial. Once when passing we observed some goats feeding near the foot. Our collie barked at them, when they took refuge among the rocks, bounding from ledge to ledge with wonderful agility. They soon reached a height from which they could look down, as if with contempt, on the collie leaping and barking harmlessly far below. The scene called up Coleridge's line:—

> "Ye wild goats sporting round the eagle's nest";

and Wordsworth's beautiful picture, "The Eagle's Birthplace":—

> "Familiar with forgotten years that shows
> Inscribed, as with the silence of the thought,
> Upon its bleak and visionary sides
> The history of many a winter storm,
> Or obscure records of the path of fire".

BATHAICH FIONTAIG. GAELIC names are often given on the principle of resemblance. Thus we have "Mudachan Chadha-no", where the rocks are like chimneys; "Sabhalan Bhynac", the barns of Bynac; "Caisteal Sgròbach", a castellated height on the west side of Cairngorm; and "Bathaich Fiontaig", Fiontag's byre. This ridge, shaped like a byre, lies between Allt Mor and Allt na Ciste. It is now covered with wood, but formerly it was bare, and from its commanding position was often used as a post of outlook by the watchers of the passes. Alan Grant of Tulloch, who was a sort of warder of the Marches, is said to have had an encounter here with Lochaber raiders, in which one of the party was slain. There are two headstones which mark his grave. He was a Cameron, and his death led to a blood feud. His father and brother set out to revenge his death,

passing through Glen More, and down by the Caiplich. Here the father stopped, but the son said he would go further, as he wanted to see his sweetheart who lived on the Ailneag (Ailnack). Alan was at the time posted at the "Feith", a place in the Braes of Abernethy. He spied the young Cameron, and went to meet him, calling out "Hold yourself my prisoner", but Cameron hurried on. When near enough he took aim at Alan, but his gun missed fire. Alan cried out "It is vain for you to aim at me, for lead has no power over me". On this, Cameron took out a silver sixpence, and was bending it on a stone, in order to get it into his gun, when Alan, dreading the result, fired at him, and he fell dead on the spot. The stone is said to bear the mark of blood which nothing can wipe out. The place is called "Straan Chamronaich", in commemoration of the tragedy. The poor father returned home heart-broken. Like other Celts, he poured forth his grief in song. A verse runs as follows :—

"Is truagh nach deach sinn san nair,
Deich mile mun cuairt
Mun do ghabh mi an cead bhuan
An Caiblich dhiot".

THE REGION OF THE "EAGS".

"EAG" means a notch, or cleft, and is a common place name. "Bynac" means the Ben of the "Eag", and, looking to it from the Abernethy side, it has a marked notch in its summit. "Ailneag" (Ailnack) is the burn of the "Eag", and the tremendous rock gorge which the water has cut in the course of ages makes the name very appropriate. Then there are the "Eags" which mark the road generally taken by the Lochaber raiders, still known as "Rathad nam Mearleach", or Thieves' Road. First there is the "Eag mhor", a long narrow gorge in the Braes of Abernethy below Geal Charn. Next there is the "Eag-chait", no doubt of old the haunt of the wild cat, on the edge of Carn Bheithir. Then there is "Eag-garbh-choire", on the eastern side of Cairngorm. Then, to mention only one more, there is "Eag-coire-na-comhlach", the corrie of meeting, on the west side of Cairngorm, near the bounds of

Badenoch. There is also a "Claise Mhearleach", on the eastern slope of Cairngorm, near Lochan na Beinne. These "Eags" seem as if they marked the line of an old water-course in the far-back ages. Strange to think that where perhaps once ran some "ancient river" the caterans should afterwards have passed to and fro on their plundering expeditions! As Tennyson says:—

"There rolls the deep where grew the tree.
O earth, what changes hast thou seen!
There where the long street roars, hath been
The stillness of the central sea".

And an older and greater than Tennyson has much the same idea:—

"When I have seen the hungry ocean gain
Advantage on the kingdom of the shore,
And the firm soil win of the watery main
Increasing store with loss, and loss with store".
—*Shakespeare.*

THE BARNS OF BYNAC.

MOUNT BATTOCK AND CLOCHNABEN.

By Robert Anderson.

There is a variety of routes to Mount Battock, most of them involving a long preliminary walk before the mountain is reached, and, not only that, but the ascent—and the descent also—of some enclosing ridge; you cannot creep on to Mount Battock by means of a convenient shoulder. The mountain itself is situated just beyond one of the extreme southerly corners of Aberdeenshire, the outmost point of the parish of Birse. The "New Statistical Account of Scotland" (1843) says, indeed, that the counties of Aberdeen, Kincardine, and Forfar meet on its summit, but this is not borne out by the O.S. map, which makes Loch Tennet, the source of the Aven—a little to the north-west of Mount Battock—the meeting-point of the three counties. Mount Battock is apparently divided between Kincardineshire and Forfarshire, between the parishes of Strachan and Lochlee; the protest of the writer of the account of the parish of Birse in the "Old Statistical Account" (1793) that the north side of it at least was claimed as belonging to Birse has evidently been disallowed. Probably the easiest way of reaching Mount Battock from Aberdeen would be by taking the first train in the morning to Brechin, then travelling by the Glen Esk coach to Millden, and then walking up the burn of Turret. The hill, I understand, is most frequently ascended from the Glen Esk side. Unfortunately, however, the coach runs in a few months of summer only. A more common way of getting to Mount Battock is to walk (or drive) from Banchory along the Feughside road to the Bucket Mill of Birse—(this point can also be reached from Dess or Aboyne, by way of Marywell and Finzean)—and then cross over Peter Hill.* Another way is by the Forest of Birse, which

* The Club made an excursion to Mount Battock and Clochnaben on 26th September, 1892, and one party of the excursionists, following an "unauthorised programme" of their own, ascended Mount Battock by this

can be reached from Aboyne by two alternative routes. One is by the parish church of Birse and Balfour, across the Brown Hill to Glencat, and then over hilly ground again to the Forest. This is a fairly good road—of a thoroughly "switchback railway" order, however, Glencat lying in a deep valley surrounded by hills that have to be scaled whether you are coming from Balfour or going to the Forest. A friend and I followed this road last year.* The other route (which I took by myself on the Saturday preceding this year's Spring Holiday) starts through the glen known as the "Fungle". The "Fungle" road strikes off the south Deeside road a few yards west of the suspension bridge at Aboyne, and skirts the Auld-dinnie Burn. It ascends rapidly through a dense plantation of firs, and a good walker will soon come to a "Rest and Be Thankful"—a little plateau so marked, on the left-hand side of the road, with a border of flat stones all round it. From this plateau, through an opening in the plantation, a fine view of Aboyne and the Deeside valley is obtainable; one can instantly recognise in the selection and marking of the spot the hand that has placed so many tablets up and down Glen Tanner. Emerging from the glen and the wood beside a keeper's house, a board will be observed intimating that the road for a certain distance is private, but that permission is accorded to walk along it; and then you follow the road across a long and wide expanse of moorland. Two difficulties beset

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route. The route was described as follows in an article on "The Cairngorm Club at Mount Battock and Clochnaben", in the *Aberdeen Journal* of 28th September, furnished by "A Correspondent" (Mr. W. J. Jamieson):—"After crossing the Feugh by a footbridge, the party had the advantage of a very serviceable peat road, leading to a moss on the southern shoulder of Peter Hill, by which the first mile or two's walk was materially facilitated. When this road or track came to an end, the route lay through mossy ground and heather to the watershed between the Feugh and the Aven, whence a rather precipitous descent to the bed of the stream, followed by a short steep climb, brought the party to the commencement of the long and rather gradual slope which forms the north-west side of Mount Battock".

* An account of our walk, under the title, "Mount Battock", was contributed by me to the *Daily Free Press* of 6th May, 1893.

the stranger in this wild and desolate region, but they are easily solvable—by topographical instinct, if by nothing else. The path suddenly forks—you take the left fork and forsake the burn (still the Auld-dinnie). Then, further on, your track forward apparently ceases; you have a path to the right and one to the left, but you distrust them equally. Your instinct is right. You must eschew them both and make for a wooden building (in reality a stable) on the brae-face in front of you. You will pick up your track again there—there must be some way of circumventing the slightly boggy land I had to cross, though I failed to perceive it—and you cannot lose it again, for a brisk walk will soon bring you to the Forest of Birse.*

The Forest of Birse is a misnomer—now at all events. Trees, it is well understood, did once grow here, but tradition hath it that the woods were destroyed by fire many a long day ago; and now the forest, excepting some young plantations at its eastern end, is a long, narrow, treeless glen, wedged in between high and bare moorland slopes. There is, however, a touch of wild grandeur about this remote glen with its amphitheatre of hills. Though, in a sense, "at the back o' the warl'", it is by no means desolate. The plain is cultivated, a few farm-houses are dotted about the valley, civilisation demonstrates its presence by a church and a schoolhouse, there remains a link with the far-off past in the ruins of a castle—the gaunt walls of what was probably an old hunting lodge (said to have been built by a Gordon of Cluny), showing yet some traces of a corbelled turret.† Still, the hills constitute the dominant feature of the landscape, and, rising high above the glen, lend an air of solitariness and wildness—one might almost

* Still another route will bring you to this point—by continuing along the Feughside road from the Bucket Mill. See an article "Feugh, Mount Battock, and Glen Dye" (by Mr. Howard Gray) in the *Northern Evening News*, 7th October, 1892.

† Set fire to, about 1640, by the people in the Forest, who turned the land that Gordon had cultivated into a commonty. See "Antiquities of the Shires of Aberdeen and Banff" (Spalding Club), and Jervise's "Epitaphs and Inscriptions", vol. II., p. 48; see also Robert Dinnie's "Account of the Parish of Birse".

say weirdness—to the scene. Wild enough the scenery is, in all certainty, but it just stops short of being strikingly grand or impressive; and one appreciates the judicious reserve of the writer of the description of the parish in the "New Statistical Account", when he frankly says "The scenery in the parish is not sufficiently bold to be romantic, but may be called wild".

But, though apparently walled in to north, west, and south, the Forest of Birse is not inaccessible on these sides. The "Fungle" road reaches it from the north; a road leads westward, and then southward, across the Mudlee Bracks (2259) into Glen Esk; and Mount Battock is "fetched" by a route that is slightly south-easterly. Looking in this direction from the old castle, one can discern a footpath on the hillside in front, and, crossing the Feugh by a bridge, this footpath is soon gained, and can be followed with ease till the base of Mount Battock is reached. It winds over and down the White Hill (1840). Last year, judging from the map, and also from the apparent situation of Mount Battock as seen from the White Hill, that the Cock Hill (1960) had to be surmounted, my friend and I diverged from the path, and crossed the Cock Hill. It was a waste of energy—a tremendous waste of energy, as the Cock Hill is intersected by the moss-haggs which infest this region. So this year I resolved to follow the footpath at all hazards, with the happy result of finding that it wound round the Cock Hill, and brought me to the base of Mount Battock all the same, and not so very far off from last year's point. The footpath, it should be stated, gradually dwindles into a desultory and somewhat indefinable track, then becomes transformed into a dry watercourse, and eventually vanishes. But you cannot fail getting down into the valley or "dip" that separates you from Mount Battock. You cross the Water of Aven—a considerable burn here, notwithstanding its nearness to its source—and then you begin the ascent of Mount Battock. The first stage of the ascent is not propitious, for the lower base of the mountain is riddled with moss-haggs and patches of bog; only it is fair to say that the former are absolutely

insignificant in comparison with the similar obstacles that cumber the path between Mount Battock and Clochnaben, and that the latter are (or at least were when I crossed them) by no means very troublesome. These nuisances past, the ascent of the hill is very easy. Time:—From the Forest to the Aven, 1½ hours; ascent of Mount Battock, 1 hour. This—very easy walking, I may say—brought me to the summit of Mount Battock at 2·30 p.m.; I had left Aboyne at 9 30 a.m. Singularly enough, the distances mentioned were accomplished by my friend and me last year in precisely the same time—indeed, as regards time, and therefore distance, there seems to me little to choose between the two routes.

