

THE YORKSHIRE RAMBLERS' CLUB JOURNAL.

EDITED BY THOS. GRAY.

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ISSUED YEARLY.

Published by the Yorkshire Ramblers' Club, 10, Park Street, Leeds.

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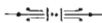
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Photo by Erik Ullén.

THE SKAGASTÖLSTINDER FROM THE DYRHAUGSRIDGE.

THE
Yorkshire Ramblers' Club Journal

VOL. II.

1906-7.

No. 7.

SOME REMINISCENCES OF
SKAGASTÖLSTIND.

BY ERIK ULLÉN.

"Vallis est hic mundus mons est cælum."

(From a 12th Century MS.)

If it be true that a special inferno awaits the climber who has ascended a mountain more than once my prospects for the future are very dark indeed, for I have been no fewer than sixteen times up Store Skagastölstind. I have been there alone and also in good company; in the daytime and at night; in sunshine and in snow-storm. Sometimes the ascent has been mere play in fun and merriment, and sometimes a fierce struggle against heavy odds, and I cannot say which we enjoyed most. I may add that I have been up Skagastölstind by eight different ways and hope to find one or two more if opportunity offers.

Cecil Slingsby made, as all who climb in Norway know, the first ascent of the mountain in 1876. He ascended the glacier which now bears his name, reached Mohn's Skar—the col between Store and Vesle Skagastölstind, and finished the climb by the north arête. Four years afterwards Johannes Heftye, with Jens Klingenberg and Peder Melheim, made the ascent from the opposite side entirely by rocks, and this route is now generally taken. The most interesting portion of this climb is the famous Heftye's chimney. In 1890 Hans Olsen Vigdal of Skjolden (not to be mistaken for Johannes Vigdal of Solvorn, the well-known guide) varied Heftye's route

considerably. From the ledge below the chimney he made a traverse to the left to another chimney, which he ascended—a brilliant achievement considering the sensational nature of the climb and the fact that he was alone. The big gully in the west face was climbed in 1899 by A. W. Andrews and O. K. Williamson, with Ole Berge. Dr. Bröckelmann and Oberleutnant la Quiante made the second ascent by this route, and I see in *Deutsche Alpenzeitung* (7 Band, 4 Jahrg., p. 231) that they believed it to be a first ascent—a very natural mistake considering that they had never been on the mountain before. I saw their tracks only one or two days afterwards and there can be no doubt that their route was exactly the same as Mr. Andrews'.

I made my first ascent of Skagastölstind in 1903 in company with two Frenchmen, and a jolly day it was. None of the party was a linguist, and when not climbing we were busy turning over the leaves of our dictionaries. In Vigdal's chimney, which was very glazed, I learned many Gallic phrases which were as concise as they were expressive and which have since proved very useful. Two days afterwards, our party on Store Midtmaradalstind was composed of seven mountaineers of four nationalities and thus made it a new Tower of Babel. During the descent we got into difficulties, and I am afraid that our remarks would have been awful hearing for a Presbyterian well versed in languages.

The same summer we had the good fortune to find a new route to the right of Heftye's chimney. It was a wet and dull day. Fröken Therese Bertheau, Kristian Tandberg and myself were sitting on the ledge below considering which way we should take. We noted with disgust that a fixed rope was dangling in Heftye's chimney, and, as we had done Vigdal's traverse before, we looked at the rock-wall between these two routes but did not like the aspect of it; it was somewhat overhanging and streaming with water, so we turned our attention to the right. Tandberg traversed some slabs and swarmed slowly up a vertical and exposed buttress to a considerable height and then tried to step across a shallow gully to the right.

This is the *mauvais pas* of the climb. The handholds are not bad, but the only available foothold is very scanty and the whole business looked rather nasty. We did not feel quite prepared to follow our leader should he take a speedy descent to the Slingsby Glacier and told him so, and, as he does not like travelling alone, he displayed great caution and eventually pulled himself safely across. It was rather difficult to find a satisfactory belaying pin but in due time we all joined our leader. From here a comfortable couloir and some easy slabs led us straight up to the cairn.

In 1904, four of us, including two ladies, succeeded in climbing the wall between Heftye's and Vigdal's chimneys. The wall is, as I have already mentioned, somewhat overhanging, and icy water flowing from above failed to make it more attractive. Standing on the big stone, which makes such a welcome barrier on the ledge, I could reach some rather poor handholds and get a little support for the right foot on a badly sloping boss of rock. The next movements were awkward and required care, but higher up the holds improved. A few minutes later a cry of exultation in various keys reached me from below as I clambered up to a spacious and comfortable ledge.

The first thing I did when I had recovered my breath and rubbed a little warmth into my fingers was to tell my comrades below that it was quite easy. A scoffing laugh greeted this declaration and a bass voice remarked: "I'll eat my hat if I ever get up there." At the moment I felt somewhat hurt by the doubt cast on my veracity, but experience has taught me to understand others' feelings. I am thinking of a certain day on the north face of the Pillar Rock. My friend Harold Raeburn was sitting above "the nose" and I was below, and I remember well what he said and what I said. We didn't quite agree. However he got me up at last, and from that day he has considered me an exceptionally heavy person.

To return to Skagastölstind; Fate seemed at first inclined to find for the sceptics. A shoulder from below made the first move easy, but a moment of suspense

followed and then a voice, very much out of breath, entreated the leader to pull. I pulled with all my might, and the unhappy victim, slipping away from the holds, found himself dangling in mid-air. Lowered a little he—or she—was seized by the legs by the rest of the party below and pulled on to the ledge, amidst a shuffle of masculine maledictions and feminine lamentations. However, by means of assiduous invocations of our tutelary saints and an ingenious use of the rope all of us at last got up by the new way, with the exception of one of the ladies, who with great firmness of character declined to be cut in twain by the rope and preferred to go up Hefty's chimney in one piece. Having reached the summit some of us withdrew to solitude with thread and needle to touch up our sartorial appearance, for even on a mountain top some small degree of decorum has to be observed.

The above climbs are all on the east face, and ought perhaps to be called variations rather than different routes. From the west or south-west there are two ways to the summit: Andrews' gully and the S.W. arête.

Most mountaineers who have been on the west face of Skagastölstind have certainly noted the magnificent 400-foot gully which runs straight up the nearly perpendicular summit crags. This is Andrews' gully and affords a most interesting climb.

I made my first acquaintance with it in 1905 under somewhat peculiar circumstances. I had already begun the summer's campaign by slipping on the deck of the steamer between Bergen and Skjolden—to the immense gratification of my non-climbing fellow-passengers—and, as I found out some weeks afterwards, fracturing a kneecap. I made my solemn entry into Turtegrö on horseback and a committee of wise men was appointed to treat the injury. They applied a bandage, ordered complete rest, then went away climbing.

The weather was perfect, the air was crisp and pure, and the sun shone from a cloudless sky. I spent the days lying on my back in the heather, enjoying the warmth, the distant murmur of the river and the many summer scents, and my happiness would have been complete had

not the snowy peaks at the head of the valley been calling with a thousand voices. One day, half-a-week after the accident, the temptation became too strong, and the invalid sneaked away after luncheon and limped to the hut on Bandet. *Abyssus abyssum invocat*, and when I say that the hut is about midway between Turtegrö and the summit of Skagastölstind I need not tell what followed.

At the foot of Andrews' gully I changed my boots for *scarpetti*. The lower portion is the stiffest and may appropriately be defined as four continuous pitches with only narrow ledges between. It is a straightforward climb the whole way, only, in one or two places it is judicious to work out a little to the right. Though I have never played—or indeed for that matter ever tried to play—the piano with my toes, I used to be a master in the noble art of walking on the hands. Now I had to climb on one leg: it is a very recreative exercise and involves a multitude of striking and graceful attitudes. Higher up the angle eases off. The holds are delightfully good but in places rather apt to come off, and the climber ought to test them carefully if he does not want to illustrate the Austrian Marterl:

“In 3 Sekunt'n war er unten
Man hat'n gar nöt g'fundn.”

I made a second visit to Andrews' gully one or two weeks later, in company with three others. Inspired with benevolence towards humanity in general, and especially towards the climbing fraternity, we cleared away a lot of the loose stuff. Fortunately I was leading and could thus without *arrières pensées* enjoy the crashes of the stones on their way to the Midtmaradal 4,000 feet lower down. Some of my friends below seemed to be unable to perceive the altruism of this action and carried on a somewhat heated discussion when they were not looking out for stones. But then some people are shockingly selfish!

Three attempts had, so far as was known, been made on the S.W. arête of Skagastölstind: by J. Hefty, with Jens

Klingenberg and Peder Melheim* ; by Carl Hall, with Mathias Soggemoen and Thorgeir Sulheim† ; and by Fröken Therese Bertheau and A. Saxegaard, with Ole Berge. It was followed to the summit on July 24th, 1904, by four of us.

A party of two tourists and two guides started simultaneously from the Skagastöls hut, and we kept company with them till the ordinary way strikes the S.W. arête and then watched them disappear round the corner. The frugal luncheon was soon finished and the pipes being put back into the pockets we roped and started, the learned man as usual first, the sturdy man second to lend a broad shoulder in cases of exigency, the charming young lady third, and the reckless man last lest he should lead us into mischief by attempting impossible places.

It was a glorious day and we felt instinctively as we grasped the warm rocks that victory was to be ours, and even the clumsiest amongst us displayed the most Terpsichorean agility when the eyes of our fair lady in wonder and admiration followed his performances. The leader started straight up the actual arête. The plate facing p. 181 shows well how smooth and exposed this is. The rocks are, however, delightfully firm and reliable, and the holds just big enough to satisfy the requirements of a not too pretentious climber. As I clambered on to a convenient ledge I could not help wondering how my comrades would like this fancy bit of rock work, and my disappointment was great when I saw them ascend with ease and gaiety over broken rocks a little to the right. A long pull without any footholds to speak of and an airy promenade on all fours along a narrow ledge brought us to a little cairn marking the highest point reached by our predecessors.

A formidable-looking wall now confronted us and seemed to bar completely all further progress. With great difficulty I succeeded in climbing ten or perhaps twelve feet, but I felt that I had got dangerously near the

* *Vide* "Horungtinderne i Sogn," p. 43, by J. Hefty.

† *Vide* Den Norske Turistforenings Årbog, 1891-92, p. 45.

line which, at least so far as I am concerned, separates the possible from the impossible, and so I descended again. To the right was a square-cut precipice, and we could catch a glimpse of the Slingsby Glacier and its yawning crevasses far below. To the left were some steep slabs hanging over the abyss. Here was evidently our way. On some small holds I managed to get across and round the corner. Half a dozen steps more and a narrow vertical crack was reached. The first fifteen feet of the crack were not unduly stiff, but then the difficulties became great and I dared not venture any further and even felt doubtful whether I should be able to descend again. A glance downwards revealed the charms of the situation: a smooth rock-wall, and a slanting slab terminating in space.

As long as the rope had been moving the silence had been unbroken, but now, when I was studying the problem how to get down, I heard voices from round the corner. At first they were soft and mellow, but by degrees they grew loud and satirical. They informed me that the sitting accommodation was scanty and that time was flying fast. Did I sleep well? They should be much obliged if I would kindly inform them how long I was going to keep them waiting. But I resisted the charms of a conversation. By means of great caution I succeeded in getting down, and, continuing the traverse still more to the left, reached a spacious anchorage just as I had run out the whole length of the rope. The rest of the party soon joined me, and their long and anxious waiting was at once forgotten at the sight of a wide vertical chimney in front which evidently led to our goal. Exulting in the imminent victory we ascended it, first working straight up the middle of it and then, when the right wall became overhanging, out and up to the left. A dark and damp cave and we saw the sky-line ahead; a short gully and the last doubt vanished. Our fair lady took the lead and a few minutes later we were standing triumphantly at the cairn.

We spent three hours on the summit, three memorable, full and—alas—all too brief hours. In an easy detachment

did we absorb it all: the glaciers glittering in the sunshine, the glorious peaks we knew so well now far below us, the tarn in the deep reflecting grim rocky walls and blue sky, and, half awake, half in dream, did we let the eyes follow the shadows of the floating clouds wandering over the snowy wastes to a distant and unknown far away. Down there in the hazy valley our worries and griefs and all the *ennui* of life were waiting for us—but we did not care.

The best way of approaching Store Skagastölstind is by the ridge over Nordre, Mellemste and Vesle Skagastölstind. It is the most sporting route, and from nowhere else does the old mountain look grander. The first complete traverse was made in 1902 by Harold Raeburn's party, and I have had the good fortune to repeat this splendid climb thrice with different parties and once alone.

Prima quaeque difficillima sunt, as we all know, but, when the traverse of the Skagastölsridge is concerned, the beginning is tedious, which is worse, and the four hours' walk up the endless scree to Nordre Skagastölstind are known to have ruffled even the most serene tempers. A friend of mine once undertook to carry my heavy camera there: he kept his promise faithfully and arrived at the top minus coat and waistcoat, sweating prodigiously, and said that he "would never more carry any ——— cameras up any ——— peaks."

But once here the fun begins. The further one advances along the ridge the narrower it becomes and the wilder the surroundings. The view of the Styggedals Glacier and the peaks beyond is truly magnificent, a chaos of rugged arêtes, hanging glaciers and mighty ice-walls, the happy hunting ground for the fearless cragsman and the earnest devotee of the ice-axe.

The 'V' gap and Patchell's slab are the glories of the Skagastölsridge. The 'V' gap, Slingsby's conquest, is always fascinatingly interesting and the way is, though in no place unduly difficult, very intricate. Once, when I was there alone last summer, I lost the way completely in a vehement blizzard and got into great difficulties. Patchell's slab is accounted one of the most difficult

places in the district and will, when there is ice about, test the skill and nerves of even the best of cragsmen. I had heard vague rumours of the horrors of the place and it was therefore a great disappointment on my first visit to find two fixed ropes. A few weeks later, on the way back from the first traverse of the Maradalsridge and Centraltind, we cut away the ropes, which were very rotten, and I haven't since heard anyone complain of the place not being *haute école*. Once when the conditions were very bad we were nearly beaten. Patchell's slab can however, as Fröken Bertheau's party showed in 1901, be turned to the left by a sort of hand-traverse which is by no means easy, but where the leader can be well fielded.

There can hardly be seen a grander and more alpine sight in Norway than Store Skagastölstind from Vesle. All around are lofty spires and white cones, but one doesn't heed them, for the eye cannot leave this bold rock-gable. There are no delicate colourings, no graceful outlines, only this stupendous mass of rugged walls, grim precipices and gloomy chimneys, towering above the neighbouring peaks as Charlemagne above the peers. I remember once seeing it flaming red in the last lingering sunlight. We had been climbing since early in the morning, the lady of our party was quite exhausted and our progress had been only slow. It was already dark when we gained the lofty summit and day was breaking long before the valley was reached again. Another time I was alone—it was two days after my first ascent of Andrews' gully—and had had a hard struggle against icy rocks and foul weather on the Skagastölsridge. I had just taken out the compass and was trying to find out the whereabouts of Skagastölstind when a storm-wind suddenly split the clouds and for a few moments I saw it looming out through the gloom. The wind was roaring wildly amongst the crags, and streams of powdery snow were blowing from the arêtes. I knew that the greatest difficulties were behind me and yet I shivered at the sight.

When our Ex-President made his memorable ascent of Skagastölstind he reached Mohn's Skar from the south-

east. "On the north or opposite side to that which I had ascended," he says, "instead of a friendly glacier or couloir close at hand, there was a grim precipice." * It had long been a dream of mine to scale this wall and thus make the first ascent of Skagastölstind from the Skagastöls Glacier, and often on the way to Bandet had I stopped and studied the problem through my glasses. The final wall looked difficult, but the foot of it could evidently be reached provided that one could get across the schrund and ascend the ice-worn rocks at the bottom. Another consideration was that stones and fragments were constantly falling from the slopes above. Of course I know that the climber ought to be able to keep a watchful eye on the falling stones, as the accomplished shot gauges the flight of the bird, and dodge them at the critical moment, but I must confess that I have utterly failed in this art though I have had many opportunities of practising it. When there are falling stones about I generally do what I do in a drawing-room when a kind friend tells me that my tie is half way up my neck: I try to look as unconcerned as possible and wish I were somewhere else. I remember what happened once when I tried to behave correctly in the matter of a falling stone. It was not a success, but that was the stone's fault and not mine. I saw it come whizzing through the air straight at me and followed its course with the eyes of a falcon; at the psychological moment I sprang aside and got hit right on the forehead and knocked down.

In 1903 we made what may be called a reconnaissance in force. Two of us had intended to take a novice up Skagastölstind by the ordinary way, but the weather was so bad that we dropped the idea. On the way down the glacier we decided to have a look at the rocks below Mohn's Skar just to get a little healthy exercise before dinner; so we roped and started. The difficulties were great from the beginning, but nothing would impress our novice. He admired the view when he was supposed to be in readiness to field the man in front; discussed the great problems of humanity when engaged in a nasty

* *Vide* "Norway: The Northern Playground," p. 158.

