

Report on Navigation Skills – Plas y Brenin, 13-15 MARCH, 2020 by Julie Jones



It all began at Glenmore Lodge in Scotland on New Year's Day 2020 with the annual family gathering for Hogmanay in the Highlands where successive green winters have left the mountains unseasonably accessible.

Ski runs are swathes of brown heather and a snow-making machine now has pride of place in the car park of the upper lodge obscuring the sweeping views across Loch Morlich to the Monadhliath range and beyond.

The bright young things set off at a pace up what was once the White Lady Chair Lift, properly dressed and with plenty of experience in the hills, confident that mobile phone technology, with GPS, what3words.com and nefarious apps, would guide the way or summon rescue in an emergency. That is, until the battery fails. The Met Office and MWIS have both advised ... 'your phone

battery will drain faster than you think in the cold.' – BMC Summit magazine Winter 2019.

Peering down into the gaping yawn of Loch A'an on the featureless Cairngorm plateau is not a place you want to be without a map and compass when the weather closes in. Recent treks in the Himalaya had encouraged a somewhat lazy disposition as groups simply follow the tail of a temperamental yak but, nearer to home, ill-advised reliance on mobile phones meant that navigation and traditional map reading skills needed to be revisited without delay.

By coincidence, news from the ABM AGM in January that personal development courses were to be supported by the club was a further call to action and so it was that a navigation refresher course at Plas y Brenin was arranged at relatively short notice.

Truthfully, it's not the easiest place to get to without a car but as a centre of excellence in all things mountaineering, it has few equals. Rather than classroom studies, the weekend was to be two full days around Snowdon including after dark work on Saturday evening.



The day dawned with high winds and sheeting rain. Of course it did. It looked as though smudgy notes and a slippery compass would be the order of the day but the local forecast said the weather front would pass by lunchtime. Of course it didn't.

After a fabulous fry up and a few cursory words on health and safety, we were straight onto the hill and straight to the point of the exercise. With a pleasingly grown up group of only 3, it was virtually one to one tuition so we learned and re-learned the basics pretty quickly. Those of us more familiar with the standard one inch to the mile were teased into the world of metric measurement and the romer scale kept maths to a minimum.

In the peaceful valley below Creigiau Geualit, we were collectively horrified by the approach of half a dozen off-road motor bikes who assured us that the local authority had deemed the sharing of bridleways to be 'perfectly legal'. Hmm. Dismissing this fossil fuelled intrusion, we were soon off the marked footpaths and climbing up Crimpiau with flanks of dense heather, mossy rocks, fragmented trails and some scrambling.

We departed the top on a hastily-reckoned compass bearing despite a sustained onslaught of 'jet washing', a mountaineering term for atrocious weather, which hosed us back down to the Brenin and a classroom session on contours.



Overnight homework of imaginary route planning was analysed and we were back out by 9am feeling increasingly competent and confident. The mini-van headed up the Ogwen Valley (with a smiling nod to MP), and there followed an intensive day of practice with bearings around Cwm Idwal, up Devil's Kitchen, and further training on relocation, aspect of slope, back bearings and catching features. It was a tired but happy posse of navigators who tottered back into the centre at the end of the day.

It is said that life comprises learning, earning and returning and that knowledge is power. On high ground, it can mean the difference between safety and danger and it is never too late to learn. The good news is that the instructor wants to join the ABM – job done!

Report on avalanche awareness course at Glenmore Lodge by Rick Snell, March 2020



This was a 2-day course aimed at ski tourers and freeriders. I assume freeriders are daredevil stuntsters doing aerial loops and the like while descending at breakneck speed, but really I have no idea.

Anyway, the course was a useful overview of the various ways to assess avalanche risk and make safe decisions in winter conditions, while accepting that the risk can never be entirely removed when moving on snowy slopes. ABMSAC kindly paid for 50% of this winter treat, for which they very reasonably require a report, so I'll try to make it useful! Notes of what I got from it will be best, so here goes.