The view from the summit of Mount Battock (2555) is remarkable for its wide range. The parish recorder in the "New Statistical Account" (Strachan) says—"A very extensive prospect presents itself to the eye, embracing a great extent of the eastern coast from Aberdeen to Peterhead on the one hand, and to Montrose and the coasts of Fife and Haddington on the other, and stretching towards the south as far as Edinburgh and the Pentland Hills". My view was considerably restricted, owing to a haze on the horizon obscuring the more distant points. It was a fine walking day, and, stretched at full length on the "lythe" side of the cairn at the summit, sheltered from the strong southerly wind that was blowing, one felt a freshness, and even a balminess, in the air, perfectly delicious after the bitterly cold and blustering weather of the day before in Aberdeen. But it was by no means a clear day, and the view southwards was almost wholly lost. Loch Lee and Glen Esk were distinct enough; far away south a rounded top loomed out of the haze, not unlike one of the Lomonds of Fife; but the coast line was indistinguishable. Eastwards, northwards, and westwards also to some degree, the view was much more extensive, though with a sad lack of sharp definiteness about it. Mormond, Bennachie, Tap o' Noth, Knock Hill (or was it the Bin of Cullen?), the Buck of the Cabrach, Ben Rinnes, Morven, Keen, Lochnagar, Beinn a' Bhuird, and Ben Avon (the three last covered with snow)

stood out prominently—like giant sentinels posted round the wide sweep of landscape, a landscape crowded with inferior hills and ridges, with here and there pleasant glimpses of the valley of the Dee, and of the river itself. Immediately in the foreground were the conspicuous points of the Lower Grampian range—Peter Hill,* Clochnaben, Kerloch, and Cairn-mon-earn. I cannot recollect ever having before so well seen or been so struck by the huge mass of the Hill of Fare; and another exceptional feature of the view, I think, is the great extent of level country disclosed lying in the gap between the Hill of Fare and Bennachie. Such were my own hurried observations; but as Mount Battock was a "great instrument" station in the Ordnance Survey, the reader will find detailed "observations" from it in the great triangulation in another article in this Number.

Clochnaben is situated to the north-east of Mount Battock, there being a distance of about four miles between the two hills, which, in fact, are the two extremities of a range of hills lying between the Water of Aven on the north-west and Glen Dye on the south-east (Glen Dye, by the way, is a deer forest, the property of Sir John R. Gladstone, nephew of the ex-Premier; and I rather think that Mount Battock, which was formerly used for sheep pasture, has recently been added to the forest). The range of hills just alluded to, when viewed from the White Hill on the way to Mount Battock, presents the appearance of a continuous ridge, but on closer acquaintance this appearance is discovered to be quite illusory. A hill of considerable proportions and altitude stands between Mount Battock and Clochnaben, and one has, in proceeding from Mount Battock,

* Peter Hill (2023) is on the estate of Finzean, and was the hill referred to by Dr. Farquharson, M.P. (a member of the Club, by the way), in a somewhat celebrated speech on an "Access to Mountains" resolution in the House of Commons, 4th March, 1892, in which he declared that "he had the honour to be the proprietor of a mountain". "From this mountain", he added, "no one had ever been excluded. It was a grouse moor, and he did not believe that any incursion of tourists and pic-nic parties would be in the least degree likely to do any harm to grouse shooting". The declaration was humorously hit off in next week's *Punch* ("Essence of Parliament").

to descend into an intervening valley and then ascend the hill; in fact, this hill being 44 feet higher than Clochnaben, one soon loses sight of the conspicuous feature of the latter —the huge stone on its summit—and does not regain sight of it till he is close upon it. This, however, is a trifle compared with the nature of the ground that has to be traversed. The hill is cut up into a succession of moss-haggs or peat-furrows, of all shapes and sizes, and generally possessing a sinuosity of outline that is well-nigh bewildering. Walking over this ground is reduced to a slow and toilsome progression. The ditches are too wide to be cleared by a jump, and one has to drag himself as best he can over the soft, greasy, black peat-mould. Fortunately, I found this peat-mould comparatively dry, and of a consistency to afford foothold—of a kind; with care you could pick your way across it without sinking too far. At times, however, I am told, the mould gets so dry and brown as to be easily stirred by the wind, and then the pedestrian has the additional trouble to encounter of having it blown into his eyes and ears. In times of wet—well, one can fancy what it would be like! A fellow-member of the Club declares that the worst turn he could do his worst enemy would be to make him cross from Mount Battock to Clochnaben on a wet day! There is no possibility of "dodging" this really awful ground; and the tiresome thing about it is that it seems endless—in reality it continues to bother you till you are far up Clochnaben. I thought last year that I had made a mistake in descending from Mount Battock by the steep sides of the Aven, but, rough as was that walk, it was decidedly preferable to "plyterin'" through these abominable moss-haggs. I had calculated on reaching Clochnaben from Mount Battock in an hour and a half—it actually took me two hours; and when I did reach the summit of Clochnaben I mentally registered a vow that it would require a very strong inducement to make me repeat the journey.*

* Mr. Jamieson, in the article already alluded to, has given such an accurate and excellent description of this "devious path" that I am constrained to quote it in full :—" . . . A bit of country which may be

The name Clochnaben—Clachnaben or Clochnabane—signifies, so it is said, "the stone on the hill"; and as already mentioned, the conspicuous feature of the mountain is the stone on its summit—"an immense protruding mass of weathered granite".* This stone, which from most points of view looks to be overhanging, does not stand exactly on the summit (1900), but a little eastward, on the edge of the mountain, which descends steeply round the exposed side of it. The dimensions of this huge mass may be conceived when it is mentioned that it is 95 feet high, and that 270 paces have to be taken in walking round it. The stone renders Clochnaben the most conspicuous and best known mountain in the region, and also constitutes it a landmark at sea. The rhyme

> "Clochnaben an' Bennachie,
> Twa lan' marks o' the sea",

is familiar to everybody. It was only to be expected that, in former times, the stone and its peculiar position should have been attributed to the work "of demons and infernal power", and this superstitious legend was worked into a poem descriptive of Deeside scenery, contributed to the *Scots*

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described as almost unique in its way. The long undulating plateau is composed of soft peaty soil, which is seamed and scarred in every direction by the joint action of driving rainstorms and melting snows. In some places the way is barred as by a succession of regular trenches, from four to six or eight feet deep, some with water in them, some without. Where the bottom of these natural ditches or drains is dry, it is occasionally policy to follow them, despite their windings, as far as they will go; but they never go far in the desired direction. At other points considerable stretches of ground are covered by the disintegrated peaty soil, lying loose and sticky to the depth of several inches, of the consistency of rich, newly-stirred garden mould or fresh mole-heaps. The mode of progression was described by one of those who enjoyed the experience as being 'not walking at all, but a series of acrobatic performances'. Wonderful to relate, one of the ladies was among those who safely crossed this perilous plateau, though how she managed it, hampered by clinging skirts and draperies, your correspondent frankly owns himself at a loss to imagine. She did it, nevertheless, and came up smiling and fresh at the finish".

* See an article on "The Cairn o' Mount and Clochnaben" (the fourth of a series), by "D.O." (Mr. Alexander Copland), in the *Aberdeen Journal*, 12th September, 1892.

Magazine by Rev. George Knowles, minister of Birse, 1778-89. According to this poem, the stone formerly lay "low in a plain", but, used in a contest between "The D-v-l and his Dame", the last stanza thus accounts for its present position :—

> "'Have at you now, you Beldame', roar'd the fiend,
> And hurl'd the rock through the resounding skies ;
> Dreadful it fell, and crush'd his breathless friend,
> And there entombed Her Hellish Highness lies" !*

There is another, but very diminutive, "wart" of stone to the westward of the rock just described, and porphyry will be observed in the neighbourhood. The view from the summit of Clochnaben, it may be briefly said, is substantially the same as that from the top of Mount Battock, with a few minor differences, due to the variation in location ; the chief of these differences to the credit of Clochnaben are fine views of Glen Dye, Cairn o' Mount, and Kerloch. North-eastwards from Clochnaben, at the distance of about a mile, is Mount Shade (1662), the deep narrow gorge—visible from considerable distances—between the two hills being locally known as the "Devil's Bite".

From Clochnaben, I made my way rapidly to Feughside Inn, striking the peat road that leads from the burn of Greendams on to the Aven side—a road, by the way, that takes fully an hour to traverse at a good pace. Then after some rest and refreshment at the Inn, I walked on to Torphins by the Bridge of Potarch, arriving at my night's destination at 9·30 p.m., exactly twelve hours from my start at Aboyne. The total distance of the "round" may be set down at any figure between 25 and 30 miles.

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* See Walker's "Bards of Bon-Accord".

ARTHUR'S SEAT.

By C. G. Cash.

In John Hill Burton's book on the Cairngorms he says some vigorous things against what he considers the evils of guides and guide books, and makes merry at the expense of a friend of his, a chancery barrister, who, in "an anxious way", asked whether Burton could recommend to him "a steady guide to Arthur Seat". Now, if guides and guide books are as loose and inaccurate in topography as is Burton in the book just named, they deserve a greater anathema than Burton pronounces; but a "steady guide", possessing reasonable accuracy, may, and should, be very helpful, and need not be the incubus Burton considers him. If you will allow me, I will be your "steady guide" to Arthur's Seat, and if I prove wearisome, you have only to close your book and so dismiss me.

Arthur's Seat is the dominating feature in the topography of the Edinburgh district, and though only 822·9 feet in height, may well be called a mountain from its geologic structure, and the fine abruptness of some of its crags. Viewed from the south-west, at the distance of two miles, it presents best its characteristic appearance of a lion couchant.

Its topography is very striking. It has five well marked ridges, whose steep sides face the west. The most westerly of these is the Heriot Mount, which plays no important part in the scenery. Its escarpment is hidden by buildings, and its eastern slope is not interesting. The second ridge is the greatest, the Salisbury Crag, a noble curve of precipice three-quarters of a mile in length, 100 feet high, surmounting a talus slope 200 feet high, and overlooking the eastern portion of the city. Behind the crag is the deep hollow of the Hunter's Bog, almost like a fragment of a Highland glen. From the south-eastern part of this valley rises the grand mass of Arthur's Seat proper, its steep-faced bulk towering some 600 feet upwards, and affording much good

scrambling to keep one in training for work on the bigger hills away north. From the northern part of the Hunter's Bog rise two more of the ridges—the Dasses, three almost detached hummocks of rock; and the Long Row, a low line of cliff running almost north and south. These two ridges disappear under the great central mass, but reappear unmistakably on its southern side. Eastward from the Long Row is the deep hollow of the Dry Dam, and beyond this again is the considerable hill known as the Crow or Whinny Hill.

Round about the hill are three lakes: St. Margaret's on the north, an uninteresting sheet of water; Dunsappie on the east, nestling at the foot of its crag with not a little of the beauty of a Highland loch; and Duddingston on the south, a fine sheet of water, too rarely the scene of an animated skating holiday.

Arthur's Seat is of great interest to the geologist. Its strongly marked ridges are the outcrops of sheets of intrusive volcanic rock tilted upwards to the west. The Whinny Hill is an overlying mass of contemporaneous volcanic matter. The main summit consists of volcanic agglomerate, filling an almost vertical vent, and itself pierced by a volcanic plug, of which the Lion's Haunch is perhaps a lateral outbreak. On the south side of the Lion's Haunch, and overhanging the road to Duddingston, Samson's Ribs present fine examples of basaltic columns. In parts of the Crow Hill others may be seen, but less well developed.