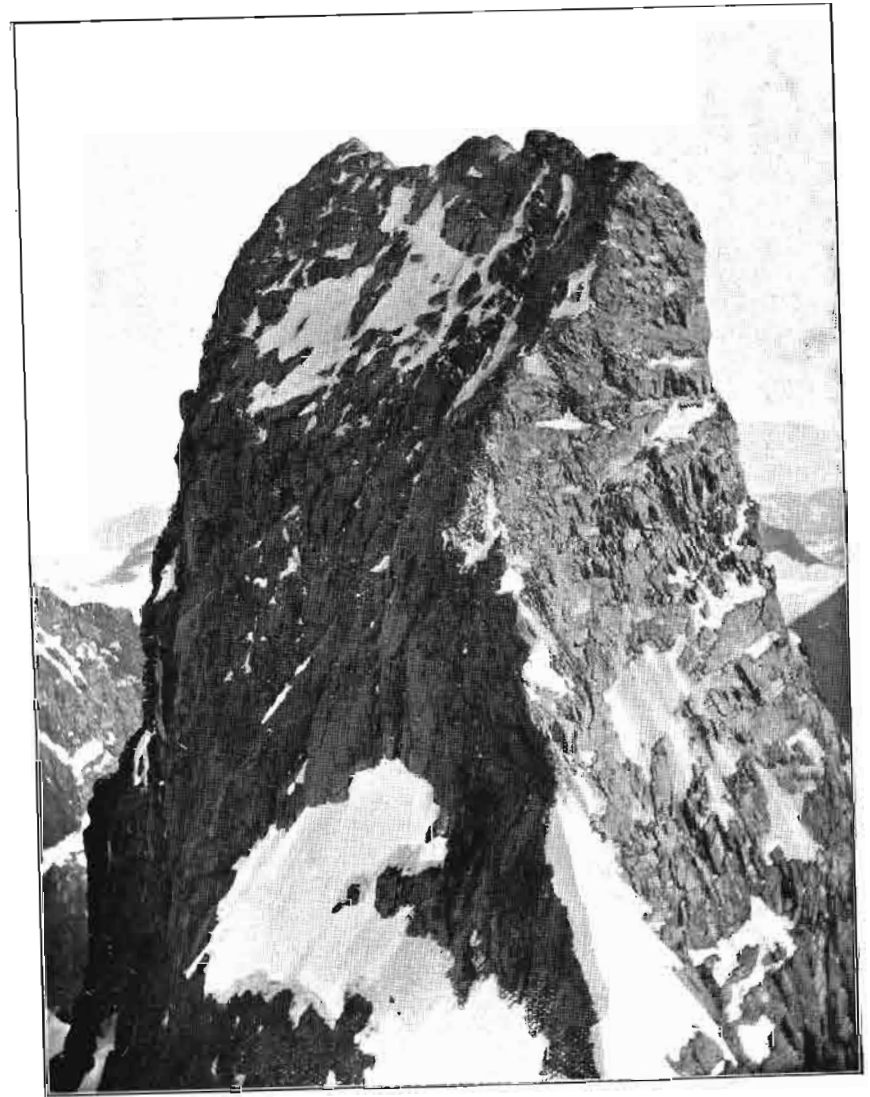


Photo by Erik Ullén.

STORE SKAGASTÖLSTIND, FROM MOHN'S SKAR.

traverse where a slip would have dislodged the whole party; and pooh-poohed the stones, which were now and then whizzing over our heads. "They wouldn't do any harm," said he, "because they were falling from such a great height," an argument the point of which we didn't quite catch. We spent several hours on a few hundred feet of rocks and at last gave it up, to the great indignation of our lion-hearted friend.

Late in August 1904, and quite unexpectedly, I got the chance which I had been looking for. The winter had set in early and the mountains had already begun to put on their winter garb. My holidays were up. I had spent the day down at Fortun taking leave of friends and had intended to cross the mountains to Rösheim. It was late in the evening and Knut Fortun, my old friend and trusted comrade on so many difficult expeditions, and I were sitting in front of the cosy inn talking over bygone days. Someone happened to mention Skagastölstind and our minds were made up at once; we would attempt to climb it from the Skagastöls Glacier the following day. The odds were against us, but what would it matter if we failed? We were not going to give in without a stubborn fight and we should at all events have one recollection more to live on during the long winter months. The ropes were soon coiled, the sacks got ready, and as we started in the night a lonely star, breaking through the clouds, seemed to intimate that Dame Fortune was smiling on us.

Early in the morning we were at the foot of the rocks. There was even more snow and ice about than we had anticipated; the weather was threatening and stormy, and snow and hail fell during the whole day. We soon saw that any serious attempt was out of the question; then, having agreed so far, we roped and started, as is the way of perverse mortals.

An immense block of ice, fallen from the slopes above, made an excellent bridge over the schrund and we got on to the rocks easily. Though they were smooth and steep, the rare holds were firm and reliable, and we had soon reached a huge overhanging accumulation of old snow

which blocked the way. But in the right place, just as in the fairy-tale, we found a tunnel, made by running water, through which we crawled, then broken up and rotten rocks brought us to the snow slope, which we had intended to be our highway, soaked to the skin and cold, but in high spirits.

Until now we had met with no real difficulties, but here a great disappointment awaited us. Our plan had been to ascend this snow slope with the couloir above it and try to find an exit to the left; but instead of a friendly snow slope we found blue ice covered with a layer of fresh snow. It would have taken hours of hard work to cut a way up, and the slope was swept by a hail of stones and ice-fragments. To the right was a slabby buttress where we should be less exposed to that danger, but we must cut across the dangerous slope to get there. It was however the only thing to do. Fortun relieved me of sack and coat, then five minutes of frantic exertion and we were across.

This buttress would probably—though C. W. Patchell, A. Tobler and myself know by experience that the slabs on this side of the Skagastölsridge are not so easy as they look—prove quite easy under ordinary conditions; but now it was something quite different. The slabs were covered with *verglas* and on this was a thick layer of powdery snow, so that nothing could be trusted, and more confidence had to be put in Fate than seemed advisable in this age of scepticism. Twice the treacherous snow peeled off and carried away the leader, but the second man was on the alert and held him up. At last we came on a level with the couloir. One or two attempts were made to traverse back to the left, but failed, as we put no heart in it and shirked to run the gauntlet again. So we took to the buttress again and slowly and stubbornly worked our way upwards until the foot of the final wall was reached. It was now 2 p.m.

To the left was a clean-cut precipice, and through the driving snow and sleet we could see the couloir far down. To the right the slabs merged in the face

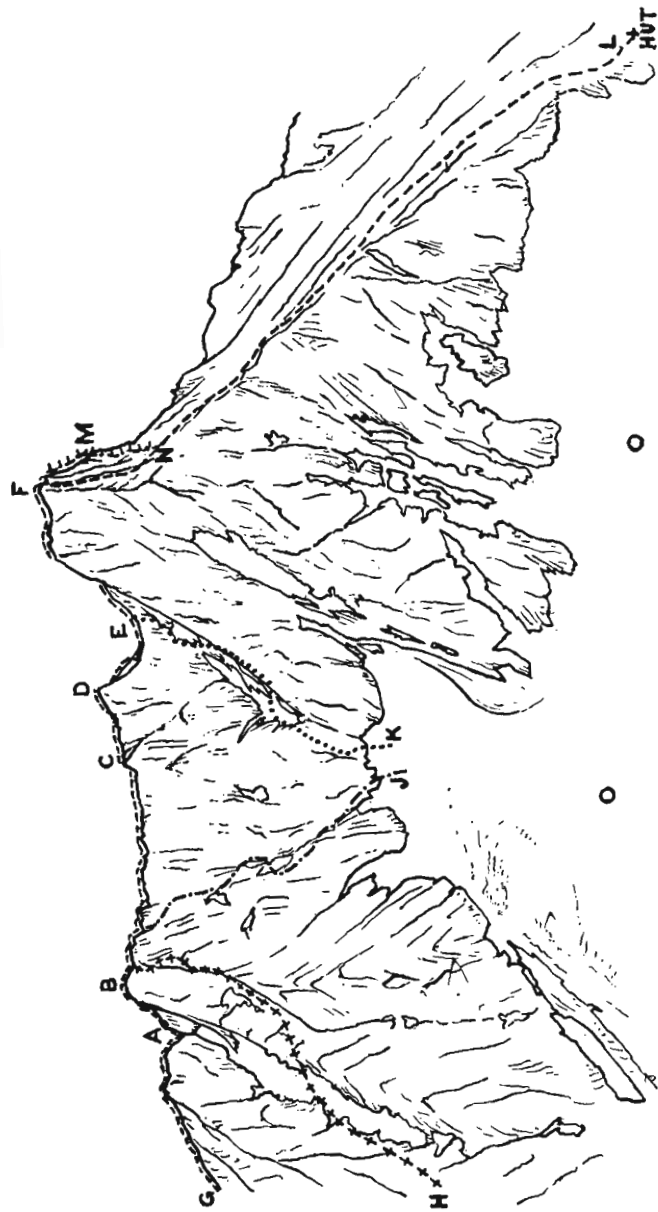
of the final peak, and in front of us was the wall below Mohn's Skar. Was it possible to force a way up it? We scanned it anxiously, for it was our only chance and we dreaded to descend the pitiless slopes up which we had been toiling since the morning. "*Messire Gaster est le père et le maître des arts*" as Rabelais says, so we sat down on a slanting ledge and ate our luncheon in silence. We were old friends and needed no words, but I could well read Fortun's thoughts in his stern face: "You have got us into a pretty fix!"

The sacks were soon emptied and, turning with more cheerfulness to the problem in front, we rubbed a little warmth into our fingers—our gloves had long since been worn to pieces on the slopes below—and started. The work was hard indeed, for every hold had to be cleared and there was not much to hang on to, but at last a little ledge was reached. It was not a comfortable place, for it sloped outwards badly and there was barely standing-room for two, but it was very welcome all the same and we gripped the only hand-hold tenderly. To the left was another ledge, which led to a corner; but the wall between was smooth and plastered with ice. My fingers were now frost-bitten and without feeling, so Fortun took the lead, for a slip must not occur. True enough, after much searching, we had found a belaying pin of doubtful security, but its utility was strictly moral, as the wall below was overhanging and the unhappy leader would, in case of a slip, find himself dangling in mid-air, while the second man was too badly placed to be able to haul him up again. It was just a place for Fortun's iron nerves and he knew well that success or failure, and perhaps more, hung on his steady hand.

With great difficulty he managed to get a hold on the icy wall and the next moment he clambered on to the ledge, but we were both breathless. I was soon across also, the corner was reached and Fortun advanced again. The snow was whirling furiously overhead, so we must be quite close to the crest though we couldn't see it.—"What does it look like, Knut?"—"I cannot tell yet."—

More and more rope went out and the excitement became intense. What if an insurmountable wall should stop us? Should we be able to get through the cornice? Then, through the roaring of the wind, I heard Knut's jubilant voice: "Mohn's Skar!"

Half-an-hour later we were sitting, *sans cérémonie et sans crainte en frères*, behind the cairn, examining our bleeding hands and torn clothes. We were hungry and had nothing left to eat; we were chilled to the bone, and the north wind was biting; but neither the hunger nor the cold could disturb our equanimity.



THE SKAGASTÖLSTINDER, FROM THE DYRHAUCSRIDGE.

- A—V' GAP.
- B—MELLEMSTE SKAGASTÖLSTIND.
- C—PATCHELL'S SLAB.
- D—VESLE SKAGASTÖLSTIND.
- E—MOHN'S SKAR.
- F—STORE SKAGASTÖLSTIND.
- G....B—SLINGSBY'S WAY UP MELLEMSTE.
- H....B—HALL'S do.
- J....B—PATCHELL'S, FOBLER'S AND ULLEN'S WAY UP MELLEMSTE.
- E....F—SLINGSBY'S WAY UP STORE SKAGASTÖLSTIND (Finish from Mohn's Skar).
- K....E....F—ULLEN'S WAY UP SKAGASTÖLSTIND.
- L....M—HEFTVE'S (ORDINARY) WAY UP SKAGASTÖLSTIND. From M to the summit the way is up the back of the mountain.
- M....F—ULLEN'S WAY UP S.W. ÅREFE.
- N....F—ANDREWS' GULLY.
- O....O—SKAGASTÖLGLACIER.

THE JOYS OF THE OPEN FELL.

BY AN OLD RAMBLER.

"I have loved the sunlight as dearly as any alive."

There still remain in our Club some men that have not fallen captive to the allurements of cragwork and to whom an ice-axe is not a symbol potent to raise happy memories; men who without undue elation can receive an invitation to share those recondite and specialised discomforts which appear to constitute so large a proportion of the attractions of a pot-holing expedition—who only accept such an invitation in a spirit chastened by knowledge of what it involves, just for 'the good of the side,' or who can, on occasion, even decline it.

Several times of late the writer in the company of such members has listened—not without sympathy—to the plaint that "nobody walks nowadays for the sake of the walk only; climbing and pot-holing occupy all the spare time of those fellows one could once rely on for a week-end tramp"; and so on. Unfettered speech (which, alas! may not here be quoted verbatim) like a mountain stream in flood is poured on those wights who leave the open and the sky to go burrowing underground—"You get indescribably filthy: eat anything that comes to hand, usually scented with naphtha and flavoured with candles and cave-dirt—or go without food altogether because the man in charge of it has either dropped it down the hole, or left it behind—and, finally, you come out soaked to the skin, ghastly tired, and say you've had a ripping good day! A poor game, I call it, compared with the grand tramps we used to have." While one can but feel that the holders of these opinions lose much that a wider sympathy would confer upon them, thoughtful consideration admits some justice in their plea and makes more vivid many cherished memories of days spent in fell walking.

Casting memory back to the early days of the Club before the development of the 'mere fell-walker' into the

climber had taken place—as has happened with so many of us—the recollections of a long tale of days afield bring pleasure, and from among a multitude of wanderings certain days stand out bright and shining, their lustre scarcely dimmed by the passage of time. Why such eminence should be so especially their attribute is somewhat difficult to explain. Their elements were present on many other occasions that are but grey and flat by comparison.

The open fell, one's chosen friends for company, and the day before one were, and are, common factors of such days; and yet, if any one of the men who shared the walks whose joys are but faintly suggested herein were asked what was the best day's walk he ever had, it is almost certain that one of these would be cited in answer.

A dozen years ago three of us took the opportunity afforded by an Easter holiday to spend a day on the hills. We left Leeds at 6-0 a.m. (we were enthusiastic enough to consider rising at five o'clock convenient) in spite of the fact that on the way to the railway station our maiden attempt at tying up a newly acquired rucksack—knapsacks were just 'going out'—resulted in its untying itself, turning upside down and distributing impartially over a considerable area of badly lighted road our day's food, spare articles of clothing and the other usual trifles which serve as ballast to the Rambler.

At about half-past eight we stepped out of the train at Dent station into an air of tingling crystal. Down the dale we went, stopping for second breakfast, or first lunch, by one of the prettiest bits of its beautiful beck. What though our food had acquired a lurking and subtle bouquet of rubber solution from the interior of that same new sack—we cared not!

Leaving the road and taking to the moor we rose quickly towards the top of Gragreth, on whose ridge stands the County Stone marking the junction of Yorkshire, Lancashire and Westmorland.

In the valleys Spring's first delicate traces were just beginning to show, but Winter lingered on the high ground. On we went, now over bents and ling, now

plunging through snow drifts, to Gragreth's top. The air had that curious thin keenness so noticeable to town-spoiled lungs and its bracing stimulus sent us along at a rare pace. Eyes so long cramped by narrow bounds of bricks and mortar gratefully scanned the familiar wind-swept expanse. Spirits were high and the stir of Spring was in our blood.

From Gragreth we crossed Kingsdalehead in a gradually warming air to Whernside, and from the highest point of its long whaleback raced down to Ribblehead. Then a sturdy trudge down the road in a beautiful clear twilight brought us to Horton with just time to catch our train.

There seems little in such a simply spent day of about twenty miles of cross-country walking to single it out for golden remembrance; yet the sun and the wind—that cool, sweet breath of the hills which never fails to bring content to their lover—so subtly wrought upon one and all that to this day each man treasures the memory as of a time when the Gods gave out happiness without stint.

In the earliest days of the Club the 'three peak walk' loomed large. To tread the round of Ingleborough, Whernside and Penyghent was distinctly a thing to be done, and a rare good walk it is. But in time it got hackneyed and some of us, growing blasé, cast about for variety and extension. To this end, one week-end in August, 1893 (the years of that period seem now to have had a vastly greater number of week-ends than do these later ones!) three members foregathered at Kirkby Malham, and on a misty morning set forth at 6-15, hoping to sleep that night at Dent after walking over Fountains Fell and Gragreth in addition to the traditional trio.