Planning your trip is key. This involves firstly studying weather forecasts from met office, MWIS, YR, etc, and detailed study of the avalanche forecast from SAIS if in Scotland, keeping in mind previous weather so that you can build an idea of which side of the hills may have windslab and which side will be scoured of deep snow.

Temperature changes are also a vital consideration, with a rise in temperature leading initially to increased instability, but a diurnal rise and fall reducing instability due to partial thawing and then consolidation. A continuous period of low temperature can increase instability by encouraging growth of faceted crystals within weak layers in the snowpack, these crystals slide better than snowflakes or the small rounds which they otherwise become.

Planning will also mean plotting a route, and importantly, alternatives to be taken if conditions are not as expected, including the alternative of abandoning the day if necessary. Plotting the route involves taking into account the altitude, aspect, and angle of the slopes involved, and relating these to the forecast and history of recent snowfall and wind. Angle of slope is determined by spacing of contours and can be measured, there are cards available with marked edges made to translate the contour spacing to slope angle. The variation in spacing will also tell you if the slope is convex, which will vastly increase the avalanche risk.

Table 3 Showing the relationship between slope angle and the spacing of thick contour lines.

SLOPE ANGLE	1:50,000		1:25,000	
	THICK CONTOUR SPACING (M)	ANGLE (DEGREES)	THICK CONTOUR SPACING (M)	ANGLE (DEGREES)
10°	100	2	50	1
15°	66.7	3.6	33.3	1.3
20°	50	3.5	25	1.8
25°	40	4.3	20	2.2
30°	33.3	6	16.7	3
35°	28.6	7	14.3	3.5
40°	25	8	12.5	4
45°	22.2	10	11.1	5
50°	20	12	10	6
55°	18.2	14	9.1	7
60°	16.7	16	8.3	8

The spacing of contour lines tells you how steep a slope is. Since the thick contour lines begin to be faded out above slope angles of 27° it is best to rely on the thicker contour lines to estimate steepness. Table 3 tells you how many thick contour lines there are in 1cm on the map for a range of slope angles from 10° to 60°. The table has been reproduced to scale so that the spacing of the thick contour lines is exactly as it would appear on 1:50,000 and 1:25,000 scale maps.

Riskiest angle is 30-45 degrees.

Important to involve all members of the group in all decisions, to reduce the chance of missing any people problems developing.

Also worth noting "key places" along the route at which to stop and check with everybody whether the plan is on course or needs adapting, again making sure to involve every team member.

Once out, study of the landscape can give clues as to snowpack depth, and recent wind direction and strength, which in turn might help determine which slopes present greater risk. Slightly darker areas of snow can be wind-scoured older snow, windslab is more chalky white. Apart from altitude, aspect and angle of a slope, the last of the four A's is anatomy of the slope, i.e. is it flat or concave or convex, and also, (which is a complete unknown once it is snow-covered,) is it uneven? Uneven slopes can gather powder in the hollows and be bare on the hillocks, so that the next snowfall means there are boundaries between layers in a patchy pattern over the slope ("spatial variability"). This can result in large variations in stability of the snowpack, one of the reasons that digging snow pits to check layers now carries slightly less weight than formerly in analysis of stability.

Snow pits still have their place, and can be done quite quickly, just one by two feet top surface area cut vertical sides to make a column, with ski stick or shovel, through full thickness of the snowpack, then put the shovel blade flat on top and start tapping, gently at first, to get some idea how much pressure is required to cause separation of layers and whether the breaks propagate along to the non-pressured part.

Hoar frost on the snow surface can form a particularly weak layer if more snow falls on it, then if rain percolates through that snow layer and lubricates the weak layer the snowpack can slide off.

Another bunch of factors to be aware of when in the mountains are the "heuristic traps", which include various assumptions we all tend to make subconsciously which can increase the risk. These cause one to let down one's guard and stop thinking objectively, and include 1) Familiarity with the terrain or the routine or the team 2) over-commitment to the goal, making it difficult to turn back 3) "expert halo", failing to question the decisions of the team leader 4) "social proof" e.g. Seeing tracks showing others have been there and not had a problem.