The geologic history of the hill has not been finally written, but its broad features are fairly clear. In the Carboniferous period volcanic energy was active in the region now occupied by the midland plain of Scotland. Evidence of this is found wherever hills protrude above the general level. In the case of Arthur's Seat, four sheets of volcanic matter were intruded among the aqueous strata already *in situ*. The source of these sheets is doubtful. It has been suggested that they are lava outflows from the volcano whose neck is marked by the Castle Rock; again that they are possible outflows from the central Arthur's Seat

W & A.K. Johnston, Edinburgh & London.

NATURAL SCALE 1:10,560 = 6 INCHES TO A MILE.

1000 FEET 500 0 1000 2000 3000 4000 5000 5280 FEET

FURLONG 1 0 ½ 1 MILE

volcano, though this seems less likely. Another deposit of volcanic matter constitutes the Whinny Hill. This was laid down on what was then the surface, and shows on its west edge masses of volcanic ash. At a later period there was broken up through all these rocks a volcanic vent, which was subsequently filled with agglomerate; and yet later, through this neck of agglomerate, there was extruded lava, a plug of which still constitutes the summit rock.

Ages of weathering have removed great thicknesses of super-incumbent rock, and the present surface has gradually been developed, the harder volcanic rocks standing out as ridges and summits, and the softer aqueous rocks wearing away into hollows.

The hill, like all Scotland, has undergone much denudation by glaciers, here moving down the valley of the Forth on their way from the Highlands to the North Sea. By the side of the Queen's Drive, just above Samson's Ribs, is a mass of rock showing very plainly the work of ice on its smoothed and scratched surface.

To the botanist the hill affords a wide field for investigation. There have been gathered on it 248 species of flowering plants, representing 45 Natural Orders, and 7 or 8 ferns. Among the less common flowering plants may be mentioned Dianthus armeria and caesius, Lychnis viscaria, Arenaria verna, Geranium pyrenaicum and columbinum, Linum perenne, Euonymus europaeus, Cichorium intybus, Echium vulgare and Linaria repens. Among the ferns, Asplenium septentrionale was found some years ago, but I think not lately; Asplenium fontanum was reported in 1889, but has not been confirmed, and was probably inaccurately reported. White heather has been gathered on the hill once to my personal knowledge.

The hill and its immediate surroundings have associations in legend, in history, and in literature. Its name links it with the myths of Arthurian legend. Close at its foot, to the north-west, lies Holyrood Palace, with its dark and sad Marian associations, contrasting with the brief brilliance of Prince Charlie. The army that won Prestonpans lay on the eastern slopes of the hill, while the Prince himself found

quarters in a cottage at the most easterly corner of Duddingston. St. Anthony's Chapel, on one of the north crags, guided at one time the mariner on the squally Firth, and its well still gives an abundant supply of excellent water, and is reputed to possess virtues as a "wishing well". Some consider it as of medicinal value, and it probably does contain some iron, of which there is much in the rock of the hill. Nearer Holyrood Palace is St. Margaret's Well, in its quaint gothic shrine, brought from a more eastward position when the North British Railway was formed. On the southern slopes of the hill are the Wells o' Wearie, alluded to in more than one local song.

From Horne's "Every-day Book" (1827) I make the following extract:—

"Allow me, without preface, to acquaint you with a custom of gathering the May-dew here [Edinburgh] on the first of May. About four o'clock in the morning there is an unusual stir; a great opening of area gates, and ringing of bells, and a gathering of folk of all clans, arrayed in all the colours of the rainbow; and a hurrying of gay throngs of both sexes through the King's-park to Arthur's Seat. In the course of half-an-hour the entire hill is a moving mass of all sorts and sizes. At the summit may be seen a company of bakers, and other craftsmen, dressed in kilts, dancing round a Maypole. On the more level part next door is usually an itinerant vender of whisky, or mountain (not May) dew, your approach to whom is always indicated by a number of 'bodies' carelessly lying across your path, not dead, but drunk. These proceedings commence with the daybreak. The strong lights thrown upon the various groups by the rising sun give a singularly picturesque effect to a scene, wherein the ever-varying and unceasing sound of the bagpipes, and tabours, and pipes, *et hoc genus omne*, almost stun the ear. About six o'clock, the appearance of the gentry, toiling and 'pechin'' up the ascent, becomes the signal for serving-men and women to march to the right-about; for they well know that they must have the house clean and everything in order earlier than usual on May morning. About eight o'clock the 'fun' is all over; and by nine or ten, were it not for the drunkards, who are staggering towards the 'gude town', no one would know that anything particular had taken place".

The custom of gathering this reputed excellent cosmetic, May-dew, has not entirely ceased here yet, and May-day still draws groups of people to the summit of Arthur's Seat at an early hour.

From the summit of the hill in clear weather a fine view is obtained. Leaving out of account the near view of the city, we see to the east the open North Sea, with May Island low on the horizon, and the Bass Rock and North Berwick Law prominent. Passing round by the south, the valley of the Esk is near, and beyond it are the Lammermuirs, Moorfoots, Peebles Hills, Dollar Law, and the Pentlands. To the north-west the Forth Bridge shows its mighty spans, with the Ochils beyond, and due north, across the Forth, the Fife Lomonds are in full view. But most interesting is the noble range of Grampian summits. The full tale of these is seldom seen, but I have identified the following:—Ben Lomond, Ben Venue, Ben A'an, Ben Ledi, Am Binnein (Stobinain), Ben More, Ben Vorlich, Ben Lawers, Ben Chonzie, Schichallion, Beinn Dearg, Ben Vrackie, Beinn a' Ghlo and Lochnagar.

Twice I have witnessed from the summit of the hill the interesting phenomenon known as the "Spectre of the Brocken". In each case it was about the middle of a winter day, and the shadow, vastly greater than life size, was thrown on a cloud or mist near St. Anthony's Chapel. In neither case was there any appearance of halo or colour.

The easiest ascents of the hill are two. The Queen's ascent is made by following the Queen's Drive to Dunsappie Loch, and then walking up the last slope to the summit of the hill, which is in full view. The most usual ascent is made from near Holyrood Palace, passing St. Margaret's and St. Anthony's Wells, and following the ridge of the Long Row. An interesting walk may be had along the Radical Road, round the foot of the Salisbury Crag, at the head of its talus slope. At its most westerly point the "Cat Nick" offers an easy gully whereby to ascend to the top of the cliff. The Queen's Drive is an excellent road right round the whole hill, and is a favourite and very pleasant drive.

MOUNTAIN MEASUREMENTS.

I.—THE GENERAL PRINCIPLES.

By J. C. Barnett.

What mountaineer is there who has not felt his pulses thrill when, in some wild and silent solitude, he gazed upon the station cairns and altitude marks that reveal the passage of the ubiquitous Survey Sappers? Is there a mountaineer who does not cherish those marvellous maps which were the outcome of that arduous and stupendous undertaking that for so many years occupied the attention of those true mountaineers, sending them to knolls and ridges, to downs and uplands, to moors and fens, to Highland glens and mountain peaks, to river brink and ocean beach, to make those skilful observations, accurate measurements, and careful calculations that have resulted in placing in our hands those magnificent contour maps which have guided our footsteps and gladdened our hearts many a time and oft? A few facts concerning the general principles of mountain measurements, the instruments used, and the difficulties encountered in striving after accuracy, should, therefore, prove interesting to hillmen and others.

If any one prefers the cold of winter to the warmth of summer, it is not necessary that he should wait the revolving seasons to bring about the realisation of his desires; he has simply to make a long journey to the north, or take a short flight upwards, for above our heads at all seasons of the year is a region of eternal chill. A climb of 16,400 feet in Tropical Africa brings one into a region of perpetual snow; in Switzerland the snow line is reached at 9000 feet above sea level; in the south of Norway at 4500 feet; in the north of Norway at 1000 feet; while a little nearer the pole the snow line is at sea level. Ben Nevis comes short of a perpetual crown of snow by 150 feet. A journey northwards of about 60 miles, or a flight upwards of 300 feet, is marked by a fall in temperature of 1° F. It is easily seen why a journey to the north should bring us to regions

of greater cold, because the higher the latitude the lower will the sun appear to rise in the southern sky, and the greater the angle will be at which his rays strike the earth. The consequence of this is that fewer rays will fall upon a given space, and less will be the resulting heat. Besides, the greater the angle of incidence of the sun's rays, the greater the thickness of atmospheric air to be traversed, and the greater the loss of heat by reflection, refraction, and absorption. At the poles the sun never rises higher than $23\frac{1}{2}°$ above the horizon, and, consequently, the amount of heat received from the sun is comparatively small. Why the air becomes colder, however, as we ascend, and so get nearer the source of heat, is not so easily understood, and as this varying temperature has much to do with the determination of mountain heights by means of the barometer, a word or two regarding how the air is warmed may not be out of place.

Dry air is diathermanous, that is, it permits the heat rays to pass through it without warming it; but water vapour, which exists in ever-varying quantities in the lower regions of the atmosphere, absorbs and retains a fair proportion of the heat that speeds onward from sun to earth. When the heat waves beat upon the earth its temperature is raised, and the luminous heat rays, being changed into dark ones, are radiated into space. The water vapour steps in once more, and, acting as a blanket, intercepts the radiant heat, and prevents the cooling of the earth and lower layers of the atmosphere. A sheet of vapour thus acts as a screen to the earth, as it exercises a strong absorbent action on the radiation from the sun, and a still stronger action of a similar kind on the radiation from the earth. If the air were dry, the radiation would proceed unchecked, and the temperature of the earth soon after sunset would fall far below the freezing point. At Davos, in Switzerland, at a height of 5000 feet, one can, even in mid-winter, sit comfortably in the sun without an overcoat, while in the shade close by the thermometer shows several degrees below the freezing point. Contrasts of this kind occur wherever the air is unusually dry. The cold on mountain tops may be

partly accounted for in this way, and partly by the fact that, as the columns of heated air rise from the earth into the higher regions, where the pressure of the superincumbent air is less, this heated air expands, and, as its heat is converted into the work of expansion, a chilling effect is the result. The rarity of the atmosphere on mountain summits, then, is produced by the conversion of heat into work.

All mountaineers by experience are acquainted with the fact that the temperatures on mountain tops are lower than those on the plains below as a general rule, and that this difference is greater during the day than during the night, and in summer than in winter. The reasons for this will be at once understood if we bear in mind that the higher the elevation:—

1. The drier the air, and consequently the greater the radiation.
2. The less the pressure, the more expanded the air, and the greater the quantity of heat used up in work.
3. The less the land surface to be heated by the sun's rays, and the less the surface to heat the air.

In cases of severe frost, however, it is generally found that the temperature increases with the height, giving the well-known phenomenon of the "up-bank thaw", when the snow thaws on the uplands while the lowlands are in the grasp of a severe frost. When Piazzi Smythe ascended to the top of the peak of Teneriffe a fearful thunderstorm burst on the island, and much sympathy was felt for the poor scientist exposed to the full fury of it on the bare peak; but the great astronomer was above the clouds and bathed in the warm rays of a noonday sun, while the storm raged furiously at his feet. The sympathy was wasted. In the same way we often waste sympathy upon the winter mountaineer, forgetting that the intense cold at the mountain base may give place to a much more genial condition of things two or three thousand feet higher up.

If the air were perfectly dry, then, the thermometer would fall 1° F. for every 180 feet of ascent, but as the atmosphere contains moisture in the form of aqueous vapour,

which gradually condenses into cloud, rain, &c., much latent heat is given out, the temperature is raised, and the rate of cooling for ascent diminished. We have in consequence to ascend 300 feet to produce a fall of 1° F.

From what has been said it will be seen that the thermometer by itself would make a very uncertain instrument for determining mountain heights, for in calm weather the cold air sinks to the valleys, and a house on a hill preserves an immunity from frost. But though the indications of the thermometer are thus of but little value in themselves in enabling us to calculate elevations, yet in conjunction with the barometer it is invaluable.

Not only does the temperature of the air fall as we ascend, but its pressure or weight diminishes also. The variation of pressure is determined by the barometer, and varies with temperature, moisture, and elevation :—

Temperature.—The greater the heat the more will the air be expanded, the lighter, bulk for bulk, will it become, and the further will the barometric column fall.