As we passed through Malham and by the Cove the mists hung dense around us to the top of the hill. Malham Tarn gleamed faintly, mirage-like, then more clearly, until by the time the curious, tarn-besprinkled top of Fountains Fell was reached the sun had conquered and with the brightness came serenity, for with good weather we had no doubt of the issue of the day.

By this time we had got well into our stride and

swung rapidly across Silverdalehead to the summit of Penyghent.

The glorious purple bloom of the heather—then at the height of its splendour—clothing the flanks of our old friend Ingleborough drew us straight across country to its honeyed fragrance. So straight, indeed, in our eagerness, that the existence of the Ribble was forgotten until we drew near its bank and a fordable place had to be found.

During the crossing, a sharp stone cut into a bare foot and in the ensuing struggle to recover balance a pair of hobnailers slipped from the hand of a whirling arm and described a parabola ending in a splash. They were 'marked down' but when the spot was reached they had disappeared. Weighty though they were the rapid stream had carried them off. One was soon found, but the joy inspired by its recovery was short-lived and gradually gave place in the mind of its owner to gloomy visions of a journey home shod in a hobnailed boot and a carpet slipper borrowed from the nearest inn—two miles away down the dale. For nearly an hour we three chilly mortals patrolled the stream in search of the lost boot, and intimate acquaintance with almost every stone in a considerable length of its bed was acquired before the boot was found. Dreary forebodings were now dispersed and when one good fellow, emphasising a feeble crow of triumph with a flourish of the arm which upset his equilibrium, dropped bodily into the stream, our normal out-door condition of unregenerate mirth was completely restored, and as soon as we had fitted him up with dry underclothing from the contents of our sacks we were afoot again.

From Ingleborough's cairn to the top of Whernside is the least interesting part of the walk and we did not linger over it. From Whernside's highest point we trotted down to Kingsdalehead hoping to get to the top of Gragreth before the menace of an impending storm could be fulfilled. But just that one thing was denied us.

Although fairly weather-seasoned and not easily daunted by the elements the torrential downpour which

now commenced and in five minutes wetted us to the skin was beyond a jest. Darkness too came with the mist and rain, effectually blotting out the landscape; so on reaching the road we of compulsion set our faces towards Dent and fought our way as fast as we could lay foot to ground through as wild a storm of wind and rain as the writer ever faced.

By the time the hospitable doors of the 'Sun' had admitted us it would have been difficult to match our drenched and miry condition, but neither that nor our thirteen and a half hours' tramp damped our high spirits. The clothes lent by the good folk of the house made us feel but puny creatures compared with the stalwart men of the dales. The picture of three oddly garbed figures variously disposed on six chairs rises at the recollection of the evening closing a day marked with a white stone for remembrance of its full content and good fellowship.

One more outstanding day of simple pleasure before these lines end.

Four men of the Club wandered far and wide in Lakeland during twelve days of wet, wetter and wettest weather in 1894. The thirteenth day, which by superstitious canon ought to have far exceeded its predecessors in spitefulness, dawned brilliantly clear. The wind was in the north, the air of that transcendent clearness which so often follows—and precedes—heavy rain, and that land of happiest memories looked its loveliest and best.

It was the first fine morning since our arrival at Wasdale Head where we had fumed in impatient discontent for several days; the misty lid of that pipkin had never lifted nor had the rain ceased during that time.

We went first to the Pillar Fell: by the aid of Prior's little Guide and its diagram we found the easy way up the Pillar Rock and managed to get up and down safely—though how long we spent over it is best left untold. We were just beginning the transition period and thought no little of the feat.

Thence away eastward over Looking Stead and Kirk

Fell to Great Gable. What a day, and what a view from that finest vantage ground in Lakeland! And there we lingered long to let memory gather food for cheer on duller days, the air like wine and in our ears the music of the flooded streams rising to us from the valley and the channelled slopes beyond. So long we stayed that only late evening saw us descend Rossett Ghyll into Langdale.

Such is the tale, inadequately told, but understandable enough to those lovers of the hills whose affection is not a cramped thing. They were days whose memories are cherished not for any one reason alone—all good things combined to make their excellence—but if for one thing more than another they deserve remembrance it is for the sake of the men who shared them. The friendships of those early days are still intact and rank high among the things that sweeten life.

Since those days of small beginnings increased knowledge of the high places of the earth has shown other and more adventurous joys. The crags and the snows at home and abroad have claimed their share of homage and have given that gladness which is the reward of the true worshipper, whilst days and nights have been spent in exploring the caves and pot-holes which honeycomb our Yorkshire fells. There have been days of higher achievement and keener excitement than those here recorded; other days when foul weather and difficult climbing have combined to test our manhood; and, yet again, days of defeat. But all things that the hills give are good and all their memories are excellent, and it is not unfitting that some of the simpler joys should find a place in the records of a Club so catholic in spirit as our own, a Club, moreover, which owes its existence, largely, to the desire of union felt by men who understood well the goodness of such roving afield.

FURTHER EXPLORATIONS IN GAPING GHYLL HOLE.

BY A. E. HORN.

After the descent made by members of the Club in 1896, no further exploration of this pot-hole was attempted until 1903.

On that occasion, Booth and Parsons followed a branch of the main S.E. passage, from which, after a crawl of two hours' duration, they re-entered the main cavern by an opening about 30 feet up the boulder slope at the eastern end, this opening having until that time remained unobserved from the cavern.

The next visit to Gaping Ghyll was paid in July, 1905, and was mainly undertaken for the sport of the thing. Rope ladders were used and the descent was made by the main hole. In the course of our wanderings, however, Booth, Parsons and the writer discovered a branch opening out of the passage from which the Main Chamber had been re-entered in 1903. It commenced in a horizontal bedding plane, by a low unpromising slit and soon gave access to a more roomy passage, whence by an upward wriggle through an opening in the right wall we entered a long narrow cave running approximately N.W. and S.E. At the N.N.W. end of this cave extends a narrow water-logged fissure some 60 to 70 feet in length, bearing in the direction of the main hole. The passage out of the cave at its southern end becomes higher and more tunnel-shaped, not unlike the Cellar Gallery in Clapham Cave, bending first S.E. then S.W. until it enters, at right angles, another passage of similar character which runs S.E. and N.W. This point, some 250 yards from the main chamber, was called the "T" junction. The party here divided, Booth following the S.E. and Parsons the N.W. branch. Both returned within a few minutes and reported that they had entered more caves and there were no signs of an end to the passages. A strong draught from the N.W.



Photo by C. A. Hill.

GAPING GHYLL HOLE.

branch induced us to try that direction first, and in a short time we entered, by a rapid descent, a spacious but not very lofty cave with two passages leading from it. Of these, one running S.W. in an upward direction opens into a vast hall with a fissured roof. After a descent to the lowest point of the floor a steep clay slope of about 45 feet leads to a low opening close to the roof; creeping through this, along a low sandy passage, another chamber was entered. A large displaced stalactite—apparently dislodged by some earth movement—was passed on our right, and proceeding down a short steep slope to the S.W. we reached a stalactite chamber.

The N. end of this chamber is extremely beautiful. The roof is covered with countless numbers of tubular stalactites varying from a few inches to several feet in length, and has the appearance of a shower of rain suddenly frozen; there are also some very fine stalagmite groups.

Many of the smaller stalactites are bent, mainly in a southerly direction, into most fantastic forms—probably the result of the prevailing air current.

From this point, by a number of short turns, we entered a large fissure some 45 feet in height, running N.W. and S.E., its floor strewn with a chaotic mass of fallen and unstably poised rocks over which we had to proceed with care. From this fissure we emerged into a very large chamber and upon what appeared to be a platform of fallen rocks and silt. Immediately in front was a steep clay slope leading to a mud pot-hole about 30 feet deep; we traversed round it to the left and descended to the floor of this, the largest chamber we had yet entered. As we proceeded, a strong stream flows into the chamber on the left coming from a lofty passage perhaps 60 feet up the S. wall, and the water disappears in a N.W. direction behind a great block of detached rock, some 20 feet long, which is one of the features of the chamber. Lack of time prevented our going further as we were 500 yards from the main hole. Enough had been seen, however, to convince us that a new era in the exploration of Gaping Ghyll had commenced, and that a larger and better equipped party

was absolutely necessary before the exploration and survey of this immense area could be attempted. Therefore, we rapidly retraced our steps to the main hole and climbed the ladder to the surface.

As the result of this discovery there assembled at Clapham on June 2nd, 1906, the largest party of Club members which has ever been got together for serious work. The weather was fine, but unfortunately during the preceding week or two there had been almost unprecedented floods in the underground streams of the district, and a great amount of water was going down the hole.

Fell Beck became an object of the greatest solicitude, and an abatement of half-an-inch of water a matter of general rejoicing.

The jib had been fixed as on previous occasions, over the direct shaft, for descent by means of the windlass, and rope ladders had also been put down the main shaft. It was hoped with both methods of descent available, a large number of men would be got down with some saving of time. As the men arrived they descended twenty or thirty feet on the ladders, and required no more evidence of the impossibility of proceeding further, the water and spray cutting off all view of the shaft.

For the purpose of turning Fell Beck through the lateral passage into the direct shaft, dams were constructed, but on account of the fissured condition of the stream bed, the task was not easy. More than once, portions of the stream were induced to enter likely courses down which they disappeared and eventually, by doing many most unlikely things, the greater part of the water was diverted, leaving the main hole to drain clear.

The convenience of camping on the spot is now fully recognised and some sixteen men slept under canvas, and the camp was a scene of considerable animation. In the evening, when the party, wrapped in many-coloured blankets, encircled the camp fire, and bayed the moon, it was decidedly picturesque. In the broad sunlight when the mud-stained clothes, relics of former expeditions, were scattered abroad, one could hardly have blamed the grass for refusing to grow.

On turning in for the night one man produced from what is now a historic rucksack, a new species of lantern with a candle projecting from the bottom. The candle dropped grease all over his pillow, then projected itself into his eye, leaving the rest of the party vainly trying to get into their sleeping bags in the dark. Our friend suggested in extenuation that we had been saved the trouble of getting up to blow out the light. We congratulated him on his automatic lantern, and wooed sleep in the resultant chaos.

Gaping Ghyll kept up its water-gates for another full day, and not until the third day of our visit was it possible to make a descent. Six men then went down the ladders and the work of exploration commenced.

To anyone in need of healthy exercise and possessed of a cheerful and patient disposition I recommend a descent and subsequent ascent of 350 feet of rope ladder, accompanied by the remains of a misdirected waterfall: but to others, an electric lift. As an aid to underground exploration the rope ladder is invaluable, but as a squirming coil of unmanageable awkwardness it resembles its distant relative the snake, and has also its proverbial ingratitude. The unwillingness with which it goes down a pot-hole is only equalled by its desire to stay there. The rungs catch on even the shadow of a projection and detach loose rocks with calculated malevolence. Trust yourself to this sinuous monster and when you are 'going strong' it will deliberately swing round and bang you against the wall or crush your fingers between itself and the rocks.

Telephonic communication established and provisions lowered, the party divided, Booth, Parsons and the writer to commence the exploration, Botterill and Hastings for survey and photography, whilst Williamson remained at the telephone.

Custom does not stale this magnificent chamber: Gaping Ghyll may well be reckoned one of the unique sights of these islands; on this occasion it was more impressive than usual. The masses of water dropping through it were torn as they fell into fantastic festoons of spray, through which bursting shells of water were continually flung.

Incessant, but strangely varied sounds echo through the chamber in rhythmic pulsations. Gusts of moisture-charged air strike one. The wet, dimly-lighted walls rise into blackness, with great projecting forms of rock encircling the opening down which the daylight falls to be swallowed up in the boulder-strewn pool at the foot of the shaft.

Everything tends to awe the spectator. Alone in these weird surroundings he can, through the roar and echo of the water, imagine voices calling across the dark spaces, peopling them with spirits of the underworld.

There were many evidences that the chamber had been heavily flooded recently. A stake was found about 40ft. up the western debris-slope and recognised by two of the party as having been thrown down in 1903. A large fissure in the south wall was now more exposed and could be entered for 23 feet. The silt which in 1903 was more or less evenly distributed over the floor is now collected into a great broad bank, in places 5 feet thick, across the west end of the chamber, leaving the floor strewn with loose stones and boulders, and the channels at the foot of the S. wall were much more deeply cut.

We next turned our attention to the new passage and very soon reached the point, since called the 'Stream Chamber,' which terminated the exploration made in 1905.

Hastings was left in the large stalactite chamber engaged in photography; Botterill, who was making a route survey, staying with him.

From the Stream Chamber, still following the same general direction (N.W.) we entered upon a series of chambers and passages in bewildering succession.

They contained the finest specimens of stalactite formation that Gaping Ghyll had yet permitted us to see, pure brilliant white in every variety of form; pendant groups at the intersection of the arches; broad, delicately tinted leaf forms; clustered columns, and stalagmites six inches in diameter rising in some cases to a height of $3\frac{1}{2}$ feet. In some places the walls were covered with an ice-like film and a tracery of white veins; in others, the edges of the arches were outlined by a fringe of pure white.

The going now became somewhat difficult, our route leading through vertical fissures with wedged boulders between which it was necessary to wriggle. In such places one is apt to complain because all the joints in the human body are not on the ball-and-socket principle. Contending with these difficulties we proceeded until our way was apparently blocked by a fine fringe of stalactites which we did not wish to break through until it had, at least, been photographed. We were glad to find subsequently that the fringe could be passed without injury to the stalactites. One very remarkable tube stalactite at least three feet long was found here, so delicate that it vibrated in response to the air waves set in motion by our voices.

A shortage of candles made a speedy return to the Stream Chamber necessary; there we met the other two members of the party and enjoyed a genuine cave lunch. It was then conclusively demonstrated that all courses, including soup, could be disposed of without either etiquette or utensils with perfectly satisfactory results. We then returned to the main hole and the ladder was once more climbed to the surface.

The following day Fell Beck was again turned into the main hole and the windlass got into working order. Booth then descended the direct shaft for some distance below the point where the underground waterfall enters. He reported that although there was still a large quantity of water going down this route was now quite feasible.

The fine dry weather had unfortunately come too late; a large number of our men could stay no longer, and amongst them were several of the surveyors and geologists of the party who had not had the opportunity of making the descent.

As we were unable to make an early start it was decided that the exploring party should stay down all night, and arrangements were made accordingly.

Provisions and other necessaries were taken on to the Stream Chamber, and everything prepared for the night's work. A party consisting of Booth, Parsons,

Slingsby and Hastings (who undertook the photographic work) started and made a more detailed examination of the passages traversed on the previous day. They reached a point about 20 yards further than the stalactite fringe, where the passage came to an end (800 yards from the Hole). After spending some time in photography they returned to the Stream Chamber and followed the stream upwards for about half-an-hour, Parsons reaching the end after a very trying crawl through a vertical fissure which terminated in a belfry chamber about 60 feet high. Returning to the Stream Chamber, the water was followed for a short distance along its northern exit from the chamber, but it disappeared before long in the loose blocks forming the floor. Another way was also found leading back again into the Stream Chamber by way of the mud pot.

On again arriving at the "T" junction, the party started to explore the S.E. branch passage, about 120 yards along which they entered a large chamber having several exits; all were tried, and, excepting one leading S.E., came to an end within a short distance. This S.E. passage on being followed for about 60 yards entered another passage at right angles to it, the S.S.E. branch of which worked out to a dead end in 20 yards, whilst that to the N.N.W., about 40 yards long, terminated in a pot-hole. Climbing down it for about 50 feet a large ledge was reached, beyond which it was impossible to proceed without the aid of more tackle. The depth of the pot was estimated at 150 feet from the roof, or 100 feet from the ledge. At this point two other passages were noticed, but not explored.

Time flies in a very remarkable way during underground exploration. Few men care to expose their watches to the danger of mud and water, and guesses at the passing hours are often found later to have been very wide of the mark. The heavy man of the party had set his foot on the clock intended for use below ground and reduced it to a state of hopeless imbecility, so the night's proceedings could not be very accurately timed.

On the surface a fire had been lighted near the windlass

and Green and Robinson stayed up all night ready to answer by telephone any call from below. It was four o'clock before the expected message came from the explorers, who had thus spent a day and a night working in alternately cramped and rough rock-strewn passages. The men in camp were then turned out and the explorers raised to the surface.

Later in the day two ladies made the descent, and it was peculiarly fitting that this, the second descent of Gaping Ghyll by a lady, should be accomplished by Mrs. Alfred Barran, followed by Miss Slingsby, the one being the wife of the then President of the Club, and the other the daughter of its Ex-President. On the following day Miss Booth and Mrs. Boyes made the descent.