In other words there's a hell of a lot to consider if you want a low-risk trip. It hasn't quite persuaded me to take up knitting instead, but certainly given me plenty to keep my mind busy on future winter trips! Enjoy your trips!

Training report from Celine Gagnon, July 2019

I went to Plas Y Brenin in Snowdonia to take on the 5-day Mountain Skills training in May. Whilst the emphasis of the course is very much on navigation – which I needed rather desperately – it offers many other learning opportunities such as how to wild camp responsibly and sustainably, how to plan a route, how to stay safe using ropes and how to use weather forecasts. A lot to cram in over 5 days...

On Day 1 we looked at the basics of weather systems and map reading. We went out to Moel Siabod with a map each, concentrating on the different types of paths that exist and looking for signs – natural or man-made – to ensure we were following our chosen route.



Day 2 started with preparations for our overnight camping expedition. We looked at weather systems in more details, and how it affects route planning particularly when considering wind speed and direction against climb and ground exposure. We also looked at equipment essentials and how to pack as lightly as possible.

We headed to Pen y Pass and started our expedition on the Miners' Track. We were given a series of increasingly specific/ difficult navigation challenges and asked to take turns to lead the rest of the group in pairs. After lunch at Llyn Llydaw, we made our way up to East and West Peaks, then joined the Watkins Path before we traversed to Cwm Tregalan and set up camp for the night. We talked about the ethics of wild camping, which could be surmised as: leave the site as you found it. A small group got back out in the dark to learn and test the basics of night navigation.



We woke up on Day 3 to fog and rain. Once we packed camp and put the site back to its original state, we made our way up to the Snowdon summit. Our task was to decide on the most direct route from our camp back to the Watkins path, making sure we were not blown away by the strong winds once we reached the ridge.



The foul weather actually gave us perfect learning conditions. After a rather quick break at the café – which closed 15 minutes before we reached the summit – we made our way down back to Pen Y Pass via the PYG track.

The theme for Day 4 was safety. We spent the morning discussing the various hazards that can arise in the mountains and learned how to use ropes. We made our way to the Ogwen Valley to practice with ropes and actual rocks near the lake. Back at the centre, our last task of the day was to work in pairs to plot a 2-day route, taking weather, pace, direction, distance, terrain, inclination, water sources, shelter and so on into planning. We then had to present our plan to get feedback from the group and the instructors.



Day 5 saw us scramble up the North Ridge of Tryfan, in strong wind and

sunshine. Again, our instructor explained the basic notions of scrambling (route finding and grading), then took us up and down what turned out to be a fabulous mountain. We even practiced some rope work in a sticky patch. Back at the centre, our 3 fantastic instructors gave us tips and resources to continue our conquest of all things alpine.

I left Snowdonia with grazed knees, good navigation skills and a taste for scrambling. This is, without question, one of the most enjoyable weeks I've spent outdoors. Plas Y Brenin offers decent accommodation, good food, fabulous instructors and great learning opportunities. Thank you to ABMSAC for supporting this fab experience!

Training report from Howard Telford, July 2019

My navigational certificate came through the post today and it reminded me write a summary of the course.

Bronze Navigation Course. My first choice of course was cancelled at short notice so I looked around for a course at a similar price and found one based on Hebden Bridge. As it turned out it was a good choice as I had not been to the area before (and it was cheaper!).

Although I have been navigating in the mountains (and elsewhere) for a very long time it was very helpful to be able to compare my level of competency with a national standard. I was informed that I could have taken the Silver course but this was an excellent refresher in navigation techniques using just a map and compass.

What we covered. We revised map symbols. The number of paces for a 100m distance and the time to walk 100m over different types of terrain. I now have a crib sheet to help me work out time for various distances. We also covered choice of route and splitting the route into smaller manageable legs. This enabled me to recognise a navigational error quickly and take corrective action to relocate. The bronze course requires the use of linear features, (e.g. paths, tracks etc. as handrails.) We did stray from the syllabus and took bearings over open ground to find an objective. (This is covered in Silver). We also got some advice on access issues and legislation and our responsibilities within the Countryside Code.

I would recommend other members to take this course and/or I could provide some training at the Bronze standard on a less formal basis.