Moisture.—As water vapour is lighter than dry air in the ratio of 29 to 18, any mixture of the two must be lighter than dry air, and so the presence of water vapour will be indicated by a low barometer.

Elevation.—It has been ascertained by observations on meteorites that the air ocean, which surrounds us on all sides, extends upwards to a height of 200 miles. As the barometer is affected only by the air above it, it is clear that the higher we ascend the lower will the barometer sink. Glaisher, in his famous balloon ascent, recorded that the barometer stood at 9·75 inches at the height of 29,000 feet, when he lost consciousness ; and Coxwell observed that the barometer indicated 7 inches before the descent began. This was at a height of 37,000 feet, showing that three-fourths of the total mass of air lay beneath them.

The barometer may, in consequence of this varying pressure at different elevations, be used to measure heights above or depressions below sea-level, and in a general way in this country we estimate that the fall of an inch indicates an ascent of 900 feet. When, however, one begins to

measure mountains by the barometer with a desire to obtain accurate results, many things have to be taken into account and allowed for. Some of these "corrections" have reference to the individual instrument used, and some are applicable to all barometric readings. Of the latter the principal corrections are for temperature, altitude, and gravity:—

Temperature.—As heat expands the mercurial column the height of the mercury will not be all due to the pressure of the air, and so for purposes of comparison all barometric readings are reduced to what they would be were the temperature of the air 32° F.

Altitude.—In order that barometric readings at different places may be compared, it has been agreed to reduce all to their equivalents at the same sea-level. For this purpose the mean sea-level at Liverpool is taken in this country.

Gravity.—As the earth is not a perfect sphere, but is flattened at the poles and bulged out at the equator, and as the weights of bodies depend upon their distances from the earth's centre, it follows that bodies at the equator weigh less than they would do if transferred to either pole. The weight of mercury, as well as every other substance, will thus vary with the latitude, and so it has been found advisable to reduce all barometric readings to what they would be at latitude 45°, and thus eliminate the effect of gravitation.

The temperature at which liquids boil depends upon atmospheric pressure, the boiling point of a liquid being that temperature at which the pressure of the vapour inside the liquid is equal to the atmospheric pressure outside. The boiling point will be lowered as we ascend a mountain, and raised as we descend a mine. A very portable and convenient instrument, called the hypsometer, has been constructed for determining heights by the temperature of boiling water, and it has proved very useful as a check on the results obtained by the mountain barometer.

AN ARCTIC SUMMER DAY ON CAIRN TOUL.

By John Gordon, M.D.

An ascent of Cairn Toul in the last week of May does not seem to offer any spice of danger to those who love a day on the hills. But it is the unexpected that happens in hill work as in other things, and so this faint sketch of our day's enjoyment may not be without interest. We had our quarters the previous night at Boat of Garten, making an early morning start for Loch Eunach. The air as we drove along was crisp, cool, and exhilarating, filled with the perfume of birch, larch, and pine. The wind came from the north and carried with it passing sleet showers. These were of short duration; close behind them laughed the sunshine. Thus we were decoyed on, hoping that Lamond Howie's camera might find its congenial work. For a time the clouds were lofty enough to allow the higher hills to be seen. The drive along the Bennie was charming; the stream was in full force, "foaming brown with double speed" past the lovely Scottish firs that stand sentinel-like in the glen. The tall, green junipers were a wonder to us; and we caught peeps of herds of deer watching from the undergrowth of the forest. Flowers were few; we only noticed blue patches of the dog violet, or the yellow streaks of the petty whin, and some vetches, but the brown on many of the birches told of the killing touch of frost.

Loch Eunach was reached about ten o'clock, and the needful preparations for the ascent at once made. M'Hardy and the writer led off—Lamond Howie and M'Connochie leisurely following with rücksack, camera, and "Jack". (Alas for the camera! it was not visible again that day.) The view of Sgòran Dubh from the loch shieling was wildly alpine at this time. This black jagged series of precipices had caught the flying clouds, entangling them on its peaks and scarred sides. The upper reaches of the precipices were quite snow-covered, while streaks of white serpentined down the almost inky black of the rocks to about 500 feet above the level of the loch. It was wonderful to watch the magni-

fying power of the mist on these peaks; when in cloud-land they looked gigantic, and their vague, shifting, undefined outlines, that we caught peeps of high up in air, seemed to stretch away and beyond into a mysterious region. We found snow plentiful 700 feet above the loch, the deer-stalkers' path only now and then visible. Approaching Coire Goundle, the sun, which was shining, began to get obscured; we looked backwards in time to see the valley taking on its storm-gloom. The glimpse lasted only a minute or two, but it was exceedingly vivid. The near end of the glen, which still contained the sunlight, showed in wonderful freshness and clearness the lower ridges of the encircling hills clad in their winter colours of blacks, browns, fawns, grays, and greens, and higher up their white snow robes. In a trice, like a racer, the snow-storm chased up the valley, peppering us with white spray. And then the glen was full of black gray mists and storm-clouds—we were in the midst of the gale. In ten minutes the sun was shining serenely.

We made our way to a great snow-slope in the corrie. It did not offer special difficulties, and with an hour's work at step-cutting we were really blown out of the last few feet of it by another wild storm, which stung hands and face. This snow was nearly all in capital condition for step-cutting, and lay at an angle of from 36° to 43°. The steepest part looked at times almost perpendicular, and it was no consolation to see that the slope did not shade away in snow, but abruptly stopped on rock and stones. An angle of 43° is distinctly steep for a snow-slope; Whymper has pointed out that snow cannot really lie on the hill side at an angle beyond 45°. We had in our occupation of step-cutting several varieties of climate — sunshine and snow, wind-storm, mist, and half-veiled light. And whenever we tired of step-cutting we could always look back at the glorious summits of Sgòran Dubh, tossing the storm-clouds round their heads, and dragging them into their corries and gullies—anon their white peaks bravely shining into the blue. Our four-footed mountaineer made sagacious use of the steps, and followed with confidence, albeit with care and deliberation; it was most interesting to note the patient

watchfulness of the collie clinging close to his snow-clad master.

Half-way across the snow-slope, while the sun was somewhat obscured, but was still sending a considerable intensity of light, we observed a strange phenomenon. On the side of our body next the snow-slope there was a nimbus of violet light, which clung to clothes, naked fingers, and the shaft of the ice-axe. So plentiful did it appear in the palm of the hand that it looked at times like a pool of violet ink, and one thought it could be pitched away. On shaking the hand, however, the nimbus clung, and was not to be removed. Occasionally the colour varied, taking on shades of brownish yellow and blue, but violet was the most marked colour. At another time, in much the same condition of light and snow surroundings, one of the party, who was very proud of the beauty of the silver case of his compass, was disgusted to find that it had a distinctly yellow, pinchbeck look. This light refraction or polarisation was not so evident to some of the party, but the writer has observed it before in similar circumstances and atmospheric conditions.

Out of the step-cutting, we made, under the directions of our leader, for the 3750 feet level. This we did in an ever-increasing tempest, with mist and snow. Only at rare intervals were we gifted with a rift in the storm, when we saw the snow-clad hill tops upthronging all around. We kept an easterly direction by compass, no help being afforded by known objects. Much of the snow we passed over had fallen very recently. It was shifty, and did not bear our weight, and progress therefore was slow and tedious. In addition to the yielding snow we were bombarded by the gale, so that our outlook was not only narrowed, but, from the hail and snow, painful. In a momentary lull we endeavoured, about one o'clock, to take lunch in a hollow between two snow ridges, but no sooner had we squatted above our spotless white napery of snow than the fury of the elements increased so tremendously that we had to give up the attempt, and proceed on our journey. We were now fairly in the centre of the storm—
—the glass fell, as we soon discovered (we carried no fewer

than three aneroids—all accurate instruments) *a quarter of an inch* beyond the fall due to altitude—and as we were surmounting Sgòr an Lochain Uaine ("Angel's Peak") we temporarily mistook it for the summit of Cairn Toul itself. Here the intensity of the wind increased to such an extent that we found it quite impossible to *stand* against its fury except by leaning on our axes with legs outspread. One of the party, who incautiously allowed the maddened wind to enter the folds of his waterproof, was hurled along a good few yards before he could stop. Dimly looming through half-cleared-up clouds, we could catch glimpses of Braeriach and Ben Muich Dhui, and the desired-for top of Cairn Toul. Once or twice only did the last-named peak stand out brightly white before us. These rare moments of sunshine were delectable, and the grandeur of the vision filled us all with joy. We were now in the ice region; the snow we had left behind. The mountain at this part was rich with frost sculpture—flowers, leaves, feathers, and plumes.

Hundreds of clusters of ice-flowers were at our feet; they had the shape and size of primroses, and the petals were the shallow bell petal of that flower. There they lay in tufts and clumps, with their frost leaves around and behind them, beautiful in their exquisite whiteness and wonderful in their resemblance to the river-brim, or political flower. Then we saw frost feathers—in shape and size as if they had been dropped by some moulting covey of arctic birds; or noticed stones on the sides of which the frost sculptor had imitated the shape of the wings of some gigantic ermine bird. The pleasure of admiring the graceful outlines of many of these ice-wings made our progress slow, and we were almost oblivious of the storm. At other times the frost artist had copied the flat gray lichen that clings to rocks, and the imitation was perfect. There were also countless imitations of the shallow Japanese umbrellas sloping from the stones. One could not fail to admire the magic force of nature which, even from the bosoms of ice-crammed gales, was able to gently precipitate their molecules into feather and plume, leaf and flower; nor fail to wonder that the silent growth was pro-

ceeding where all seemed wild whirl and confusion. These frost forms grow out of the moisture in the gale, and take their shapes against it. The rounded flower shapes told of the whirlwinds that had gyrated on the hill top. Here we may mention that the staff in the cairn had a frozen flag facing the south, six or eight inches deep. It was fairly whole at the top, but the fury of the storm had broken off large parts.

As we neared the very summit our mist-cloud broke up overhead, and high above us—possibly 5000 feet—we had a vision of a serene summer day. Large mackerel-backed sheets of white clouds lay calm and restful, while smaller tufts of cloud quietly melted into an almost Italian blue. There was summer, with an infinite repose, above our fret and storm. Only for a short time was this revelation given —then the storm-cloud and the gray light once more enfolded all.

The crawl to the top over the boulders was toilsome and not without risk, owing to the difficulty of maintaining foothold when the wind rose. We reached the cairn at three o'clock, after a five hours' steady climb. There was no trace of shelter; the wind seemed to blow from all points. Flopping on the ice we took our lunch with more at the feast than we bargained for. It was a case of snow- and ice-peppered sandwich, and unless care were taken the wind snatched it away; the banquet had its own novel enjoyment. The temperature was 30°-32° F., and the wind made it feel most bitterly cold. Trying to eat with ungloved hands we found to be very painful and numbing—the ice and snow melting on the skin gave a sensation of intense chill.

We lingered for twenty minutes and then made for the south cairn, for no other reason than to "do" it; the spirit of thrawness was on us. Over and over again, we had wonderful proofs of the magnifying and distance-deluding power of the mist. When the south cairn was seen through a thinning in the cloud it looked half-a-mile away and high above us; we were at it in a minute or two, and its height was under that from which we viewed it. The descent had now to be tackled, and the storm once more faced. It is

impossible, without seeming to exaggerate, to give any idea of the virulence of the gale. For the next half-hour we were buffeted, tormented, blown over; stung by ice and hail, our faces were cut and bleeding; half choked with fine snow powder; our hands were numbed; and more than once we were fain to lie down rather than struggle against the gusts of wind that swept over the summit. In the gray light of the snow and mist we stumbled along from stone to stone, trusting to instinct and the aneroid, till we got to a somewhat lower level. Indeed, from the time we left the cairn till Loch Eunach was reached, it hardly ceased snowing. As we stepped along—a silent party in Indian file—over the hill side at an altitude of about 3650 feet, we were like incarnations of winter. Ice tangles hung from moustaches and beards, even eyebrows and eyelashes had their adornments; our clothes were caked in ice, and creaked and crackled as we walked along. The "trail" was not long in being blotted out—often the foot-prints of the leader were hardly visible to the rear man—as we plodded on, keeping slightly lower than on the upward journey. We had seen no animal life till now, when we came among ptarmigan. These beautiful birds were our companions for a while many of them tame enough to allow us to approach within a few yards. Then they emitted their curious grunt, upflew on white wings, and perched and waited further on.