The ladies are to be congratulated on their courage in venturing upon what may be considered a distinctly formidable undertaking. There are few ladies who would care to be lowered on a rope down a 340 feet shaft in semi-darkness, to be suddenly submerged in an underground waterfall whilst spinning round in mid-air, suspended, according to an apt description, "like a spider hanging from the inside of the dome of a large cathedral," and finally dropped into a pool of cold water amidst a mass of rounded boulders.

They made the circuit of the cavern and examined the entrance to the newly discovered passages before returning to the surface, having evidently enjoyed the novelty of their experiences.

The party was by now so far reduced in numbers that it was impossible to attempt any further exploration, and after some other members had availed themselves of the opportunity of making the descent we commenced the laborious work of bringing to the surface the remainder of the stores, the ladders and telephone, and not until 11 p.m. was the last man—Parsons—at liberty to come up.

The night was still and dark; with strained attention ghostly figures stood at their posts awaiting Parsons' signal, while the continuous, subdued roar of the water as it fell into the chasm sounded in their ears. On such a

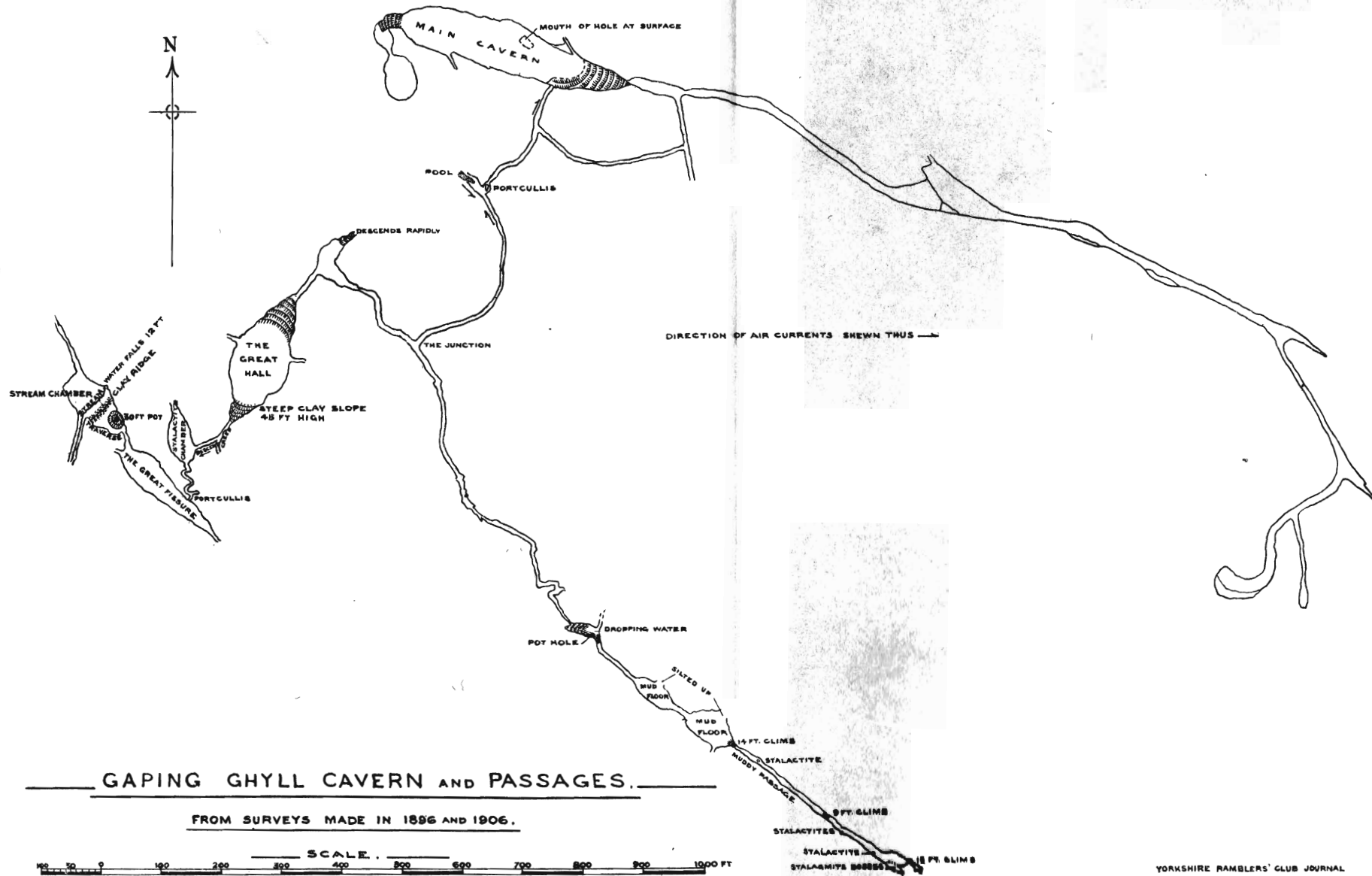
night Gaping Ghyll has a personality and claims kinship with the mountains. One recognizes the presence of a restrained but gigantic natural force: in some measure as when standing outside a mountain hut one sees the morrow's peak—a black form looming barely distinguishable against the sky, and feels, in the growing darkness, overpowered by its immensity.

It was with a feeling of regret that we had to bring the expedition to a close while so much remained to be done, but the weather conditions of the previous week had greatly hindered our work. The next two or three days were spent in packing and transporting tackle and camp equipment to Clapdale Farm.

The following is the list of those who made the descent:—A. Barran and Mrs. Barran, W. Cecil Slingsby and Miss Slingsby, Miss Booth, Mrs. Boyes, T. S. Booth, F. Botterill, J. H. Buckley, R. A. Chadwick, S. W. Cuttriss, C. Hastings, A. E. Horn, F. Horsell, G. L. Hudson, W. Parsons, J. W. Puttrell, P. Robinson, W. Simpson, and H. Williamson.

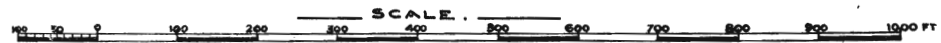
For the convenience of the expedition, C. Scriven kindly lent tents and other necessaries of camping and also had charge of the well-arranged commissariat, while some other members brought their own tents.

Thanks are due to J. A. Green who had charge on the surface for the whole time, and to other members who though not making the descent, rendered assistance, viz:—H. Brodrick, F. Constantine, Dr. A. R. Dwerryhouse, C. A. Hill, F. Leach, G. T. Lowe, and Lewis Moore.



GAPING GHYLL CAVERN AND PASSAGES.

FROM SURVEYS MADE IN 1886 AND 1906.



GAPING GHYLL HOLE:
A VISIT FOR SURVEYING.

BY J. H. BUCKLEY.

I have been requested to furnish a short account of a week-end visit by a small party on July 28-29, 1906, which was organised at short notice in the hope of accomplishing, at all events, some portion of the survey of the extensive system of new passages mentioned by Mr. Horn in the preceding paper.

Many keen followers of the sport being away on holidays, we were only able to muster nine men—Messrs. Booth, Botterill, Chadwick, Constantine, Cuttriss, Hastings, Horsell, Williamson, and the writer.

Owing to the uncertain state of the weather, the few days previous to our visit were a somewhat anxious time for the organisers. Telegrams and letters came at frequent intervals reporting on that—to us—vital point, the amount of water coming down Fell Beck.

By Thursday it appeared that we had at any rate a sporting chance; the members of the party were hastily notified, and an advance party of one—the writer—was despatched on Friday afternoon with the usual mass of equipment, food, and other necessaries for the internal and external comfort of the party.

Arrived at Clapham, the tackle was conveyed to Clapdale Farm, and from there by sledge to the Hole, piloted through a dense mist by our staunch adherent and good friend Mr. Metcalfe of Clapdale; with his cheery help our little tent was soon erected, a peat fire made, water boiled, and all made 'ship-shape and Bristol fashion.'

A frugal meal eaten, I turned in, and after a refreshing sleep awoke next morning bright and early to find the weather all that we could have desired.

The next man arrived at camp on Saturday afternoon about half-past two, followed at intervals by the rest of the party. We soon were engaged in the now familiar



occupation of preparing the ladders for the descent, and by six o'clock were able to start our first man, Booth, on his journey. Arrived at the Ledge, he was quickly joined by Botterill. Their first task was the disentangling of the confused heap of ladders which had lodged there. These had to be turned over rung by rung until the end was found; only then was it possible to lower them again. Foot by foot they were paid out, the muscular strain increasing as the length grew, until the Ledge was cleared and the middle released, when the whole 350 feet of ladder straightened itself with a jerk.

Booth then continued his descent, carrying a rucksack containing the telephone instrument and a supply of candles. After his departure Botterill remained for some time upon the Ledge, to forward the whistle signals between top and bottom until the telephone wire was lowered and connected. Williamson next descended to the bottom, and was followed by Hastings, who relieved Botterill on the Ledge.

The Ledge, 190 feet below the surface, is about 8 feet broad by 16 feet long, its long axis sloping gradually towards its edge. The middle of this space is largely occupied by a pool of water deepening at the centre to about 8 inches. The safest and most comfortable position upon it is a recumbent one in a cleft on the left side looking outwards. On this restricted space both men spent some time in complete darkness, wetted by the spray of the falling water and with only the companionship of their fellows for the few brief minutes when a man rested there on the journey down.

It is, however, sometimes necessary from various causes to station a man at this point. To remain in such a situation for any length of time is a task far from enviable, but the good potholer is willing to stay in any position, however uncomfortable, where his services are required.

It was now quite dark even at the top of the Hole and the operations of the party working there were perforce conducted mainly by sense of touch, inadequately aided by the light of a few candles stuck in the ground here and there; fortunately the night was calm or our

difficulties would have been increased. By half-past eleven the last man reached the bottom, and it was after midnight before the baggage was safely lowered down the direct shaft.

The telephone connecting the surveying party with the upper world, which had been placed temporarily by the side of the men in charge of the safety-line, was moved into the writer's tent, a long-overdue supper was quickly prepared, as quickly despatched, and peace soon reigned supreme.

Down below, it was proposed that Cuttriss and Hastings should survey from the Main Chamber to the Junction and that Botterill and Williamson should begin their measurements at the Junction and continue along the S.E. passage. Booth went with the latter men to lead the way, as he was the only member of the party who had previously been over the ground.

The entrance to these passages is some 30 feet above the floor of the Main Chamber, and immediately on entering there is a descent of 10 feet by a short slope. The passage then continues fairly level until a rise of 4 feet is made on entering through the 'Portcullis' into what might well be called the 'Pool Chamber'; at one end of this is a pool of still water, which has been waded through for some 40 feet, when it becomes too narrow for further progress. The 4 feet rise is neutralised by an easy slope leading downwards to the Junction, which is about 20 feet above the level of the Main Chamber and distant from it 207 yards. From this point the passage continues almost level until, at an abrupt turn to the left, a rise of some 12 feet in a distance of 40 feet is encountered. After scrambling over a boulder, a small chamber is entered from which at first sight there appears to be no exit. Some chalk marks made at Whitsuntide, 1906, direct attention to a low passage which slopes downwards some 5 feet but again rises 20 feet as the 'pot-hole' is entered. This entrance is about 47 feet above the floor of the Main Chamber.

Descending a steep slope of mud for about 24 feet bare rock is reached, which may easily be climbed down

for another 20 feet to a point 416 yards from the Main Chamber and some 3 feet above its floor level.

Booth put on the rope and climbed about 20 feet further down a steep water channel and reported that below the sides became vertical. He estimated the depth, by dropping stones, to be an additional 60 feet.

As this was a surveying party only, no further attempt was made to explore the pot-hole, this being left for a future expedition. It is hoped that the exploration of the new passages, which must exist to carry the water from the bottom of the pot-hole, will lead to further discoveries.

If the figures given prove correct the depth (422 feet from the surface) that will be attained by the descent of this pot-hole will be the lowest level yet reached in the exploration of Gaping Ghyll.

Skirting the slope above the shaft the party went forward, still to the S.E., the last 10 feet being a steep ascent over clay and boulders. The passage then entered is about four feet wide, evidently a continuation of the rift of the pot, and is partially floored by clay and boulders. Earth and stones dislodged by the party fell through a gap in the floor into the depths beneath. Special care should be exercised when passing this point, as there is little doubt that the whole floor is unstable. From here surveying was continued for 200 yards, and the party passed through a number of large and lofty chambers containing numerous fine stalactites, until, 624 yards from the Main Chamber, a small chamber whose floor was covered with deposits of stalagmite was reached from which they could find no exit. The surveyors had ascended steadily but surely after passing the pot-hole. All passages hereabouts have at one time carried large streams to the pot-hole, which enhances its possible value as the starting point of new explorations. A reference to the plan will give a better idea of the places passed than can be conveyed in words.

On returning, this party rejoined Cuttriss and Hastings, who after finishing their allotted survey had followed them as far as the pot-hole. Leaving a rope and a

box of candles the united party retraced their steps to the Main Chamber, to find, instead of the dim candle-light left there, the weird grey light of dawn stealing into the great cavern.

At half-past five the writer was awakened from his peaceful slumbers by the tinkle of the telephone bell, and Cuttriss' voice announced the party's safe return from their all-night wanderings. I quickly roused the other sleepers, and the first man was soon on his way up from below, but it was not until after mid-day that the ladders were hauled out and all was cleared.

The survey shews that the furthest point reached—624 yards from the Main Chamber—is under the E. side of the dry valley which continues upwards from the top of Trow Gill. The pot-hole 416 yards from the Main Chamber is in the neighbourhood of the dry surface pot shewn on the Six-inch Ordnance Survey Map and numbered P4 in Dr. Derryhouse's Map.*

As the chronicler of the work accomplished by this expedition, I am indebted for the account of the happenings below-ground to those members of the party who shared them. My appointed task on the surface precluded me from going below on this occasion and enabled me to requite in some measure those self-denying men who have so ably and cheerfully controlled my descent and accelerated my ascent during other expeditions.

* Proceedings of the Yorkshire Geological Society,
Vol. XV., Part II., facing p. 252.

THE NORTH-WEST CLIMB—PILLAR ROCK.

BY FRED BOTTERILL.

We have made it our rule for some years to spend Whitsuntide somewhere amongst the Lakeland Fells and Whit-week, 1905, found us at Wasdale Head with a large party, but owing to a Man-hunt on Bow Fell, a day on the Pillar, and another on Great Gable, it was not until the Thursday that I was able to carry out a project that had been in my mind for quite a year, that being to explore the magnificent faces of the Pillar Rock between the North Climb and the Old West Climb.

Williamson, usually the second man in our party, was not climbing that year. Others had returned home and our party had dwindled down to two—W. Palmer and the writer. On the Thursday we arrived on The Terrace, the broad grass ledge which runs round the Pillar Rock from Walker's Gully to the Waterfall in the Western Gully at a height of about 2,000 feet above sea level. We walked round to the Waterfall and returned for 30 yards to a huge slab of rock leaning against the face; this appeared to offer the least resistance to our ascent and we roped up and started at 1-15 p.m. We had with us two 80-foot lengths of rope and some sandwiches, the latter as provision for a lengthy siege.