Up and down; over snow ledge after snow ledge; here cracking the ice-fields under foot, there crunching the snow and sinking ankle deep; seeing great high snow hills in the mist which had to be crossed, and finding we were over them before we knew—we walked, pleased and silent, ever on the outlook. Suddenly the mist was blown aside, and we saw the mighty newly snow re-clad peaks of Sgòran Dubh. At that moment the sight was remarkable for its vivid wintriness. For at this altitude the lower parts of the hills were cut off from our vision, and, far as the eye could reach, came hill-top upcrowding on hill-top, tableland beyond tableland of spotless white, frozen lochs and snow-filled corries, and a gray sky looming down. Then there were the snow- and ice- clad figures moving slowly into the gloom

—the dog cowering at the heels of his master—surely an arctic day indeed.

We had, however, missed the top of our corrie—we had intended to use our old steps in the descent to the loch—so, the storm again threatening to become vicious, we descended to the head of the loch, keeping the Lochan nan Cnapan burn well to our left. And some of us regretted the old path, for the clamber down miniature precipices and over scree was not altogether a merry one, with now and again an enforced halt till particular blasts should pass and allow the depths below to be seen. But the five mountaineers—not unaccompanied by rock fragments—got safely down at last. The frost-hardened clothes thawed, and although quite dry on the hill-top, we were now soaked with moisture. Resting for a few minutes, we combed our clothes from their debris of ice and snow, and then proceeded, at seven o'clock, to the shieling by the path along the west side of the loch. There we encountered a change of weather, and, in the midst of sleet and rain, drove off to Boat of Garten. For two and a half hours we had the close and assiduous attention of a Highland shower which was resolved to show itself at its best. But there was comfort at "mine inn"—the warm bath, dry clothes (somewhat varied and picturesque), the wholesome dinner, the hot toddy, and the gorgeous repose of a ten-hours' dreamless sleep. The following day we were at work in the city, our necks in the yokes of duty.

A memorable day on the hills, full of wild grandeur and enduring memories. "This you call enjoyment", sneer some. Well, yes; to the healthy human being there is a wild delight in meeting and fighting the unchained forces of nature—a pleasure in seeing the wind sculpture on the snow fields, and the growth of ice flowers. There is a rapture to catch peak after peak clad in ermine, now with the glimmer of sunshine, anon with the mist drapery. And there is a wild intoxication in drinking the high mountain air that stimulates the senses and kindles the imagination to delights unknown to the contented level-loving dwellers on the plains.

OBSERVATIONS FROM FIFTY SCOTTISH MOUNTAINS.

Compiled from Account of the Principal Triangulation, O.S.

The *first* figures indicate the bearings in degrees (90°=W., 180°=N., 270°=E., 360°=S.), and the *second* the distance in miles—but the latter is not always stated. Paragraphs with * prefixed have been made up, and names in italics added, from cross references, by the compiler.

* Allarmuir Hill (1617).—Hart Fell, 11; Carnethy Hill, 28; Meikle Bin, 104; Ben Lomond, 111; Bencleuch, 135; Ben Lawers, 140; East Lomond, 181; Craigowl, 191; Calton Hill, 203; Kellie Law, 215; Says Law, 277; Dun Rig, 355.

Beinn an Oir (2571).—Trostan, 6 60; Knocklayd, 11 52; Oa, 31; Mount Sandy, 37 62; Slieve Snaght, 47 72; Beinn Tart a' Mhill, 55 21; Ben Hynish, 138 52; Beinn Mhor (S. Uist), 153 106; Ben More (Mull), 179 36; Creachbheinn, 201; Ben Nevis, 211 73; Cruach na Sleagh, 215; Ben Lawers, 236 82; Ben Lomond, 249 57; Hill of Stake, 275; Goat Fell, 301 37; Merrick, 311 80; Beinn an Tuirc, 323; Carn na Leagh, 348.

Beinn Cleith-bric—Ben Clibrig (3154).—Ben Wyvis, 9 39; Sgurr na Lapaich, 22 65; Storr, 53 83; Suilven, 73; Quinag, 87; Monach, 98 70; Foinne Bheinn, 126; Fasbheinn, 142 29; Ben Hope, 150; Beinn Thutaig, 170 22; Fitty Hill, 214 89; Ward Hill, 220 60; Dunnet Head, 231 48; S. Ronaldshay, 234 65; Ben-a-chielt, 261 38; Scaraben, 272 30; Bin of Cullen, 304; Findlay Seat, 316; Duke of Sutherland's Monument, 320; Buck, 320; Beinn Lundie, 322; Corryhabbie Hill, 323 76; Ben Muich Dhui, 341 85.

Beinn Mhor, S. Uist (1994).—Clisham, 200 52; Storr, 247 45; Sgurr na Lapaich, 264 84; Mam Sodhail, 268 82; Elms Hill, 287; Ben Nevis, 289 92; Creachbheinn, 300; Ben More (Mull), 319 75; Beinn an Oir, 332 106; Ben Hynish, 346 57.

Beinn Tart a' Mhill (758).—Slieve Snaght, 44 51; Ben Hynish, 160 54; Ben More (Mull), 199 51; Creach-

bheinn, 206; Beinn an Oir, 234 21; Carn na Leagh, 317; Oa, 318; Trostan, 346 48; Knocklayd, 349 40.

Beinn Thutaig (1340).—Ben Wyvis, 2 60; Ben Hope, 20; Foinne Bheinn, 55; Fasbheinn, 93 14; Cnoc a Ghuibhais, 98 17; N. Rona, 131 61; Fitty Hill, 226 74; Ward Hill, 240 49; S. Ronaldshay, 254 59; Dunnet Head, 258 42; Ben-a-chielt, 291 44; Scaraben, 304 41; Beinn Cleithbric, 350 22.

Ben-a-chielt (942).—*Ben Muich Dhui,* 7 87; Scaraben, 48 10; Beinn Cleith-bric, 81 38; Ben Hope, 99; Beinn Thutaig, 112 44; *Dunnet Head,* 181 42; Ward Hill, 182 40; S. Ronaldshay, 206 36; *Mormond Hill,* 316 70; *Cowhythe,* 329 51; Knock Hill, 336 56; Bin of Cullen, 338; Corryhabbie Hill, 354 68; *Findlay Seat,* 354.

* Ben Alder (3757).—Ben Lomond, 8; Ben Nevis, 86; Mam Sodhail, 142; Ben Wyvis, 176; Ben Muich Dhui, 240; Glas Maol, 265; Ben Lawers, 334.

Bencleuch (2363). — Cairnsmore (Carsphairn), 15; Merrick, 21; Cort-ma Law, 49; Meikle Bin, 50; Goat Fell, 56 68; Hill of Stake, 58; Ben Lomond, 91 33; Ben Nevis, 132 63; Ben Lawers, 145 30; Ben Muich Dhui, 184 61; Glas Maol, 198 50; Mount Battock, 216 66; Craigowl, 229; East Lomond, 259 22; Largo Law, 264; Says Law, 298 49; Calton Hill, 305 28; Arthur's Seat, 305; Allarmuir Hill, 315; Carnethy Hill, 321; Dun Rig, 332 48; Hart Fell, 345 56; Tinto, 354.

* Ben Hope (3040).—Cnoc a Ghuibhais, 131; Fasbheinn, 134; Beinn Thutaig, 200; Ben-a-chielt, 279; Scaraben, 290; Beinn Cleith-bric, 330.

Ben Lawers (3984).—Merrick, 6 98; Hill of Stake, 23; Goat Fell, 31 74; Ben Lomond, 33 29; Beinn an Oir, 58 82; Ben More (Mull), 84 69; Ben Nevis, 121 35; Mam Sodhail, 147 61; Ben Alder, 154; Ben Muich Dhui, 210 42; Glas Maol, 235 40; Craigowl, 269; Largo Law, 293; East Lomond, 298 44; West Lomond, 300; Says Law, 308 77; *Calton Hill,* 316 57; Allarmuir Hill, 320; Carnethy Hill, 323; Bencleuch, 325 30; Hart Fell, 338 85; Tinto, 342; Meikle Bin, 355; Cort-ma Law, 357.

Ben Lomond (3192).—Brown Carrick, 3; Hill of Stake,

11; Goat Fell, 29 45; Beinn an Tuirc, 40; Knocklayd, 42 95; Beinn an Oir, 70 57; Ben More (Mull), 108 56; Creachbheinn, 136; Ben Nevis, 161 44; Ben Alder, 188; Ben Lawers, 213 29; East Lomond, 266 55; Bencleuch, 270 33; Calton Hill, 286 58; *Says Law*, 288 80; Allarmuir Hill, 291; *Carnethy Hill*, 295; Meikle Bin, 302; Dun Rig, 307 71; Cort-ma Law, 307; Tinto, 317; Hart Fell, 318 72; Cairnsmore (Carsphairn), 346; *Merrick*, 355 73.

Ben More, Mull (3169).—Oa, 11; Beinn Tart a' Mhill, 19 51; Ben Hynish, 94 35; Beinn Mhor (S. Uist), 140 75; Storr, 175 75; *Mam Sodhail*, 210 68; Creachbheinn, 231; Ben Nevis, 236 46; Ben Lawers, 262 69; Ben Lomond, 286 56; *Merrick*, 327 107; Goat Fell, 330 64; Beinn an Tuirc, 344; Carn na Leagh, 353; Beinn an Oir, 359 36.

Ben Muich Dhui (4296).—Bencleuch, 4 61; Ben Lawers, 30 42; Ben Alder, 60; Ben Nevis, 70 54; Mam Sodhail, 105 57; Sgurr na Lapaich, 112 56; Ben Wyvis, 141 54; Beinn Cleith-bric, 161 85; Beinn Lundie, 168; Balnaskerrish, 175; Scaraben, 182 80; Ben-a-chielt, 187 87; Findlay Seat, 204; Bin of Cullen, 216; Corryhabbie Hill, 223 26; Buck, 240; Hill of Dudwick, 247 66; Kerloch, 277; Mount Battock, 283 36; Glas Maol, 320 18; Largo Law, 334; Says Law, 335 93; *Carnethy Hill*, 350.

Ben Nevis (4406).—Beinn an Oir, 32 73; Ben More (Mull), 57 46; Creachbheinn, 63; Ben Hynish, 73 77; Beinn Mhor (S. Uist), 111 92; Elms Hill, 114; Storr, 138 66; Mam Sodhail, 173 34; Sgurr na Lapaich, 177 40; Ben Wyvis, 194 63; Corryhabbie Hill, 240 78; Ben Muich Dhui, 249 54; Ben Alder, 266; Ben Lawers, 300 35; Bencleuch, 311 63; Ben Lomond, 341 44.

Ben Wyvis (3429).—Ben Nevis, 15 63; Mam Sodhail, 36 34; Sgurr na Lapaich, 40 28; Suilven, 146; Quinag, 155; Beinn Thutaig, 182 60; Beinn Cleith-bric, 189 39; Scaraben, 224 52; Balnaskerrish, 247; Bin of Cullen, 270; Knock Hill, 275 67; Findlay Seat, 277; Corryhabbie Hill, 294 57; Ben Muich Dhui, 321 54; Ben Alder, 356.