Just after starting we entered a series of short chimneys divided by grass ledges affording excellent resting places. These chimneys, however, soon ended and we traversed to the right; but although the traverse was easy enough the rocks above resisted all our efforts to scale them, so returning we tried the way to the left over what was then a very awkward stomach-traverse, where we had to rely for hold upon the friction our waistcoats provided. This traverse led us to the foot of a chimney 40 feet in height, in the middle part of which back and knees were used. The top of the 40 feet chimney brought us out on the arête of the Buttress where, upon the left hand, we could look down a vertical wall on to the Terrace. The arête afforded scrambling similar to that on the

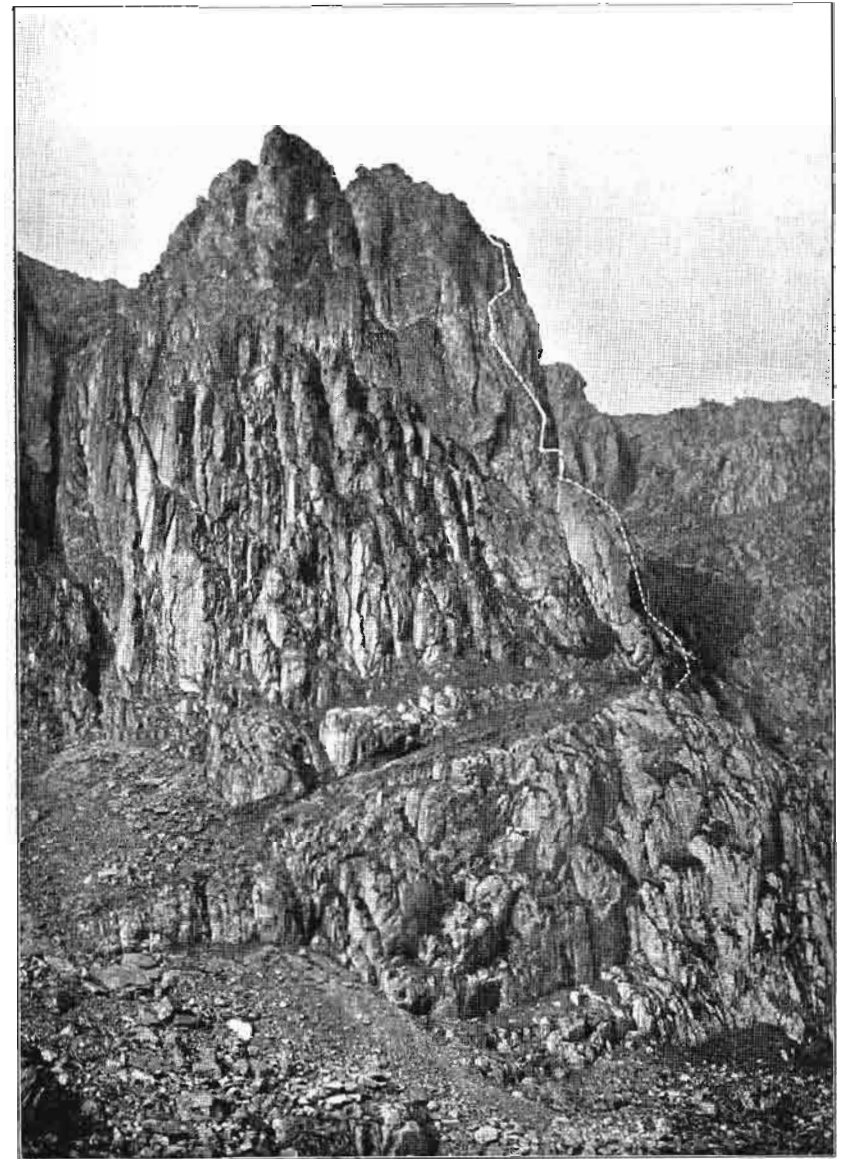


Photo by L. J. Oppenheimer.

THE PILLAR ROCK, FROM THE NORTH,
SHOWING THE NORTH WEST CLIMB.

Arrowhead Ridge, and at 2-30 p.m. we arrived on the top of the Buttress, a fairly large place with "ample floor space"—as the estate agents say. Here we had our lunch and built a cairn which can easily be seen from the eastern end of the Terrace.

Surveying the rocks above us, it required little consideration to decide there was no way for us to the top of the Low Man on our right; but to the left, which looked more broken, there might be a way, therefore at 2-50 p.m. we quitted the Buttress and walking over sloping slabs reached a short grass-grown chimney, after partly ascending which we strode to the left on to a ledge where we erected a second cairn. This second cairn is just above the one we built on the Buttress and can easily be seen from it. Here we manufactured a 'belay' by chipping the rock, but a natural hitch has since been found quite in the corner of the ledge. We looked above us with a view to a direct ascent, but the rock at this point appeared hardly trustworthy so the leader advanced to the edge of the ledge, passed out of sight round the corner to the left, traversed ten feet or so, and then proceeded upwards to two V-shaped corners, one above the other. Reaching the higher one of these, which we called "*Le Coin*," a fine grass ledge could be seen 20 feet above us; but the walls of "*Le Coin*"—in its angle at all events—were quite smooth: a shoulder would have been welcome here, but it was not the sort of place for the other man in a party of two. On the right hand the rocks were more broken, and it was on that side we eventually succeeded in attaining the next ledge where we found a fine belaying-pin which should ensure safety to all except the leaders of future parties. We then scrambled easily on to another ledge a few feet higher, where there was another useful belaying-pin, though this one was cracked horizontally across. At first I was afraid of trusting to it on this account, but it withstood all my efforts to break it and on our subsequent attempts on this climb it was curious to note how each new man declared the pin unsafe, and yet it withstood all efforts to dislodge it.*

* This pin has since been thrown down

Now looking up from the 'Second Belay Ledge,' we had, immediately above us, a poorly defined chimney which I believed would not go. Throughout this first attempt it was interesting to note how Palmer, who was on the Rock for the first time, declared easy things to be difficult, and rocks quite impossible he pronounced easy. There is little doubt that one of the benefits derived from experience on the rocks of any district is a faculty for judging from careful observation whether given rocks there are easy or difficult. On the right of the poorly defined chimney was one, much better marked, which we called the 'V' Chimney because of its resemblance to the one on Almescliff Crag so familiar to many Yorkshire Ramblers. Palmer thought I ought to ascend this, but seeing that its continuity was broken and it did not seem to lead to any practicable route, I demurred. Palmer therefore asked permission to lead up it. He climbed it splendidly and, stopping on a small ledge, invited me to join him. I found the chimney very difficult, and the ledge it led to hemmed in by overhanging rocks. We therefore descended, Palmer coming down last, to the Second Belay Ledge, and after a short rest I made one last attempt to find a route by traversing again to the left.

Immediately above the Second Belay Ledge is another small ledge, also with belay, which may well be called the 'Third Belay Ledge,' and it was from this ledge we traversed to the left. At the time this traverse seemed very difficult, but on subsequent ascents it naturally became, or seemed to become, easier. After traversing a few feet we were able to ascend some 20 feet from this point, and, although it seemed quite possible to go still another 20 feet higher, making in all 40 feet from the traverse, beyond that point progress seemed impossible. It never occurred to us that we might traverse back to the right again to a point above the Third Belay Ledge, though this has since proved to be the solution of the difficulty. At 5-45 p.m., being rather fatigued with our 4½ hours of hard work we mutually decided to abandon the climb and commence the descent.

Now I have always maintained that providing one has previously ascended rocks well within one's powers, the descent (within a reasonable time, of course) should be, even with the added fatigue of the ascent, slightly easier. There is, however, and always will be to those climbers who do not accustom themselves to descending their climbs, a moral reluctance to overcome, amounting almost to a fear of descending. Experience in descending will, in time, dispel this reluctance, until the climber will be able to descend in the afternoon with equal facility a route he has ascended in the morning—providing he has not passed that imaginary line which separates the difficult from the risky.

There is one instance, however, in rock-climbing where the ascent will be found less difficult than the descent, and that is, where the climber passes from a very poor and insecure hold to a perfect one. In descending such a place the climber will have to pass from a good hold to a poor one, which most men will admit is a more difficult thing to do.

In this particular instance we found the descent no exception to the rule suggested above, although previous experience in descending was of infinite value to us, and by 6-30 p.m. we had reached the second cairn ledge just above the Buttress, and by 7-30 p.m. the Terrace at the foot of the climb, after 6¼ hours of arduous but most enjoyable scrambling.

In comparing notes with Mr. L. J. Oppenheimer at the hotel that evening we found we had been within a few feet of the foot of a chimney which he had descended some time before, and it was this news which persuaded us to go again to the Rock on Saturday, June 17th, 1905. On this occasion our party was augmented by another member, Dr. J. H. Taylor, of Manchester, while Mr. Oppenheimer with five of his friends very kindly arranged to go to the top of the Low Man to point out to us from above the chimney they had discovered.

We reached the second cairn ledge without effort; but at that point the rain, which had been threatening for some time, commenced to fall and the surface of the rocks

became coated with a thin film of slippery mud. I tried for some 15 minutes to get out of "*Le Coin*" but had to ask Palmer to come along to give me a shoulder. Instead of doing so, however, Palmer led up with miraculous ease and reached the First Belay Ledge, where we joined him. The party on the Low Man having lowered a rope from the top of their chimney, we ascended to the Second Belay Ledge and were able to touch the rope which came down the ill-defined chimney to the left of the 'V' chimney.

I was about to traverse round the corner to the left, the route I had previously thought would go, when Palmer suggested that it would be more sporting to go straight to the top without deviating. I thought the ill-defined chimney would not go and said I should not care to lead up it. Palmer however wished to attempt it and against my judgment I consented, on condition that he attached himself to the rope lowered by the Low Man party. Palmer climbed bravely and arrived at a belaying-pin on a ledge where he asked me to join him. This ledge is narrow and it is only possible to stand upon it, but the pin is an unusually good one. Having reached Palmer I tried the part beyond, but with all my best efforts it would not go. Palmer, however, was still confident, but in spite of strenuous effort he failed and was hauled to the foot of Oppenheimer's Chimney. I did not attempt to climb this part, but, putting on another rope, allowed myself to be hauled up. When it came to Dr. Taylor's turn I shouted down to him to try the traverse to the left, the way I still thought might go. Dr. Taylor attached himself to the rope of the Low Man party, traversed to the left and, traversing back to the right when about on a level with the Chimney Ledge, came up without any trouble. Dr. Taylor had found the correct route. Nothing now separated us from the Low Man but Oppenheimer's Chimney, a short overhanging one with a projecting chockstone. Palmer went first, I followed, then Dr. Taylor, each finding the chimney fairly difficult, although of the kind one would think little of at the commencement of a climb.

We determined to try the whole climb again as soon as opportunity offered, but the fates were unwilling before Whitsuntide, 1906, when H. Williamson and I reluctantly tore ourselves away from the exploring party at Gaping Ghyll to join Messrs. Oppenheimer, Taylor and my brother at Wasdale Head. We arrived there on Wednesday evening, after a day's scrambling on Pavey Ark with a lady climber of undoubted skill on rocks, and found ourselves in excellent condition, thanks mainly to recent exercise on the rope-ladders at Gaping Ghyll.

Before venturing on our climb it was thought advisable that the members of the party should spend the day together on rocks of some known difficulty.

On Thursday, 7th June, therefore, we ascended the Eagle's Nest Ridge by the 'difficult way.' It was then desirable to test the *descending* powers of the party lest it might be necessary again to descend the Pillar climb, and for this test we chose the Arrowhead Ridge 'difficult way.'

The weather on the morning of Friday, 8th June, 1906, was as fine as one could wish for, but unfortunately Williamson was obliged to return home. Great Gable looked hazy, foretelling another hot day. Our opportunity had at last arrived and with joy we packed up our sandwiches and ropes.

There were many parties on the Pillar that day, including Gaspard, the Wasdale guide, who was going up with his "Monsieur" to do a climb. At 12-25 p.m. the foot of the climb was reached and it was decided to go over the easy part in two parties.

We soon reached our former stomach-traverse, and by keeping a little lower down we found to our astonishment all difficulty gone; it was merely three strides across. This place we renamed the 'Three Steps Traverse.' Then came the 40 feet chimney where the two parties joined together, and shortly afterwards the Buttress, where we built a huge cairn—labour in vain as we were shortly to find out.

We passed the second cairn and "*Le Coin*" without effort, and then we all gathered together before

attacking the difficulty. The leader went round to the left and advanced steadily, at first easily, and then with greater effort until opposite a suitable traverse. This traverse was found to be extremely difficult and when accomplished, alas! was found to lead to the belay where Palmer and I had rested the year previously and *under* the part up which we were hauled.

There was nothing for it but to traverse back again and try higher. The climb was then continued upwards until a small grass ledge was reached, where the leader rested. This grass ledge was 5 feet too high, so, after descending, the correct traverse to the right was reached from which the leader could see the Chimney Ledge. This traverse was found difficult, being grass-grown, and although the leader spent ten minutes trying to unearth new holds none were discovered.

From the traverse a pull-up on to a narrow grass ledge ended *that* difficulty—but it was the greatest difficulty of the whole climb.

When the top of the climb was reached the leader cleared away some loose stones; a rather large one bounded out and, without touching anywhere, struck the apex of the cairn on the Buttress, scattering it in all directions. Perhaps the next party to visit the Buttress will rebuild it.

Thus finished one of the best, and, together with the climb from the Low Man to the High Man, one of the longest rock-climbs I have enjoyed in the Lake District. It will not interest the reader to know of our dinner and conversation in the hotel that evening, but these little things are dear to the heart of the climber, and June 8th, 1906, will stand out as a happy day in the recollection of all who took part in the first ascent of the North-West Climb of the Pillar Rock.

[An account of the second ascent of this climb by a party of four, on August 23rd, appeared in the *Manchester Guardian* of October 26th, 1906 —ED.]

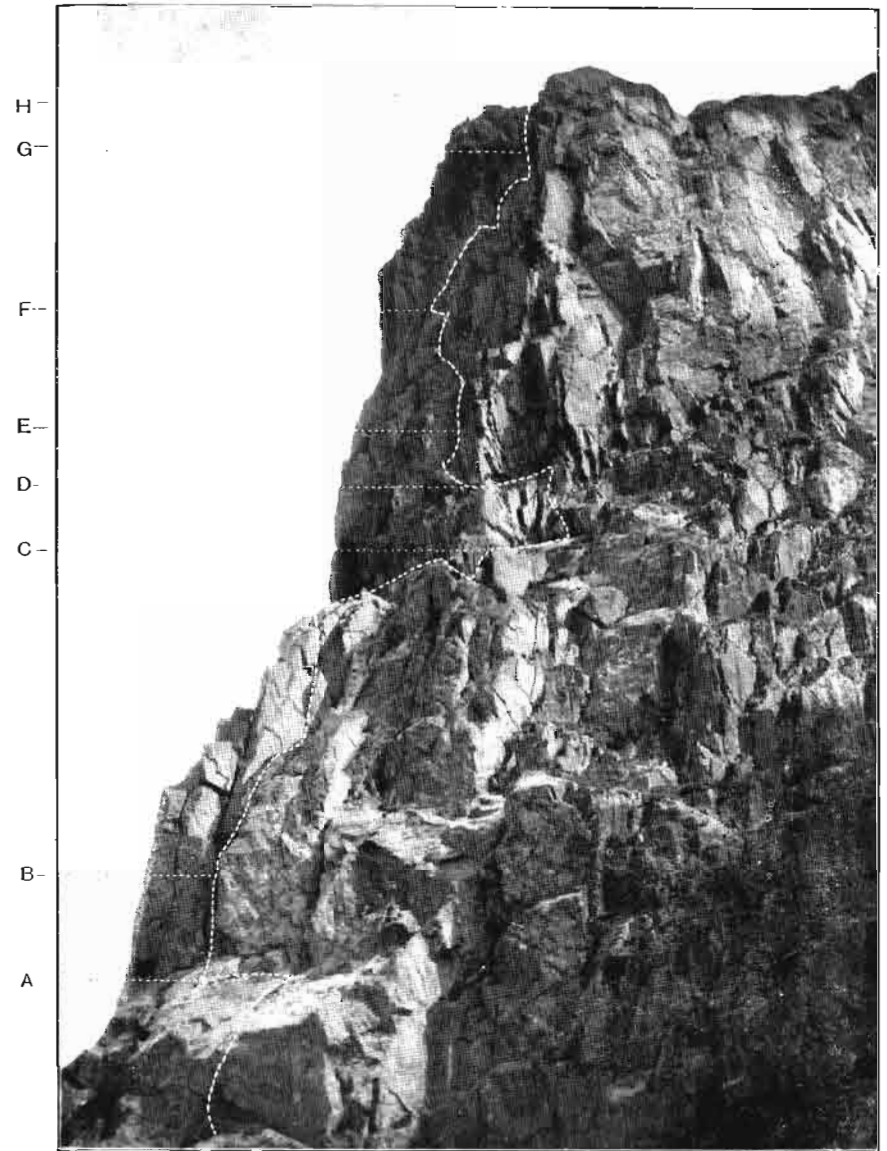


Photo by J. H. Taylor.
THE PILLAR ROCK, NORTH-WEST ANGLE.

- | | |
|--------------------------------|----------------------------|
| A—THREE SERPS TRAVERSE. | E "LE COIN." |
| B 40-ft. CHIMNEY. | F TO G DR. TAYLOR'S ROUTE. |
| C TOP OF BUTTRESS (1ST. CAIRN) | G OPPENHEIMER'S CHIMNEY. |
| D 2ND CAIRN LEDGE. | H LOW MAN. |

LIMESTONE CAVERNS AND POT-HOLES AND
THEIR MODE OF ORIGIN.

BY ARTHUR R. DWERRYHOUSE, D.Sc., F.G.S.

As the Club has made a speciality of Cave Exploration and has in the vicinity of its head-quarters so many magnificent examples of limestone caverns, it has been thought that some account of their mode of origin may not be out of place in the *Journal*.

Accordingly the Editor has asked me to express briefly my views on the subject, and this I willingly do, although some of my ideas are yet in a crude and incomplete condition; because I hope that by these lines many of our working members may be induced to apply my theories to caves with which they are familiar as well as to others which they may visit in the future, and where necessary add to or amend them.

We can have no doubt that, in the first instance, caves in limestone rocks are due to the fact that water containing carbonic acid in solution is capable of uniting with the substance of the limestone (calcium carbonate) to form a soluble body. The natural result of the formation of this soluble compound is the transport of limestone substance from one place to another at a lower level.