Bin of Cullen (1050).—Buck, 8; *Corryhabbie Hill*, 28; *Ben Muich Dhui*, 36; Findlay Seat, 66; Ben Wyvis, 92; Balnaskerrish, 111; Beinn Lundie, 118; *Beinn Cleith-*

bric, 124; *Scaraben*, 145; Ben-a-chielt, 158; Cowhythe, 261; Mormond Hill, 278; Hill of Alvah, 282; Manor Lee, 296; Hill of Dudwick, 297; Knock Hill, 327.

Blue Hill (467).—Kerloch, 61; Mount Battock, 67 25; Buck, 113; *Brimmond Hill*, 142 7; *Over Hill*, 184 11; Mormond Hill, 186 35; Hill of Dudwick, 188 24; *Tarbathy*, 195 8; *Layton*, 196 13; Little Stirling, 205 28.

Brimmond Hill (870).—Mount Battock, 51 25; Buck, 107; Knock Hill, 145 35; Mormond Hill, 194 31; Hill of Dudwick, 203 19; Over Hill, 221 8; Layton, 227 11; Tarbathy, 247 7; Blue Hill, 322 7.

* Buck (2368).—Ben Muich Dhui, 60; Corryhabbie Hill, 115; Beinn Cleith-bric, 140; Bin of Cullen, 188; Knock Hill, 200; Cowhythe, 203; Mormond Hill, 239; Hill of Dudwick, 255; Brimmond Hill, 287; Blue Hill, 293; Mount Battock, 340.

* Cairnsmore, Carsphairn (2612).—Merrick, 51; Goat Fell, 123; Hill of Stake, 151; Ben Lomond, 166; Meikle Bin, 183; Bencleuch, 195; Hart Fell, 252; Crif Fell, 314.

Calton Hill (348).—Dun Rig, 0 27; Allarmuir Hill, 23; Cort-ma Law, 94; Meikle Bin, 97; Ben Lomond, 107 58; Bencleuch, 125 28; Ben Lawers, 136 57; East Lomond, 176 20; Craigowl, 189; Inchkeith Lighthouse, 199; Largo Law, 207; Kellie Law, 217 26.

Campsie Fells.—*Vide* Meikle Bin.

Carnethy Hill (1890).—Hart Fell, 10; Tinto, 41; Middlefield, 62; *Goat Fell*, 78; Hill of Stake, 90; Cort-ma Law, 107; Meikle Bin, 110; Ben Lomond, 115; Bencleuch, 141; Ben Lawers, 143; Ben Muich Dhui, 170; Glas Maol, 177; West Lomond, 178; East Lomond, 184; Craigowl, 191; Mount Battock, 195; Largo Law, 206; Allarmuir Hill, 208; Arthur's Seat, 212; Kellie Law, 214; North Berwick Law, 237; Says Law, 269; Cheviot, 299; Dun Rig, 350.

Clisham (2622).—Beinn Mhor (S. Uist), 20 52; N. Rona, 204 88; Monach, 214 33; Cape Wrath Lighthouse, 235; Cnoc a Ghuibhais, 236 79; Fasbheinn, 238 81; Quinag, 254; Rudh Re, 283 40; Sgurr na Lapaich, 302 77; Mam Sodhail, 306 79; Storr, 323 39.

Corryhabbie Hill (2563).—Glas Maol, 11 33; Ben

Muich Dhui, 43 26; Ben Nevis, 62 78; Mam Sodhail, 87 72; Sgurr na Lapaich, 92 70; Ben Wyvis, 115 57; Beinn Cleith-bric, 144 76; Beinn Lundie, 145; Balnaskerrish, 147; Scaraben, 167 62; Findlay Seat, 174; Ben-a-chielt, 174 68; Bin of Cullen, 208; Cowhythe, 220 31; Knock Hill, 223 23; Hill of Alvah, 230; Manor Lee, 231; Mormond Hill, 247 47; Hill of Dudwick, 262 44; Buck, 295; Kerloch, 314; Mount Battock, 328 32.

Craigowl (1493).—Calton Hill, 9; Allarmuir Hill, 11; *Carnethy Hill*, 11; East Lomond, 21; Bencleuch, 49; Ben Lawers, 90; Glas Maol, 149; Mount Battock, 200; Kerloch, 213; Broxy, 227; Red Head, 257; *Lumsden*, 325; Kellie Law, 336; *Says Law*, 345; Largo Law, 351.

Crif Fell (1867).—S. Berule, 38 69; *Slieve Donard*, 59 106; Glasserton, 65; Ben Cairn, 67; Cairnsmore of Fleet, 95; Merrick, 113 36; Goat Fell, 128 78; Cairnsmore (Carsphairn), 134; Hart Fell, 195 34; Dun Rig, 202 47; Wisp Hill, 228 35; Burnswark, 232 18; Cross Fell, 289 49; High Pike, 305; Helvellyn, 319; Sca Fell, 333 38; Black Comb, 346 49; Dent Hill, 349.

Dudwick, Hill of (572).—Tarbathy, 5 15; Blue Hill, 8 24; Over Hill, 12 12; Brimmond Hill, 23 19; Kerloch, 29; Mount Battock, 39 43; *Ben Muich Dhui*, 67 66; Buck, 75; Corryhabbie Hill, 83 44; Knock Hill, 111 30; Bin of Cullen, 118; Manor Lee, 118; Mormond Hill, 181 12; Little Stirling, 257 9; Layton, 358 10.

Dun Rig (2433).—Crif Fell, 22 47; Hart Fell, 37 14; Tinto, 94; Hill of Stake, 107; Dungoyne, 126; Ben Lomond, 128 71; Meikle Bin, 130; Bencleuch, 152 48; Carnethy Hill, 170; Allarmuir Hill, 175; East Lomond, 178 46; Calton Hill, 180 27; Arthur's Seat, 182; Says Law, 226 28; Mordington, 249 47; Blackheddon, 264 49; Cheviot, 279 41; Cross Fell, 335 66; Wisp Hill, 337 22.

East Lomond (1471).—Allarmuir Hill, 1; *Carnethy Hill*, 4; Tinto, 21; Bencleuch, 80 22; Ben Lomond, 87 55; Ben Lawers, 119 44; Glas Maol, 173 44; Mount Battock, 200 52; Craigowl, 200; Kerloch 208; Red Head, 227; Kellie Law, 268 17; Largo Law, 273; Lumsden, 300 46; Says Law, 322 35; Calton Hill, 356 20; Dun Rig, 358 46.

Fasbheinn (1498).—Quinag, 13; Suilven, 16; Clisham, 60 81; Monach, 75 53; Cnoc a Ghuibhais, 117 34; N. Rona, 140 51; Ward Hill, 247 61; Dunnet Head, 262 56; Beinn Thutaig, 273 14; Ben Hope, 314; Beinn Cleith-bric, 322 29; Foinne Bheinn, 356.

Glas Maol (3502).—Bencleuch, 18 50; Meikle Bin, 27; Ben Lawers, 55 40; Ben Alder, 85; *Mam Sodhail*, 112 72; Ben Muich Dhui, 140 18; Corryhabbie Hill, 191 33; Mount Battock, 257 24; Red Head, 298; *Lumsden*, 327 80; Craigowl, 329; Kellie Law, 332 49; Largo Law, 339; *Says Law*, 340 76; East Lomond, 353 44; *Carnethy Hill*, 357.

Goat Fell (2866).—Slieve Donard, 17 104; Divis, 25 78; Trostan, 44 55; Carn na Leagh, 47; Knocklayd, 53 53; Slieve Snaght, 71 89; Beinn an Tuirc, 75; Oa, 91; Beinn an Oir, 121 37; Ben More (Mull), 150 64; Creachbheinn, 171; Ben Lomond, 209 45; Ben Lawers, 210 74; Hill of Stake, 230; Bencleuch, 234 68; Meikle Bin, 236; West Lomond, 239; Carnethy Hill, 258; Tinto, 272; Hart Fell, 281 72; Cairnsmore (Carsphairn), 303; Crif Fell, 307 78; Brown Carrick, 309; Merrick, 319 44; Benereard, 345; S. Berule, 348 104; Cairn Piot, 354.

Harris.—*Vide* Clisham.

Hart Fell (2651).—Crif Fell, 16 34; Ben Cairn, 29; Cairnsmore of Fleet, 52; Merrick, 67 46; Cairnsmore (Carsphairn), 72; Goat Fell, 103 72; Hill of Stake, 119; Ben Lomond, 139 72; Tinto, 141; Meikle Bin, 146; Ben Lawers, 158 85; Bencleuch, 165 56; Carnethy Hill, 189; Allarmuir Hill, 191; Dun Rig, 217 14; Says Law, 223 42; Cheviot, 264 50; Wisp Hill, 296 19; Cross Fell, 323 61; High Pike, 344; Burnswark, 347 22; Sca Fell, 353 66.

Hoy.—*Vide* Ward Hill.

Islay.—*Vide* Beinn Tart a' Mhill.

Jura, Paps of.—*Vide* Beinn an Oir.

Kellie Law (595).—Carnethy Hill, 35; Allarmuir Hill, 35; Arthur's Seat, 35; Calton Hill, 38 26; Largo Law, 80; East Lomond, 89 17; Glas Maol, 153 49; Craigowl, 157; Mount Battock, 182 49; Kerloch, 192; Red Head, 203; Isle of May Lighthouse, 297; Lumsden, 316 32; Says Law, 351 28.

(Mull), 147 107; Hill of Stake, 167; Ben Lomond, 175 73; Ben Lawers, 186 98; Cort-ma Law, 191; Meikle Bin, 192; Bencleuch, 200; Tinto, 225; Cairnsmore (Carsphairn), 231; Hart Fell, 246 46; Wisp Hill, 260 60; Burnswark, 273 47; Cross Fell, 290 85; Crif Fell, 292 36; Ben Cairn, 310; Sca Fell, 313 69; Black Comb, 323 76; Cairnsmore of Fleet, 336; N. Berule, 357; Snea Fell, 360.

Mormond Hill (749).—Hill of Dudwick, 1 12; Blue Hill, 6 35; *Over Hill*, 7 24; Brimmond Hill, 15 31; Kerloch, 22; Mount Battock, 31 52; Buck, 59; Corryhabbie Hill, 68 47; Knock Hill, 88 28; Manor Lee, 89; *Bin of Cullen*, 98; Scaraben, 127 72; Ben-a-chielt, 136 70; Peterhead (Reform Monument), 311 12; Little Stirling, 320 13.

Mount Battock (2555).—Kellie Law, 2 49; Largo Law, 8; Carnethy Hill, 15; Craigowl, 21; East Lomond, 21 52; Bencleuch, 37 66; Glas Maol, 78 24; Ben Muich Dhui, 104 36; Corryhabbie Hill, 148 32; Buck, 160; Knock Hill, 178 44; Mormond Hill, 210 52; Hill of Dudwick, 218 43; *Over Hill*, 229 32; Brimmond Hill, 231 25; *Tarbathy*, 235 31; Blue Hill, 246 25; Kerloch, 256; Broxy, 278; Red Head, 338; Lumsden, 344 75; Says Law, 358 76.

Mull.—*Vide* Ben More.

Ochil Hills.—*Vide* Bencleuch.

Pentland Hills.—*Vide* Allarmuir Hill and Carnethy Hill.

Says Law (1750).—Wisp Hill, 17 41; Hart Fell, 44 42; Dun Rig, 47 28; *Carnethy Hill*, 89; Allarmuir Hill, 97; Cort-ma Law, 101; Meikle Bin, 102; Ben Lomond, 108 80; Arthur's Seat, 110; Bencleuch, 119 49; Ben Lawers, 130 77; East Lomond, 142 35; *Ben Muich Dhui*, 155 93; Glas Maol, 160 76; Largo Law, 160; Craigowl, 165; Kellie Law, 171 28; Mount Battock, 178 76; Kerloch, 185; Isle of May Lighthouse, 191; Lumsden, 257 19; Mordington, 276 24; Blackheddon, 296 32; Alnwick, 310; Cheviot, 321 33.

Scaraben (2054).—Ben Muich Dhui, 2 80; Duke of Sutherland's Monument, 43; Ben Wyvis, 45 52; Beinn Cleith-bric, 92 30; Foinne Bheinn, 106; Ben Hope, 110; Beinn Thutaig, 125 41; Ward Hill, 191 48; Dunnet Head,

194 32; S. Ronaldshay, 211 45; Ben-a-chielt, 228 10; Mormond Hill, 306 72; Cowhythe, 317 51; Manor Lee, 320; Bin of Cullen, 325; Knock Hill, 325 53; Findlay Seat, 343; Corryhabbie Hill, 346 62.

SGURR NA LAPAICH (3773).—Mam Sodhail, 20 7; Beinn Mhor (S. Uist). 86 84; Clisham, 123 77; Monach, 147 82; Glashmeal (Ross), 167; Beinn Cleith-bric, 202 65; Ben Wyvis, 220 28; Balnaskerrish, 234; Ben Rinnes, 267; Corryhabbie Hill, 271 70; Ben Muich Dhui, 291 56; Ben Nevis, 357 40.

SIDLAW HILLS.—*Vide* CRAIGOWL.

SKYE.—*Vide* STORR.

SOUTH UIST.—*Vide* BEINN MHOR.

STAKE, HILL OF (1711).—Benereard, 7; Goat Fell, 50; Beinn an Oir, 96; Ben Lomond, 191; *Bencleuch*, 238; Meikle Bin, 242; Cort-ma Law, 244; Glasgow Observatory, 262; *Carnethy Hill*, 270; Dun Rig, 285; Tinto, 291; *Hart Fell*, 299; Cairnsmore (Carsphairn), 331; *Merrick*, 347; Brown Carrick, 357.

STORR (2360).—Ben Hynish, 21 78; Beinn Mhor (S. Uist), 68 45; Clisham, 144 39; Monach, 176 59; Ru Stoir, 209; Cnoc a Ghuibhais, 210 87; Rudh Re, 214 28; Beinn Cleith-bric, 232 83; Mam Sodhail, 291 43; Ben Nevis, 317 66; Ben More (Mull), 355 75.

* TINTO (2335).—Merrick, 45; Goat Fell, 92; Hill of Stake, 111; Ben Lomond, 137; Meikle Bin, 147; Ben Lawers, 162; Bencleuch, 174; East Lomond, 201; Carnethy Hill, 221; Dun Rig, 274; Hart Fell, 321.

WARD HILL (1565).—Ben-a-chielt, 2 40; Dunnet Head, 4 16; Scaraben, 11 48; Beinn Cleith-bric, 41 60; *Beinn Thutaig*, 60 49; Fasbheinn, 68 61; Fitty Hill, 204 29; N. Ronaldshay Lighthouse, 225 48; Start Lighthouse, 232 43; Stronsay, 244 31; Deerness, 260 21; Copinshay, 270; S. Ronaldshay, 300 16.

EXCURSIONS AND NOTES.

OUR FIFTH ANNUAL MEETING.

was held on 27th February—the Chairman, Rev. Professor George Cameron, D.D., presiding. The Office-bearers and Committee for 1894-95 were re-elected—Mr. J. A. M'Hardy being added to the Committee in room of Dr. Roy deceased. The excursions for the current season were fixed as follows: Spring—Mount Keen; Summer—Ben Alder; Autumn—Kerloch.

It was resolved that members should be at liberty to bring one friend—a gentleman not permanently resident in Aberdeen, a lady, or one of their family—to the Spring or Autumn Excursions; and that the Summer Excursion should be, as formerly, confined to members and candidates for membership.

The Secretary was instructed to send an excerpt minute of the Club's sympathy to the family of the late Dr. Roy.

The following new members have been admitted:—Alexander Esslemont, Rev. F. R. Barry, John Grant, John Mitchell, J. F. K. Johnston, T. R. Buchanan, M.P., J. W. Crombie, M.P., and Professor Trail, M.A., M.D., F.R.S.

MOUNT KEEN

was revisited by the Club on 7th May last, and was one of our most successful excursions. Leaving Aberdeen at 8·0, Aboyne was reached at 9·20, where carriages were in waiting to convey the party up Glen Tanner to Coirebhruach. As the mansion-house of the Forest of Glen Tana was passed, Sir William and Lady Brooks wished us "a pleasant day on the hill" and invited a call on the way down the glen. Coirebhruach, at the intersection of the glen road with the Firmounth path, was reached at 11·15, and the ascent at once commenced. This path, one of the twelve "chieffe passages from the River Tay to the River Dee through the mountains", leads right over Mount Keen, crossing it at an altitude of 2500 feet, about three furlongs west of the cairn. Keen is granitic, and is the most easterly mountain in Scotland over 3000 feet in height. The summit is a well-defined cone, rendering it readily recognisable from most points of the compass. It has a north-facing corrie, Corrach, immediately below the cone, rather symmetrically shaped. Some of the members made the ascent by the corrie, the upper part of which was picturesquely fringed with a broad semi-circular snow wreath. The snow lay at such an angle, 42°, and was so hard, that it was not without difficulty that steps were kicked, and a crevasse about twelve feet deep, near the upper edge, negotiated.

Leaving Coirebhruach for the ascent, the Tanner is crossed at an altitude of 1235 feet. The path, a wonderfully straight one, lies

between Cowie Burn on the east and Black Burn on the west, both these streams being tributaries of the Tanner. The former rises between the summit of Mount Keen and Braid Cairn (2907), a neighbouring height to the eastward. At an altitude of about 2150 feet, a convenient well is reached, close to the east side of the track. *Keen* is a corruption of *Ceann*, a head, and *Mount* is evidently a form of *Mounth*, a very old term. The Mounth, according to Skene's "Celtic Scotland", "extends in nearly a straight line across the island, from the Eastern Sea near Aberdeen, to the Western Sea at Fort William . . . If the Mounth is now known as the range of hills which separates the more southern counties of Kincardine, Forfar, and Perth, from those of Aberdeen and Inverness on the north, it was not less known to the Venerable Bede in the eighth century, as the steep and rugged mountains which separate the provinces of the southern from those of the northern Picts".

Assembled at the cairn—which is situated on the Aberdeen-Forfar march, on a natural rocky outcrop, at an altitude of 3077 feet—the party was joined by several mountaineers who had made the ascent from Glen Esk, *via* Glen Mark and the Ladder. The weather was propitious, on the whole, but the atmospheric conditions did not permit of a distant view. The Benchinnans, streaked with snow, from Glas Maol to Lochnagar, were well seen; indeed, one of the best views was that of the latter mountain in varying lights. Ben Avon, struggling with clouds, represented the Cairngorms, while the Buck, Tap o' Noth, and Bennachie were also seen at intervals. Morven, however, and Clochnaben were uninterruptedly in evidence.

A meeting of the Club was held on the summit—Mr. Robert Anderson presiding. Sir William Cunliffe Brooks, Bart., was, with acclamation, elected an honorary member.

The descent was leisurely made by the Firmounth road. A small section, however, proceeded westwards to Allt Deas, a burn which runs in a deep, narrow gorge a short distance to the west of Black Burn. On the right bank of the former stream, at a height of about 2000 feet, is a fine corrie locally known as the "Slate Quarry". The origin of this name cannot now be ascertained; it is as unlike a slate quarry as it possibly can be. Considerable portions of the sides of the corrie stand at a perpendicular height of over 300 feet, and are composed of pure white quartz, imbedded in which may be observed numerous specimens of crystals. Manganese, also, in some quantity is found by Allt Deas.

Luncheon was served at the little shieling above Coirebhruach, and thereafter the drive down the glen begun. The party, which numbered forty-one, was hospitably entertained (as on 5th May, 1890) by Sir William and Lady Brooks, who also described many of the art and other treasures with which the house is enriched. Nor were the natural and other features outside neglected—particularly the famous kennels—but the time at command was utterly inadequate even to glance at a fraction of the numerous tasteful internal adornments, or the great improvements which Sir William has made in the glen.

With three parting cheers for our kindly hosts, the drive to Aboyne was resumed, and Aberdeen reached in due time.

Keen, crossed by the Queen in 1861, in her "Second Great Expedition", is thus described by Her Majesty: "Mount Keen was in great beauty before us, and as we came down to Coirebhruach and looked down Glen Tanner, the scenery was grand and wild. Mount Keen is a curious conical-shaped hill, with a deep corrie in it . . . We came in sight of a new country, and looked down a very fine glen—Glen Mark. We descended by a very steep, but winding path, called the Ladder, very grand and wild".

Probably the two rarest plants on the route are *Calamagrostis Epigejos* and *Azalea procumbens*. Both are in very small quantity—the former about three miles below Coirebhruach, the latter on the cone. The *Azalea* is not known to occur to the east of Mount Keen, and it is not on Morven. The only Alpine species met with by Macgillivray were—*Luzula spicata*, *Gnaphalium supinum*, *Alchemilla alpina*, *Saxifraga stellaris*, and *Carex rigida*.

FATAL ACCIDENT ON SCAWFELL.

Professor A. Milnes Marshall, M.D., F.R.S., Owens College, Manchester, met his death on 31st December last while climbing Scawfell. That morning Professor Marshall, with Dr. Collier, Professor H. B. Dixon, Mr. Otto Koecher, and a lady, formed a climbing party with the view of ascending this mountain. At the foot of the precipice the party divided, and Professor Marshall, with two others, ascended the face of Scawfell by Steep Ghyll and the chimney leading up to the Lom Man and Deep Ghyll Pinnacle. This accomplished, the party of three descended by Lord's Rake, at the foot of which they stopped to take photographs. About 3 p.m., wishing to get a view into Deep Ghyll—up which the other party was climbing—they mounted the small pointed ridge to the west of Lord's Rake. Dr. Marshall went a few feet higher than the others, and called out, "Here is the best place for the camera". Immediately afterwards those below heard a noise as of a large stone falling. The nearest to Professor Marshall was Dr. Collier, and he, at once turning, saw a great stone roll by down the mountain, followed by the body of Professor Marshall. The body rolled a distance of about 150 feet on to the screes below. Probably the large stone on which Professor Marshall was standing gave way, and he must therefore have fallen clear backwards some 10 or 15 feet from the ridge. Dr. Collier at once ran down to the spot where the body was lying, but it was found that Professor Marshall was quite dead. Those who were near were convinced that he was killed instantly at the first fall. The place where he stood was not in any way a difficult climb, no rope, of course, being used, and Professor Marshall was always a most careful climber. His tastes were varied, but of late years they had centred especially in mountain climbing. During the last summer his ascent of the Aiguille Dru and his crossing

of the Matterhorn from the Italian to the Swiss side were, under the circumstances, among the feats of the season. It was to keep himself in training for this favourite amusement that he delighted to spend a Christmas on the mountains near Wastdale, where a life full at once of achievement and of promise has been so prematurely closed. He was born in Birmingham in 1852.

CAMPING OUT AMONG THE CAIRNGORMS.