The form which is taken by the cavity produced by this removal of matter depends upon the physical condition of the limestone, both as regards its texture and the nature of its jointing. Thus we may contrast the action of natural waters upon two limestones of widely different texture, as for example the Chalk of the Wolds, and the Carboniferous Limestone of the Yorkshire Dales.

The former possesses a highly porous texture, and consequently rain falling upon its surface is immediately absorbed and rapidly becomes saturated with calcium carbonate, with which it is thus brought into intimate contact. Here, then, the water becomes saturated after passing through at most a few feet of strata, and

consequently its solvent action is confined to the upper layers of the rock. The result is the general lowering of the land surface, but no caves are produced.

The Carboniferous Limestone on the other hand is usually a highly crystalline and quite impervious rock. Water which falls upon its surface rapidly flows off until it reaches some crack or fissure, down which it falls.

In flowing over the surface the water doubtless dissolves more or less of the limestone, as is evidenced by the flutings which are so characteristic of the surfaces of limestone "clints," but it is certain that in most instances it enters the cracks and fissures in an unsaturated condition, and is consequently capable of eating its way through the mass of the rock by further solution.

It appears to me that the form of a cave will in the first place depend upon the nature and direction of the various cracks to which its inception is due.

The two principal classes of cracks in the Carboniferous Limestone are those which are approximately vertical and those which approach horizontality. The former include "joints" and "faults," while the latter are the original planes of deposition technically known as bedding planes. Of course the bedding planes sometimes approach verticality in highly disturbed districts, but it is not my intention in the present note to discuss these complicated cases.

The joints appear to be the result of a contraction of the limestone, probably due to the drying and hardening of what was originally a calcareous mud. Whatever their origin these joints play a most important part in cave formation, and it is to their direction and relative persistency that the various types are due.

There are usually two sets of joints approximately at right angles to each other, and together with the bedding planes they divide the limestone into cuboidal masses. Usually one set of joints is more persistent than the other, and these we will call the "master joints." The simplest type of cave is produced when the direction of the master joints corresponds to that of the dip of the bedding planes. In this case a long straight tunnel is

produced, which may keep to the same bed of limestone throughout or may from time to time pass to a lower level by way of a secondary joint, subsequently resuming its original direction along a master joint. When the master joints do not coincide in direction with the dip of the beds or where there is no possible outlet in that direction the matter is more complicated, both "master" and "secondary" joints now come into play not only as regards changes of level in the roof of the cave, but also changes of direction. An underground stream may follow a master joint for some distance and then turn at right angles along a secondary, again fall into a master joint, and so on, producing a series of zig-zags.

The most common type is the long, narrow, tunnel-like cave, such as Clapham Cave, Stump Cross and Long Churn.

In all these cases it may be noticed that the most common form of cross section is wide at the top and narrow below.

It is necessary to remark at this stage that although simple solution of the limestone is responsible for the origin of a cave its final form is due to solution combined with the erosive action of boulders, pebbles and sand carried along by the stream.

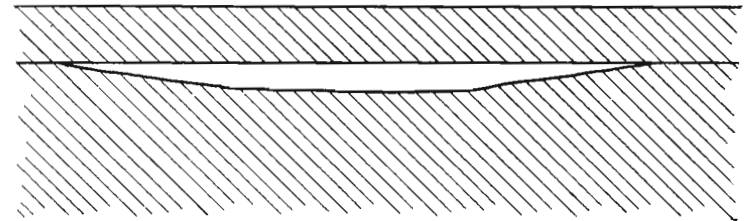


FIG. 1.

At first the water percolates slowly down a narrow crack on a line of joint until it finds a plane of weakness, usually a bedding plane, along which it can flow. It continues its work of solution along this plane producing a cave with a cross section such as that in Fig. 1. While this is proceeding the joint down which the water

percolates is gradually undergoing enlargement until eventually it becomes sufficiently wide to admit sand, pebbles, and even Ramblers.

With the introduction of sand and pebbles, a new phase in the history of the cavern is commenced. A channel is now worn by friction on the wide floor of the horizontal fissure, producing eventually the type seen in Fig. 2.

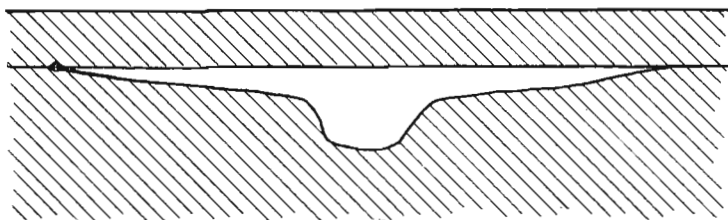


FIG. 2.

This channel winds from side to side, just as does an ordinary brook or rill on the surface of the ground, except in so far as it is confined by the sides of the cave and influenced by the direction of the joints.

Many of the most familiar phenomena of surface rivers are reproduced underground by this action; for example, the windings are often deserted, the stream taking a short cut and by the subsequent deepening of its bed leaving the old channel high and dry. Such deserted bends—or “ox-bows” as they are called by American geographers—are to be seen in Clapham Cave, Long Churn, and indeed in almost every cave of the tunnel type which I have visited.

So much for the plan and cross section of the caves; their longitudinal section still remains to be considered.

Such a section of a typical tunnel-like cave is given in Fig. 3.

The water enters at *a* by way of a joint and reaches the bedding plane along which it finds its way to *b*, gradually wearing down its bed and enlarging the joint *a*. At *b* it descends another joint fissure and flows to *c* where it encounters a third joint, which unlike *a* and *b* is

continuous through two beds of limestone, and descends to a lower level. By the subsequent enlargement of these channels, cascades or waterfalls are produced at *a*, *b* and *c*, each having a pool at its foot, and by the falling-in of such a mass as that indicated at *d* a more or less lofty chamber may be produced.

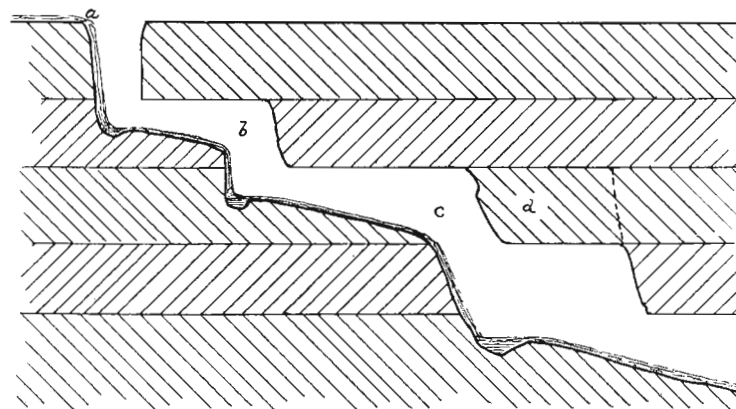


FIG. 3.

It sometimes happens that a joint passes not through one or two beds of limestone but through many beds, perhaps to a depth of several hundreds of feet, in which case deep “pots” are produced such as those at Gaping Ghyll, Alum Pot, Rift Pot, &c.

It seems probable that these continuous joints are in reality faults or dislocations of the strata (Fig. 4) and owe their continuity to this fact.

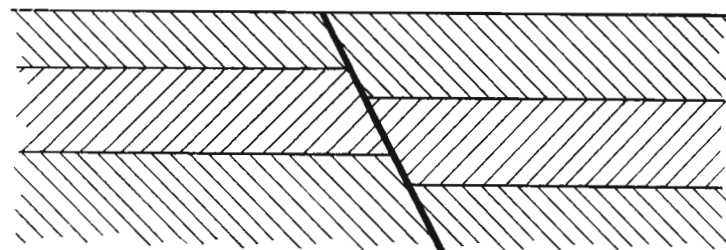


FIG. 4.

There still remains the type of cave consisting of extremely lofty chambers such as that at the bottom of Gaping Ghyll and these I am inclined to believe are due to falls of roof as indicated at *d*, Fig. 3, but of course on a larger scale.

I am aware that a few members of the Club consider this explanation inadequate, and I should therefore prefer to leave the fuller discussion of this type until I have had another opportunity of examining the Gaping Ghyll caverns, when I hope further light will be thrown upon the matter.

It has been my object to put forward in this note some tentative working hypotheses rather than to make any definite pronouncement of my views, with the object of stimulating more detailed work than has yet been possible under the somewhat difficult conditions which attend speleological research, and I trust that members of the Club will utilize their unique opportunities for the investigation of these details with the same enthusiasm which they have shown in solving the larger problems which have been so well illustrated in previous numbers of the *Journal*.

SCOSKA CAVE, LITTONDALE.

BY CHARLES A. HILL.

Scoska Cave lies about a mile above the village of Arncliffe, on the S.W. side of the valley, at a height of 250 feet above the river Skirfare. It was until recently practically unknown even to the inhabitants of the district, though the entrance is a conspicuous object on the hillside. The cave mouth opens on the side of a steep rocky slope composed of Carboniferous Limestone thinly covered with stunted trees, and at a height of about 1,000 feet above sea level. It faces N.E., and is 7 feet high \times 15 feet broad. In wet seasons a stream trickles out of the cave and falls in a series of small cascades over the cliff face.

Entering the cave one can walk upright for a distance of 75 yards until a point is reached where the passage divides into two; the way to the right is the larger and the more obvious one to follow, being lofty and quite dry; it continues for something like a quarter of a mile, and seems to go on indefinitely, the roof and the floor gradually coming together until further progress becomes arduous. That to the left from which the stream flows is entered by creeping under an arch about 18 inches high. Then the roof rises and the passage alternates in height from 3 to 5 feet for a distance of about 100 yards; further on it gradually gets lower and lower until the only method of progression is by crawling flat in the stream. Here it was on the first exploration that innumerable stalactites of all sizes had to be broken through to afford a passage; a fact which goes to prove that this portion of the cave had remained undisturbed for many centuries.

The first exploration of the cave was made at the Autumn Meet of the Club in 1905, during which time the first human remains were found at a spot distant some 240 yards from the entrance. These consisted of a Radius, a Vertebra and a portion of a Rib, all lying on the surface.

This interesting discovery naturally stimulated further research, which has been undertaken since on several occasions, and has resulted in the finding of a considerable number of the long bones, but the whole skeleton is as yet far from complete. Most of the bones were scattered along the floor of the cave over a distance of 20 feet, some being almost entirely buried in stalagmite and therefore requiring very careful extraction. They are all of a dark brown colour, more particularly those portions which were exposed; this is probably due to the action of the peaty water flowing through the cave. The stream, which now exists only in times of wet weather, would be responsible for the scattering of the bones.

The skull when found was practically imbedded in stalagmite, the cranium being full of sand and grit, so that great care was needed to extract it without damage. It lay at the bottom of a hollow about 18 inches deep, and was covered by a few inches of water.

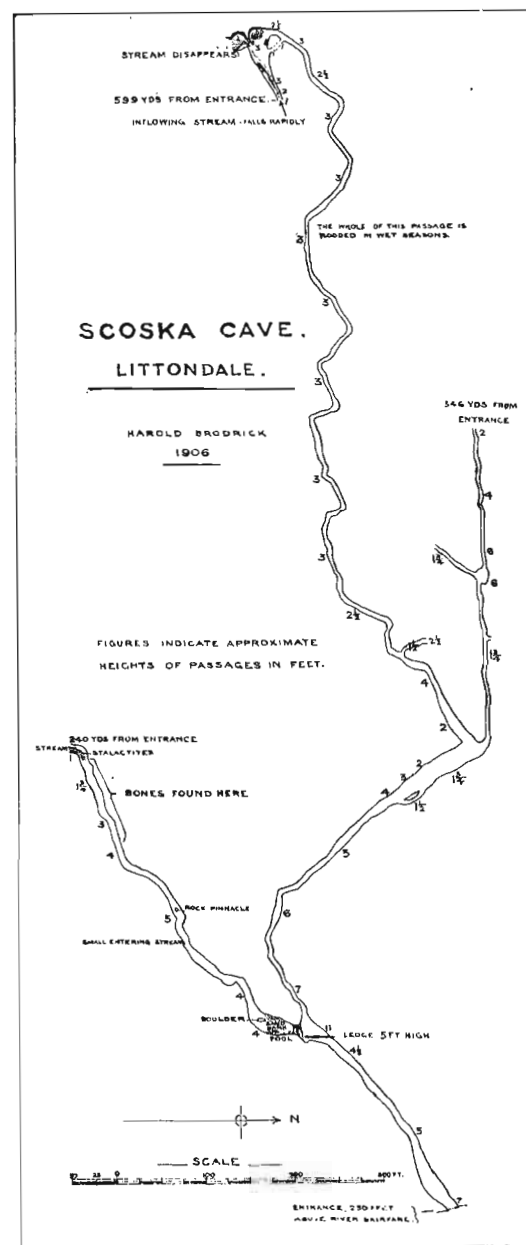
The most interesting part of the find has undoubtedly been the discovery of the skull, since this affords a ready means of determining the race, sex, and age of the skeleton.

The racial characteristics of any skull are determined from a consideration of its various measurements, these being taken between certain fixed points which it is unnecessary here to enumerate. If the length be divided into the breadth and the result multiplied by 100 a certain figure is obtained which is known as the "Cephalic Index." Skulls whose Cephalic Index is over 80 are termed "Brachycephalic" or broad-headed, as opposed to the "Dolicocephalic" or long-headed, whose index is under 80.

The Cephalic Index of this skull is 82, whilst the cubical capacity is 1420 cc.; it is, therefore, almost without question that of a Celt of the Bronze Age.

The sex can be ascertained from the conformation of the skull as well as that of the other bones, but for the present we will consider the former only.

On examination of the forehead just above the eyes we find it flattened, the superciliary ridges and frontal



sinuses diminutive and not projecting; further, at the base of the skull the mastoid processes are small and the lines of muscular attachment poorly marked. In the male all these are prominent in that they afford a place of adherence for muscles of greater strength. The sex, therefore, is undoubtedly female.

The age can be determined within two definite limits from the following observations. Every skull at birth is made up of a number of separate bones which, as age advances, grow together and coalesce. The jagged line where their adjoining margins fit closely into one another is called a "Suture." These sutures become obliterated, as the bones unite, at certain definite periods of life. Thus at the base of the skull the junction between the bones known as the Basis-Occipital and the Sphenoid become obliterated at about the age of 24. In the skull found there is no suture, therefore her age was over 24. Obliteration of the junction between the Occipital and the two Parietal bones—known as the Sagittal or Inter-Parietal suture—commences at about the age of 45. In this skull there is no sign of obliteration, therefore her age was under 45.

So far then we can definitely state that her age was over 24 and under 45. To fix it more accurately we must examine the condition of the teeth. With the exception of the two back molars, which have dropped out since death, all the teeth in the upper jaw are preserved (the lower jaw has not yet been found). These are perfect, showing no signs of decay, but are much worn down and exhibit marks of considerable attrition, their enamel being ground away, evidently from the use of hard and gritty food. This condition is especially noticeable in the back teeth (bicuspid and molars), which are concerned wholly with mastication. This clue justifies the conclusion that her age was rather towards the later than the earlier period of life, and therefore somewhere about 40.

The skull, therefore, is that of a female about 40 years of age.

It is known that the Celts persisted in Craven up to the



THE SCOSKA SKULL.

end of the Roman occupation of Britain, so that the age of the skeleton may be anything from 1,500 to 2,000 years.

When originally found the skull was thickly encrusted with stalagmite. On removing this a most interesting discovery was made, and one which throws considerable light on the probable cause of death as well as providing a reason for the present situation of the remains, so remote from the cave mouth. Just above the right mastoid process is a small irregularly shaped hole, produced probably by a blow from some blunt weapon such as a flint axe, spear, or arrow, which has caused destruction of the outer table of the skull and perforation of the inner. Such a wound might not bring about immediate death but would ultimately do so from compression of the brain, either by depression of the fragments or by hæmorrhage.

The possible history is as follows:—This woman after receiving a wound on the head made her way up the cave under the stress of some strong emotion such as fear, and taking to the passage which is the less obvious of the two crawled to its uttermost extremity and there died. The idea of burial may, I think, be excluded for many reasons.

Another point of interest, which appeals perhaps more particularly to the student of medicine, is the shape of the hard palate. Its arch is abnormally high, whilst the dental margin is greatly contracted at its hinder end. This condition is brought about by nasal obstruction in infancy, due to the disease known as "Adenoid growths of the Naso-Pharynx." As a result of this abnormal arching of the hard palate the septum, or central division of the nose, becomes deflected or bent to one or other side. In this instance the nasal septum is bent to the right, hence the left nostril is larger than the right. To fill up the gap so caused the turbinal bone (one of the bones forming the outer wall of the nostril) becomes enlarged or hypertrophied, and is so found in this instance.

With the nasal bone set almost at right angles to the face, and the teeth of the upper jaw projecting forwards this woman could hardly be termed "a thing of beauty" according to our present ideas.