In 1883 the mountains had definitely laid their wonderful fascination over us after an ascent of Mount Keen. Though we had several times thereafter visited the Cairngorms, it was not till 1889 that we were able to add Braeriach to our list. On Monday, 29th July, that year we began a mountaineering holiday, walking from Ballater to Glen Derry, where we camped. Our impedimenta consisted of four rugs, two hammocks, six stout stakes hinged together in couples for slinging our hammocks in treeless districts, and provisions for about a week. The evening was beautiful as we slung our hammocks in < form between three pines, in order that our heads might be close together. We found ourselves so comfortable that we did not stir till eight o'clock next morning. After breakfast we made for the Shelter Stone, which we reached about 1 p.m., employing the remainder of the day in improving our temporary quarters. Unfortunately the next two days the weather proved very unsettled, so we had to content ourselves with once more exploring Ben Muich Dhui, Cairngorm, and other near summits. On Friday, however, we started for Aviemore by the Garbh Uisge with the mist scudding past about the 3250 feet level, tinged a magnificent pink by the rising sun, as yet invisible to us. The plateau reached, a hurricane was next encountered. Descending into the Larig, the two rival head-streams of the Dee were successively crossed—no simple matter, as they were in spate—and Lochan Uaine made for. Thence we held up the scree to our left, reaching the summit of Cairn Toul at 8 a.m. It was now clear all round except to the south-west, in the direction of the wind, which still blew with considerable force. After spending a couple of hours near the cairns, we wandered round to the sources of the Garchory, thence to the summit of Braeriach, and over to its northern corries. Then, making for the precipices above Loch Eunach, we rapidly descended to its north end, passing on the way down some of the finest tracts of white heather we have ever seen. Once off the ridge we were in a region of calm ; in the glen the sun was glaring hot, and there was little wind. After having battled for hours against the hurricane, we lingered among the heather, gazing up at the magnificent east face of Sgòran Dubh, till a smart shower thoroughly roused and soaked us. The walk down the glen to Aviemore was very enjoyable. What struck us most was the beauty and luxuriance of the heather. We had never seen anything approaching it ; the colours were unusually fine, and, besides the pure white on Braeriach, there was every tint from pink and red to the deepest crimson.

Returning from Aviemore we, after a passing visit to lovely Loch an Eilein, made for the Bennie and its tributary, the Allt na Leirg Gruamaich. We camped at 11·0 at the last pines by the side of this latter stream, which we could hear rushing some fifty feet below us. But, as sleep was a failure, we wandered about for two or three hours to keep ourselves warm, watching the sun-glow circling the horizon. The night was not to be called disagreeable, but it was very cold, and a drizzly rain fell at intervals. After a false start in the darkness, we were well into the Pass by 4 a.m., rain not adding to our comfort. The col was leisurely reached by 6·0, then, turning sharply to the left, we held direct to the Shelter Stone. The weather now settled down—to the bad, and we could only plan excursions. Lured by an apparent improvement, we emerged from beneath Clach Dhian, and again started for Ben Muich Dhui. But the threatening black clouds, having got us at a height of over 4000 feet, burst forth into a deluge. We made a hurried retreat Stone-wards, leaving the sole of a boot behind us, and thus putting a compulsory end to our mountaineering. We left our retreat early next morning, and by 5·0 were at Loch Etchachan. There the wind seemed to blow from every point of the compass, and mist held us till we crossed the Derry. This was followed by a steady downpour of rain all the way to Ballater.—Alex. M. and Henry Kellas.

The Junior Cairngorm Club came into existence on the 1889 Aberdeen Midsummer Holiday, when the name, originally accidentally applied, was adopted. A party of seven (afterwards joined by other five Aberdonians) then resolved to cross Ben Muich Dhui and Cairngorm to Nethy Bridge. The combined party started up Glen Derry about midnight on a cold, drizzly, cheerless morning. A heavy rain succeeded a "Scottish mist", and the wind blew with great force. At Loch Etchachan sleet was encountered, followed, 500 feet higher, by hail, which mercilessly punished our faces. Mist now closing in upon us we retraced our steps to the loch and held down to the Shelter Stone. Here we were not a little comforted by a fire and an early (6·0) breakfast. It was apparent that rain was to be the order of the day, so we made for Nethy Bridge by the Saddle, reaching our destination at 3 p.m., after a "shower" which lasted for about ten hours. At the Abernethy Hotel food was not to be had, as the Cairngorm Club had requisitioned everything for their first excursion, and so we took train to Grantown.

The following Midsummer Holiday route was also across the Cairngorms, but from Boat of Garten. After wandering the greater part of the afternoon between the tops of Cairngorm and Ben Muich Dhui in a hurricane of wind and rain—mostly also in dense mist—we somehow dropped into the Learg Ghruamach, and unexpectedly, at 11 p.m., found shelter in a hut, where circumstances had driven other three mountaineers. Here the night was passed, not uncomfortably by any means—we were reduced to such a condition that a roof and a fire

made a palace—and early next morning we once more stepped out into the rain and found our way to the Linn of Dee, where Mrs. Christie gave six wet, weary, and hungry hillmen the reception their condition demanded.

Since then every holiday and many a "Saturday to Monday" have seen us on the tramp. Our wanderings have ranged over a considerable area, and embrace the more important summits of the Cairngorms, Lochnagar, Mount Keen, Morven, the Benchinnans, Ben Nevis, the Loch Maree district, Schichallion, &c. The original members were :—Alex. Cook, J. W. Davidson, G. J. Firth, George Garden, Alexander Gray, J. S. Preston, and Donald Sinclair ; Firth and Garden have been replaced by George Nicol and Edward T. Smith. We are a close corporation, our motto being—"we are seven" ; friends of members may indeed become "associates", but these are allowed to join excursions only when our number falls below seven.—D. Sinclair.

An Attempt on Ben Muich Dhui

was made by an Aberdeen quartette on 5th May, cycling from Ballater to Derry Lodge. The result of the November storm was observable in the lower part of Glen Lui, whole stretches of trees being upturned, many having boulders embedded in their roots. Derry Lodge was passed at noon, after which the track was much obstructed by fallen trees. Rain and hail also began to be troublesome, a state of matters which was not improved when Coire Etchachan was reached. The burn there was almost entirely concealed under snow, and the loch was covered with thick ice-floes, which, broken up in the genial spring, had again frozen together. Black threatening clouds now obscured the sun, the wind came sweeping down, and we were enveloped in a fierce storm that compelled us to huddle in the lee of a friendly boulder. This short storm past, we resumed our upward march over deep snow, the top coating of which was fresh and soft. But soon another storm came on, fiercer even than its predecessor, and prudence suggested a retreat, so we turned our backs on the Ben. In the course of the descent not a few involuntary disappearances were made in the snow. The foot of Coire Etchachan reached, falling snow was exchanged for sleet, and latterly rain kept us company to Derry Lodge. As we approached the Lodge we were joined by a brother mountaineer who had left Lynwilg that morning, crossing (as he thought) Braeriach on the way. We held on to the Linn of Dee, where we found comfortable quarters at Mrs. Christie's. Next day we cycled to Ballater, thoroughly satisfied with our early attack on the monarch of the Cairngorms.—W. M. Brechin.

GUIDE TO BEN NEVIS,

referred to in our last Number, is a booklet issued by the Observatory authorities (Edinburgh : J. Menzies & Co., price 1/-), having a good map and illustrations. It gives an account of the foundation and work of the Observatory. The latter will be best shown from the extracts following, which will also give an idea of the interesting nature of the hand-book. Gales, of course, are of frequent occurrence on the Ben. "On the night of February 21, 1885, a terrific southerly gale blew with hurricane force, and stopped all outside observing for fifteen hours. . . . This gale was the severest experienced in any winter. Occasionally similar conditions of wind and overpowering drift have occurred, but only for an hour or two at a time, and long-continued gales have not been accompanied by so much drift. During the months of February and March, it is not uncommon to have south-easterly gales blowing for three or four days continuously, at the rate of 80 to 100 miles an hour ; but, under these circumstances, the hill-top is usually swept at once clear of all loose snow, and a hard surface of rough ice left, which is not touched by the wind, and on which good footing may be got".

Thunder-storms, it seems, "are rare on Ben Nevis ; on an average there are only half-a-dozen in the year, mostly in autumn and winter ; and there have been intervals of as long as two years without either thunder or lightning being observed. Most of the ordinary summer thunder-storms seem to pass below the hill-top, and even the thunder is not heard. But when a storm does pass over the summit, it is a most unpleasant experience. The cloud is seen approaching with lightning flashing from it ; it then envelops the hill-top, during which time no lightning is seen, but rain or snow falls heavily—as much as one-third of an inch in ten minutes has been recorded ; and then as the cloud moves off, a discharge takes place, not merely from the cloud, but from all large metallic bodies in the Observatory ; a brilliant flash springs out from the stoves, and a sharp crack like a pistol-shot is heard. . . . The most severe of these storms was in January, 1890".

The question of the best time for a "view" from our mountain tops is now set at rest. "The morning hours are not the time at which the hill-top has most chance of being clear, as many believe. It has been found that in the afternoon (1 to 5 p.m.) there are fewest foggy hours, and in the early morning (1 to 6 a.m.) most ; but the proportion is only about five to six, and, practically, when the top is clear it remains clear all day long. The clearest month is June, with about half its days clear, and the foggiest months are November and January, with only one day in four clear".

There is little animal life, as might be expected, at the summit. "Snow buntings build their nests among the rocks of the northern cliff, and flit about on the top. Hawks and ravens, too, are frequently seen, but other birds are only occasional visitors. There are usually a pair or more of stoats somewhere about the summit. . . . Footmarks of hares and foxes may often be seen in the snow, and the red deer occasionally come up to within a few hundred feet of the summit".

The mean pressure for the year is 25·299; lowest mean monthly temperature, 22°·6, in March; highest, 40°·0, in July. The highest mean temperature of any month was 45°·6, in June, 1887; the lowest, 20°·0, in January, 1886, and March, 1891. The absolutely highest temperature hitherto recorded is 67°·0, on 24th June, 1887; and the lowest, 2°·7 on 27th March, 1892. The mean annual rainfall has been 142·34 inches (at Fort William, 75·79 inches), being the largest of any place in Scotland, so far as known. The maximum is 17·22 inches, in January, and the minimum, 5·53 inches, in April. Sunshine observations show that "in the West Highlands June is the brightest and driest month of the year".

It is well to state, on the authority of the Observatory officials, that Ben Muich Dhui "can be with difficulty distinguished" from the top.

THE SCOTTISH MOUNTAINEERING CLUB JOURNAL

in the first two numbers of Vol. III. keeps well up to its own high standard, under the editorship of Mr. William Douglas (we blundered into *David* Douglas at p. 114). No. 13 (January, 1894) opens with "Climbing near Wastdale Head", an article which must have been read with peculiar feelings owing to the fatal accident on Scawfell on the last day of the year. No. 14 begins with No. I. of a series of articles on the "Rise and Progress of Mountaineering in Scotland". There is excellent variety of subjects in these two numbers. In No. 14 Mr. Henry Sharpe discourses about Brocken Spectres and such-like phenomena, while Mr. R. T. Omond gives a supplementary note thereon.

CALLANDER

and its neighbourhood are well described in a neat little volume (now in the second edition) by Malcolm Ferguson, author of "Rambles in Breadalbane" (Glasgow: T. Murray & Son, Limited). Mountaineers are indebted to Mr. Ferguson for the initiation of the erection of the Ben Ledi Jubilee Cairn, built on 14th June, 1887, but which came to grief at the hands of "a number of senseless and evil-disposed young scamps" on 10th July, 1889. It was rebuilt on 21st June, 1890, and now measures about 20 feet in height, and 45 feet round the base. A short chapter is devoted to an ascent of Ben Ledi from Callander. The book is prefixed by an excellent map.

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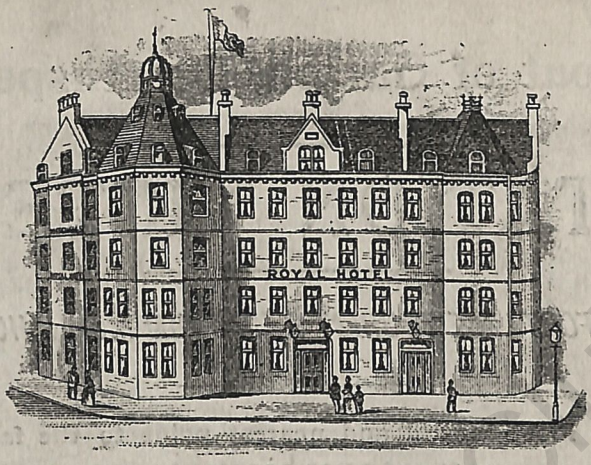

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