The next point of interest to be determined is her height. This can be ascertained from the measurement of several of the long bones, viz.:—the Tibia or shin bone, the Humerus or arm bone, and the Radius or fore-arm bone. The proportion which these several bones bear to the average stature of a woman is as follows:—

Tibia	-	22.1	per cent.	of the stature.
Humerus	19.9	"	"	"
Radius	14.3	"	"	"

Calculating from these data the height as determined from the measurements of the several bones is as follows:—

Name of Bone.	Length in inches.	Height.
Tibia	14	63.3
Humerus	12.5	62.8
Radius	9	62.9
Average height ...	63	inches.

We can state therefore that her height was about 5 feet 3 inches. The Tibiæ or shin bones exhibit in a marked degree the condition known as "Platycnemism." This condition is frequently met with in prehistoric Tibia, though not in those of civilised nations of the present day. It occurs however in the bush tribes of South Africa as well as in other primitive races, and may be described thus* :—

The oblique ridge, a point of muscular attachment which runs down the back of the bone about its upper third, is unduly prominent, so that at this point it has a two-edged appearance instead of being roughly triangular in section. In other words the bone is thin, measured sideways, while from back to front it measures more than that of a modern Tibia.

There are various indications in the long bones which point to the sex being female. Thus in the Femur, the neck is set at a lower angle than in the male, averaging 118°; the degree of obliquity of the shaft is greater so as to allow for the increased breadth of the Pelvis. For the same reason the shaft of the Tibia has a slightly oblique direction downwards and outwards.

* For a full description of this condition see Prof Boyd Dawkins "Cave Hunting," pp. 175-178.

The length of the Humerus is 318 mm. The average length of the adult male Humerus is 355 mm. whilst that of the female is 320 mm., to which figure it will be seen it approximates closely.

The following is a complete list of the bones found up to the present, together with the measurements of the skull.

SKULL.	Length 168 mm.	Cephalic Index 82.
	Breadth 138 mm.	Vertical Index 76.
	Height 129 mm.	Cubical Capacity 1420 cc.

The lower jaw has not been found.

RIGHT SIDE.	LEFT SIDE.
Clavicle.	Humerus.
Radius.	Radius (4in. of the shaft).
Ulna.	Ulna.
12th Rib.	1st Rib.
Tibia.	Os Innominatum
Fibula.	(A portion only.)
Astragalus.	Femur.
1st Metatarsal.	Tibia.
3rd Metatarsal.	Fibula.

Several other portions of Ribs.

SIX VERTEBRÆ.—Cervical, 4th or 5th.
Dorsal, 5th or 6th.
Dorsal, 11th.
Dorsal, 12th.
Lumbar, 5th.
Another Lumbar in fragments.

[The search for the bones extended over a lengthy period and was carried on by Messrs. Barnes, Botterill, Brodrick, Buckley and myself during a number of short visits. Mr. Barnes was the fortunate finder of the skull.—C. A. H.]

IN MEMORIAM: CHARLES EDWARD MATHEWS.

Although it is not customary to insert in the *Journal* the "Yorkshire Ramblers' Club Annual Report" which is issued each Autumn, I am sure that the readers will approve of the reproduction from that 'Report' of a short but beautiful notice of the death of Mr. Mathews which was written by Mr. Lewis Moore.

"In Mr. C. E. Mathews, who died on Friday, October 20th, the day upon which he was to have given us one of his inimitable lectures, the Club loses one of its oldest members and a real and staunch friend. Elected an honorary member in 1892, his name appears in the list of honorary members published in the Club's first report for the year 1892—1893. Upon February 4th, 1896, Mr. Mathews gave us his first Lecture entitled 'The Story of Mont Blanc,' the mountain with which his name will for all mountaineers be inseparably connected. From that evening the Yorkshire Ramblers have ever regarded him with increasing reverence and affection. On April 11th, 1902, he again lectured for us, giving his 'Personal Reminiscences of Great Climbs.' Fortunately, that Lecture is recorded in the pages of our *Journal*.* This year [1905] he honoured the Club by attending its Annual Dinner and proposing the toast of the Yorkshire Ramblers' Club in a speech of fascinating interest and eloquence,† which he concluded in the following words:—

'I propose with all my heart the Health and Prosperity of the Yorkshire Ramblers' Club. I am glad to have been associated with so gallant an institution. The future is fortunately hidden from us, but whether the time be long or short during which I may be permitted to answer to my name when the muster roll is called, believe at least, that I do not forget, and do not wish to be forgotten.'

Mr. Mathews was a member of whom the Club was justly proud. A Founder and Past President of The Alpine Club, the creating spirit and First President of the Climbers' Club, with the unique record of fifty years of climbing, during which he ascended nearly all the great peaks in the Alps, he was a mountaineer without fear and without reproach, a speaker of forceful and delightful eloquence, and a man of great charm and character. We Yorkshire Ramblers consider it a great honour and privilege, for which we shall

* Vol. I. pp. 268-288.

† See pp. 240-243.

ever be thankful, that his name should have been enrolled upon our list of members, and we mourn his loss with very keen regret."

As one who has had the privilege of Mr. Mathews' friendship for over a quarter of a century, I have been asked to add a few paragraphs to this notice.

We who turn so naturally to the everlasting hills to glean health, strength, and infinite pleasure, owe more to Mr. Mathews than we are aware of. By his lectures, numerous writings, and friendly intercourse, he raised the tone of the sport of mountaineering. No one recognised more than he the good which could be done, and has been done, by Clubs such as ours, and his words of advice and encouragement in the early days of the Yorkshire Ramblers' existence did much for us, more probably than we shall ever realise. When urging us onward he never neglected the opportunity of pointing out the fact that mountains claim our respect as well as our love. In the valedictory address "The growth of Mountaineering," which he read to the Alpine Club in December, 1880, when his term as President came to an end, are solemn words of warning. At the same time there is a delightful vein of optimism pervading it, in which he foreshadows the conquest of the Himalayas; at a time too when it was the fashion amongst many mountaineers to breathe the words "rarefaction of the air." All who love the mountains should read this paper, nor should they neglect "The Alpine Obituary."

No Yorkshireman ever loved "The Shores of Wharfe" more deeply and sincerely than did Mr. Mathews. Many a time have my wife and I accompanied him to those scenes so well known to the Yorkshire Ramblers. The drive over Barden Moor delighted him so much, that a few years ago he brought the Birmingham Shakespearian Society, of which he was the President, for two days to Wharfedale, driving from Skipton. Fortunately the weather was perfect, and those who were present will never forget the lovely evening spent in the garden of the Rectory at Bolton Abbey, the tea provided by Mrs. Howes, nor the dinner at the Devonshire Arms. Mr. Mathews, who presided at the latter, was in his very best form. Only one short year ago he went to Upper Wharfedale in high spirits too. How, on another visit, he appreciated a walk to Norton Tower and Rylstone Cross and recited stanzas from "The White

Doe of Rylstone" and enjoyed tea in a humble Craven inn! Then, too, how his romantic spirit was fired by a visit to Gordale Scar! We have indeed none but happy memories connected with our old friend. Nor can we forget his sojourn with us at Grasmere when we introduced him—a trustee of the Wordsworth memorial—to Dove Cottage, nor his enthusiasm on that occasion.

If Mr. Mathews were a delightful visitor, he was too an ideal host, as all can testify who have been privileged to enjoy his hospitality at Caersaer at the foot of Plinlimmon, or at his home at Four Oaks.

It is good to have known such a man, to have possessed his close friendship, to have shared in his pleasures, and to have such a rich store of happy memories connected with him. Though I have been on many a British hill with him, I never met him at Chamonix. There his name is a household word, and he is mourned there as well as here. His great work, "The Annals of Mont Blanc," was the result of years of research, but a labour of love. In years to come it will be even more recognised than it is to-day as a great mountain classic. I cannot do better than to conclude by quoting the two final paragraphs of the last chapter.

"Mountaineering has its lights and shades, but it is a pursuit which has added greatly and permanently to the sum of human happiness. Who shall measure the amount? Who is there who can sleep on a glacier in the moonlight, or by the camp fire amongst the lonely hills; who can listen to the music of the wind against the crags, or of the water falling far below; who can traverse the vast white solitudes in the night time under the silent stars; who can watch the rose of dawn in the east, or the great peaks flushed with carmine at sunset, without thoughts which it seems almost sacrilege to put into words, without memories which can never be effaced, for they sink into the soul!

Mont Blanc has now been known to five successive generations. Men may come and go, but its mighty summit 'abides untroubled by the coming and going of the world.' And to those who know it well and love it dearly, come often, in quiet hours, teeming thoughts which swarm like bees; sunny memories of successful endeavour, of transcendent beauty, and of priceless friendships, which have added health, and sweetness, and happiness to life."

WM. CECIL SLINGSBY.

OVER THE STRAHLEGG PASS BY THE ROCKS.

On Wednesday, 11th July, 1906, Messrs. R. Dienst, A. Botterill, F. Toothill and myself, without guides, quitted the Pavillon Dollfus on the Lauteraar Glacier with the intention of crossing the Strahlegg Pass to the Schwartzegg Hut.

We started late, the day was hot, and we did not reach the bergschrund at the foot of the Strahlegg wall until two o'clock in the afternoon. Two days previously there had been much new snow and now avalanches were falling on every side. The Strahlegg as seen from the Grimsel side is, in summer, a huge rock-wall, higher on the right side than on the left. It has two large snow couloirs, one near the Strahlegghorn, and the other near the Gross Lauteraarhorn. The left-hand couloir is perhaps 800 feet in height and is the route usually followed. The right-hand couloir and the rocks near it are well over 1000 feet high. Both the couloirs were dangerous as avalanches were falling down them every few moments. It was therefore a question of either turning back or attempting a probably difficult climb over unknown rocks.

While we were considering the situation a small avalanche passed over us and we at once decided to take to the rocks. We did so at a point half-way between the Gross Lauteraarhorn and the Strahlegghorn, and after four hours' difficult climbing arrived at the top of the pass.

The climb is scarcely to be recommended, but should anyone arrive at the Strahlegg, as we did, very late in the afternoon and when the snow is fairly new, it would be the safest route.

Arrived at the top we were enveloped in a dense mist with snow, thunder and lightning, but by careful use of the map and compass we reached the Schwartzegg Hut at 9 p.m.

F. BOTTERILL.

PROCEEDINGS OF THE CLUB.

The third ANNUAL CLUB DINNER was held at the Hotel Metropole, Leeds, on February 11th, 1905. The President, Mr. Alfred Barran, occupied the chair, and fifty-nine members and friends were present.

The Club was honoured by the presence among its guests of Mr. C. E. Mathews, Mr. G. B. Bryant, Hon. Secretary of the Climbers' Club, and Mr. W. H. Pearson of the Rucksack Club.

The evening was as fully enjoyable as similar occasions in the past. The menu card was adorned by a cave scene in black and colour by Mr. G. T. Lowe, and forms a pleasant memento of the occasion.

The toast of "The King" was proposed by the President, after which Mr. C. E. Mathews rose to propose that of "The Yorkshire Ramblers' Club," in an oration the memory of which will last long in the minds of those privileged to hear it.

MR. MATHEWS' SPEECH.

"Mr. President and Gentlemen: I think this is the third time I have received the honour of an invitation to your annual banquet. Previous invitations unhappily I have been unable to accept, but when for the third time my old friend Mr. Slingsby wrote and said "you must come" I thought it was time to rally, so I replied "yes," and here I am, very much at your service, to discharge that particular duty which your Committee have imposed upon me. Gentlemen, I propose the Yorkshire Ramblers' Club, that gallant band of Yorkshiremen who have distinguished themselves in so many positions. No doubt you think that yours is the most delightful county in England, and yet you have chosen a man born in Worcester, and brought up in Worcester, to do justice to the toast. In addition I happen to be one of the survivors of the first Alpine Club, and we are always delighted to assist Kindred Clubs of which we were the forerunners, and have followed with much interest the achievements, the aspirations, and even the vagaries of our children.

Gentlemen, I have had some honours forced upon me in the course of a long and chequered career, but I have never valued one more than that which was forced upon me when I was elected President of the Alpine Club; but this position has often plunged me into many difficulties. It would seem that I am in constant request at the annual gatherings of all mountaineering societies. For myself, I have never missed one winter dinner of the Alpine Club, and I think that fact should secure me some immunity from attending on the claims of what I venture to call collateral societies—but nothing of the kind! There is the Junior Alpine Club at the University of Oxford, and I am never allowed to absent myself from their May meeting every year. Then there is the Scottish Mountaineering Club; I have duly to make my bow to my Scottish brethren on the other side of the Tweed, and have attended with great pleasure their annual gathering. Then there is the Climbers' Club; I have never yet missed one of their annual debaucheries. Then there is the Rucksack Club, whose dinner I had the honour to attend in the month of December last, and from whom I received a most cordial welcome and was made an honorary member of that most interesting Club. Now there is the Yorkshire Ramblers', and I am proud and happy to meet to-night a club of which I am an Honorary Member. But the worst of it is that I cannot attend one of these meetings without making a speech. Sometimes I think of that delightful prophesy of the immortal Thackeray. He looked forward to the time when speaking, like carving, would be done at a side table.

Now, gentlemen, I suppose that during the last few years I have delivered, say fifty speeches, and it is not possible that I should never repeat myself, so if I say anything that I have said before, forgive me. Frank confession is always followed by absolution. I would remind you of that rather interesting notice of which Bret Harte speaks, which was put up in a saloon in San Francisco—"Visitors are requested not to draw on the pianist for he is doing his best."

On occasions like the present I cannot avoid touching

upon the relations which have always subsisted between myself and the various Alpine Clubs. There is something most touching in the relations between myself and them. I am the only one of the fathers of the Alpine Club who has kept up practical mountaineering to the present day, and it has always been my pride to be a connecting link between the mountaineers of the old days and the mountaineers of the present. Believe me, I am glad to think that I have been, on many occasions, able to render some service to younger men. Many great men whose names you know—Stephen, Reilly, and many another whose names are as familiar in our mouths as household words, have left us one by one, and at my time of life it must be that memory causes us to view the past with sad eyes. But the future, gentlemen, is with you and with clubs like the Yorkshire Ramblers, and the best wish I can offer you and any similar institution is that you should preserve untainted the fine traditions and great trust which you have received from your fathers.

Personally, I have endeavoured to do what I could for your most flourishing institution. I have delivered already two lectures of priceless merit (“Hear, Hear,”) at the usual rate of remuneration (laughter) and I have been foolish enough to promise to open your next Session (cheers). I trust that it may be counted to me for righteousness.

But, after all, the object of your Club and all other such Clubs is to provide an alternative from daily toil, and there is no alternative like mountaineering. I have often thought a man who is a lawyer or a manufacturer, but who is that and no more, is often the dullest and sometimes the most miserable of mankind, but the man who, whilst holding his breadwinning occupation, takes his fair share in the wider life of the world, in politics, art, literature, or science, or some form of manly sport, is not only better fitted for the ordinary duties of life, but has a career which must contain some element of nobleness, and which is often able to render some valuable services to mankind. It brings such priceless friendships. And I now ask you, would any of you, if it were possible, erase from your memories the names of those kind, warm-

hearted friends, who, but for mountaineering, you would never have known? Barran, Gray, and Slingsby, and many others whom I am proud to call my friends—it is not too much to say that if it had not been for our common pursuit, there is not one of them that I should have shaken by the hand.

For myself, gentlemen, I am touched by the kindly reception which you have given to an old member of the Alpine Club; I have unfortunately reached that time of life which is described by the Psalmist as ‘the allotted span,’ but there is life in the old dog yet, and old age yet has its honour and its toil.

I began climbing more than half a century ago amongst the Welsh hills, which have always had an irresistible fascination for me; I have been up Cader Idris 30 times, up Snowdon 90 times, and I have been up the Glyders over 100 times. In the Alps, I have ascended almost every one of the great peaks; I have spent forty seasons there, and I do not know how any forty seasons could have been better employed. This very year, I have walked through Greece from the Gulf of Talanta to the Gulf of Corinth and ascended on the way Mount Parnassus; but time begins to tell, and I am sad to think that the higher summits are now closed to me, and that I must gaze at the big hills from their bases.

But as short speeches ought always to be the order of the day you will not be surprised to hear that—as Lady Godiva remarked on her return from her journey—“I am approaching my close.”

I propose with all my heart, “The Health and Prosperity of the Yorkshire Ramblers' Club.” I am glad to have been associated with so gallant an institution.

The future is fortunately hidden from us, but whether the time be long or short during which I may be permitted to answer to my name when the muster roll is called, believe at least, that I do not forget, and do not wish to be forgotten.”

The President, Mr. Alfred Barran, in responding to the toast said:—

“The honour which has been done to the Club to-night is

one which we can rarely expect to have repeated: we have the honour to meet one of the founders of the Alpine Club, an honorary member, we are proud to say, of the Yorkshire Ramblers' Club, who at sixty years of age again ascended Mont Blanc, and proved to us that we may at sixty, aye, even at seventy, be able to do something which does not fall to the lot of ordinary mortals. There may be a difference of opinion as to the merits of mountaineering, but those who have had long experience of the sport know, as Mr. Mathews has said, that good comradeship, good health, happy memories of old climbs which recall faces and scenes we would not forget, are amongst the many advantages of the sport. We have much to thank our late President for and amongst the many things are the three visits which Mr. Mathews has already paid to us.

We have not, I am glad to say, called ourselves the Junior Alpine Club. We have taken our own title: it is not Alpine: it is not borrowed, begged or stolen from any other sport: we are a Ramblers' Club pure and simple, though it is true that both among our honorary and ordinary members there are a considerable number of Alpine Club men, who I am glad to say are added to annually.

The Club has outgrown its infancy and is now in robust youth with about eighty members and can lay claim to much useful work in the county. During the last year two parties have done exceedingly good work: Mr. Slingsby was a member of one party and Mr. Priestman of another who have had great success within the Arctic Circle; we are extremely proud of this and jealous that it was not possible for us to share in their work. First descents of two pot-holes—Jockey Hole and Rift Pot—have also been made, these have special interest because they are not yet marked on the six-inch Ordnance map.

In replying to this toast, I wish to express in the name of the Club our grateful thanks to Mr. Mathews for his presence to-night and for his promise to come to us in the autumn. We hope that he will not only come then, which is almost too much to ask of him, but that he will come repeatedly, because we want to have the happy memory of a man who not only enjoyed the sport and helped to found the Alpine Club but made himself one with the younger generation, and has thereby earned the gratitude of many of those to whom we look to carry on the sport worthily in years to come."

The toast of "Kindred Clubs" was proposed by Mr. Slingsby, who spoke enthusiastically about the work done and the pleasures enjoyed by our friends of other Clubs. Whilst speaking of the Alpine Club, he said:—

"There are some honours which are greater than those represented by a whole alphabet being placed after a man's name, notably is this the case when a star or an asterisk is placed before the name of a man in the list of members of the Alpine Club. This denotes that the person referred to is one of the founders of the Alpine Club. Gentlemen, we are honoured by the presence of one of these heroes here this evening in the person of our most dear friend Mr. Mathews. Mr. President, I am going to break all rules and to defy all order and precedent! Brother Yorkshiremen and other friends, stand up and drink to the health of our most honoured guest Mr. Charles Edward Mathews."

This was done amid great enthusiasm which lasted for some minutes.

Continuing, he said that while it was good for men to club together for the furtherance of such pursuits as ours, he thought it equally desirable that the Clubs should also club together and he was happy to see that the Alpine Club, the Scottish Mountaineering Club, and the Rucksack Club were so well and so numerous represented on the present occasion.

Mr. Bryant, on behalf of the Climbers' Club, expressed his appreciation of the hearty reception of the toast. He congratulated the Yorkshire Ramblers' Club upon their *Journal* as conducted by Mr. Gray. Recalling that the Club, founded only in 1892, had started a Library in 1897, secured its own rooms in 1899, but had not ventured upon the dissipation of an annual dinner until 1903, he considered that it stood as a model to other Clubs of a similar kind.

Professor Clapham responded on behalf of the Alpine Club and the Scottish Mountaineering Club, and Mr. Pearson for the Rucksack Club.

The Rev. L. S. Calvert proposed the toast of "The Visitors" in the following terms:—

"Fortunate as the Club has been in past years in its visitors,

to-night it is singularly so. At this late hour it is impossible to enumerate the individual distinctions of our guests. They are well-known to all of us. At the risk, however, of losing last trains—a real risk—there is one to whom must be accorded a special welcome.

Presidents and Ex-Presidents of the Alpine Club have from time to time done the Yorkshire Ramblers the honour to accept their invitations, an honour of which we are very sensible. Mr. C. E. Mathews they especially welcome as an Honorary Member and a firm friend. Apart from his long and brilliant record in the hills where he is unanimously regarded as '*Primus inter pares*'; by the beauty of his writings, the charm of his speeches, and above all by his intensely human feeling, he has raised mountaineering to its present high standard and inspired affection in more hearts than he can ever know."

Mr. Unwin, replying to the toast of the Visitors, said:—

"He felt it a great honour as well as a pleasure to answer this toast and he could say that all appreciated their most hospitable reception. The name of the Club did not do its members justice, they were more than Ramblers,—they descended into the bowels of the earth to places that had never been heard of before, taking their lives in their hands, and they also ascended Alpine heights, and all who had read the Club's *Journal* or attended its lectures knew how delightful were the accounts brought back."

THE ANNUAL GENERAL MEETING was held at the Club Rooms on Tuesday, October 30th, 1905, when the Committee presented their 13th Annual Report.

The Club now consists of 9 honorary and 83 ordinary members, being a decrease of one honorary and an increase of six ordinary members in the last twelve months.

During the year, seven General and ten Committee meetings have been held. Six lectures have been given as follows:—

- 1904—November 8th. "Arctic Norway,"
by Mr. Geoffrey Hastings.
November 22nd. "Mountaineering from a Woman's
point of view,"
by Mrs. Le Blond.

- December 13th. "Some Climbs in the Horungtinder,"
by Mr. J. A. Green.
1905—January 31st. "Val D'Herens and the Val Pelline,"
by Professor Clapham.
February 28th. "New Ground in Arctic Norway,"
by Mr. Howard Priestman.
March 14th. Club Evening. Short papers.

The lectures were very well attended.

The Committee have again to acknowledge gifts of books to the Club Library, and Mr. J. H. Buckley, the Hon. Librarian, will be glad to assist members who wish to make use of them.

The Scottish Mountaineering Club, the Climbers' Club, and the Rucksack Club invited representatives from our Club to their Annual Dinners and accorded them very hearty receptions.

Two Meets were held during the year; one in the spring, on May 20th and 21st, at Middlesmoor, and the other in the autumn, on September 30th, at Arncliffe. Both were well attended.

The fourth ANNUAL CLUB DINNER was held at the Hotel Metropole, Leeds, on February 10th, 1906. The President, Mr. Alfred Barran, occupied the chair, and about sixty members and friends were present.

Owing to the necessity of publishing accounts of the last two Annual Dinners in this number of the *Journal* and the consequent pressure upon the space accorded to 'The Proceedings of the Club' it is unfortunately not possible to give more than a bare notice of the events of the evening. The speeches were excellent and well worthy of being placed on record had circumstances permitted.

After the President had given the toast of "The King," Mr. W. P. Haskett Smith proposed the toast of "The Yorkshire Ramblers' Club" which was replied to by the President.

The toast of "Kindred Clubs" was proposed by Mr. Wm. Cecil Slingsby and responded to by Mr. Charles Pilkington for the Alpine Club, Mr. Rennie for the

Scottish Mountaineering Club and the Climbers' Club, and Mr. Bury for the Rucksack Club.

"The Visitors" was proposed by Mr. J. A. Green and responded to by Dr. Forsyth.

Among the guests who honoured the Club by their presence were Professor Bodington, Vice-Chancellor of the University of Leeds, Professor Kendall, Dr. Forsyth, Mr. Charles Pilkington and Mr. W. P. Haskett Smith.

The following NEW MEMBERS have been elected since the last issue:—

BARNES, J. B., Lynwood, Blundell Avenue, Birkdale, Southport.

CHADWICK, R. A., M.A., LL.M., 247, Hyde Park Road, Leeds.

DALTON, H. E. J., 66, West End Avenue, Harrogate.

ELLIOT, DOUGLAS, Barnet Cottage, Far Headingley, Leeds.

FARRER, REGINALD JOHN, J.P., F.R.H.S., Ingleborough, Lancaster.

FIRTH, REV. H. J. R., M.A., 2, Nursery Mount, Hunslet, Leeds.

KINNAIRD, F. D., 54, Chapel Lane, Headingley, Leeds.

LEACH, FREDK., The Avenue, Halton, near Leeds.

LEDGARD, W. G., 28, Burley Lodge Terrace, Leeds.

LEE, F. H., South Gable, Ben Rhydding.

ORMEROD, JOHN A., Barfield, The Drive, Roundhay, Leeds.

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ROBERTSHAW, WILFRID, Silvamere, Chrisharben Park, Clayton, Bradford.

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SIMPSON, WM., Catteral Hall, Settle.

SLINGSBY, WM. ECROYD, Beech Hill, Carleton, Skipton.

THOMAS, PETER D., Rosebank, Chapel-Allerton, Leeds.

WILLIAMS, ROBT. STENHOUSE, M.B., C.M., D.Ph., Ashton Hall, The University, Liverpool.

POT-HOLE EXPLORATION.

The following new descents have been made during and since the summer of 1904:—

ON INGLEBOROUGH: *Fluted Hole*, Newby Moss. Depth, 58 feet. 26th June, 1904. Brodrick, Buckley, Green, Hastings and Hill.

Sulber Pot. Depth, 51 feet. 21st April, 1905. Baker, Brodrick and Hill.

Juniper Gulf. Depth, 90 feet. 21st April, 1905. Baker, Brodrick and Hill.

Gritstone Pot. Depth, 44 feet. April, 1905. F. Botterill and party.

Marble Pot. Depth, 25 feet. 22nd April, 1905. Baker, Brodrick, Hastings, Hill and Lamb.

Bridge Pot, Newby Moss. Depth, 35 feet. 23rd April, 1905. Baker, Brodrick, Buckley, Hastings and Hill.

Thorn Pot, Newby Moss. Depth, 45 feet. 23rd April, 1905. Baker, Brodrick, Buckley, Hastings and Hill.

Cross Pot, Newby Moss. Depth, 118 feet. 23rd April, 1905. Baker, Booth, Brodrick, Buckley, Hastings, Hill and Lamb.

Rosebay Pot, Newby Moss. Depth, 65 feet. 23rd April, 1905. Baker, Brodrick, Buckley, Hastings, Hill and Lamb.

Pillar Pot, Newby Moss. Depth, 160 feet. 11th June, 1905. Booth, Brodrick, Buckley, Cuttriss, Green, Hastings, Hill and Parsons.

Nick Pot, near Selside. Estimated depth, 80 feet. 24th June, 1906. Botterill and Buckley.

IN NIDDERDALE: *Blayshaw Ghyll Pot, No. 1*. Depth, 35 feet. Easter, 1906. Cuttriss and Hastings.

Blayshaw Ghyll Pot, No. 2. Depth, 40 feet. Easter, 1906. Cuttriss and Hastings.

NEAR RIBBLEHEAD: *Cove Hole*. Estimated depth, 120 feet. 24th March, 1906. F. and M. Botterill.

ON PENYGHENT: *Hunt Pot* (second known descent). Depth, 190 feet. 17th June, 1906. F. Botterill and party. (First descent, not previously recorded, May, 1898, E. Calvert, Ellet and Green).

REVIEW.

ROCK-CLIMBING IN NORTH WALES.

BY GEORGE AND ASHLEY ABRAHAM.

(KESWICK: G. P. ABRAHAM, [1906.])

We heartily welcome the publication of this book.

To those who enjoyed the friendship of Mr. Owen Glynne Jones, it was known that he contemplated issuing a companion volume to his excellent work dealing with the Cumbrian climbs. But '*L'homme propose, et Dieu dispose.*' His mantle, however, could not have fallen on much fitter shoulders than those of the Keswick Brothers, who, after his death in 1899, became possessed of many of his original notes on the subject, and resolved to consummate, if possible, the desire of their late friend. In this labour of love the authors have undoubtedly given of their best, as a perusal of the present handsome volume attests. The work is divided into two parts, the first, which describes the Glyders, Tryfaen and the Carnedd's being written, in the first person, by Mr. George Abraham, and the second, dealing with Snowdon and Cader Idris, by Mr. Ashley Abraham. Each succeeding season has seen the authors at one of the climbing centres of Snowdonia, making a personal acquaintance with and photographing the important climbs, a task, however, which they candidly confess "involved more time than was anticipated at the outset."

From the climbers' standpoint the book leaves little to be desired. It is pleasantly written, although perhaps not so classical in style as the Cumbrian book. It is also profusely illustrated with Messrs. Abraham's own photographs, which have lost little in the beautiful monogravure process of reproduction. Most of the photographs 'hit off' the various climbing situations admirably. Others are typical of the finest Welsh scenery, particularly that of "Llyn Idwal, a cloudy afternoon," and "Snowdon from the pinnacles of Crib Goch," both excellent examples of the photographic art.

Several years ago, the 'Spectator' in a trenchant article on 'The Pleasure of Peril' affirmed that 'Britons have long boasted that a spice of danger is a necessary ingredient of a sport.' The spice of danger, or risk, in climbing may appear very real to the ordinary reader before he is half-way through this fascinating book. The necessary word of warning, however, is given to all true lovers of our mountain

sport, i.e., not to underrate the severity of a climb, but to realise the necessity for using every precaution for the safety of the party. Further, the authors have enumerated nearly one hundred climbs, all of which are classified in their approximate order of difficulty, from Crib Goch, &c. (Easy Course), Western Gully, Tryfaen, &c. (Moderate), Western Buttress, Lliwedd (Difficult), right through the "Exceptionally Severe Courses" to Twll Du (Devil's Kitchen), which they consider to be "probably the most difficult and dangerous climb in Wales."

The series of Outline Drawings of the chief routes will prove valuable to novice and expert alike. As in Jones's Lake District book, so with this companion volume there is no map, not even the inset of a diagrammatic sketch-map to give at a glance the "lay of the land." It is to be hoped that the latter, at least, will accompany any future editions of these splendid books.

It is a matter of taste, but we should say that nothing would be lost by the omission of the few comic sketches in Messrs. Abraham's book, which are neither worthy of the subject, nor its treatment.

J. W. P.

RECENT BOOKS.

ACROSS THE GREAT ST. BERNARD. By A. R. SENNETT. With over 200 illustrations. Size 8 × 5½, pp. xvi. and 444. Appendices on Glaciers, Caves, &c. pp. 100. (London: Bemrose & Sons, Ltd. 1904. *Price 6s. net.*)

IN THE HEART OF THE CANADIAN ROCKIES. By JAMES OUTRAM. With 46 illustrations from photographs, and 3 maps. Size 8½ × 5½, pp. xii. and 466. (London: Macmillan & Co. 1905. *Price 12s. 6d. net.*)

LANDSCAPE IN HISTORY, and other Essays. By SIR ARCHIBALD GEIKIE, F.R.S. Size 8½ × 5½, pp. viii. and 352. (London: Macmillan & Co. 1905. *Price 8s. 6d. net.*)

THE TYROL. By W. D. McCrackan. With 32 illustrations from photographs. Size 7½ × 5½, pp. xx. and 328. (London: Duckworth & Co. 1905. *Price 5s. net.*)

FÜHRER durch die URNER-ALPEN. Verfasst vom Akademischen Alpen-Club, Zürich. Im 2 Bänden. (Zürich: 1905. *Preis beider Bände. Frs. 3'60.*)

MOUNTAINEERING BALLADS. By A. C. DOWNER. Size 4 × 5½, pp. 47. (London: Charles Murray & Co 1905. *Price 1s. net.*)

THE GLACIERS OF THE ALPS and MOUNTAINEERING IN 1861. By JOHN TYNDALL. With illustrations. Size 6½ × 4½, pp. xiii. and 274. (London: J. M. Dent & Co. 1906. *Price 1s. net.*)

Mountaineers will welcome this reprint, in single volume and handy form, of the narrative portion of Tyndall's "Glaciers" combined with its sequel—"Mountaineering." The latter has been out of print many years, and has long commanded a high price in the book market. By including them in Everyman's Library the publishers now enable Alpine book-collectors to fill a long-standing gap in their shelves at the modest expenditure of one shilling. Lord Avebury contributes an appreciative introduction, which is followed by a list of Tyndall's publications.

ROCK-CLIMBING IN NORTH WALES. By GEORGE & ASHLEY ABRAHAM. With 30 full-page illustrations in monogravure, 10 pen-and-ink sketches, and 11 outline drawings of the chief routes. Size 9 × 6½, pp. xxi. and 394. (Keswick: G. P. Abraham. 1906. *Price 21s. net.*) *Reviewed on pp. 250—251.*

TWENTY YEARS ON BEN NEVIS. By WM. T. KILGOUR. Second Edition. With a map and 36 illustrations. Size 7½ × 4½, pp. 168. (Paisley: Alexander Gardner. 1906. *Price 1s. 6d. net.*)

THE CLIMBER'S NOTE-BOOK: By C. W. (London: T. Fisher Unwin. 1906. *Price 1s. net.*)

A useful little book containing lists of requisites for the mountaineer; a few English equivalents of French and German moneys, measures and weights; the Alpine Distress Signal; and about fifty ruled pages for notes. It is in durable covers and goes easily into the waistcoat pocket.



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