ISSN 1756-8749

mountain rescue

£4.75

AUTUMN 2018 **66**

THE ONLY OFFICIAL MAGAZINE FOR MOUNTAIN RESCUE IN ENGLAND, WALES, SCOTLAND AND IRELAND

WELCOME TO ISSUE 66: AUTUMN 2018

Mountain Rescue is the **only** official magazine for mountain rescue in England, Wales, Scotland and Ireland.

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NEXT ISSUE ISSUE 67: WINTER 2019

Editorial Copy Deadline: Friday 9 December 2018

Editorial copy must be supplied as Word document. Images must be supplied as high resolution (300 dpi) JPG/EPS/TIFF/PDF.

Advertising artwork must be supplied, ready prepared on CD or via email as font embedded high resolution PDF/EPS/TIFF (300 dpi).

Cover story

Celebrating sixty-five years this year. Upper Wharfedale team members brave the elements during a winter exercise © Sara Spillett.

PLEASE NOTE

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inthisissue

Keeping Track
A year in the life...
#MREWDiscovery

what's in at a glance

KeepingTrack

A year in the life...

#MREWDiscovery

UPDATEMREW

STRAIGHT INTO action in Penrith for an afternoon call-out, parking up next to distant cousin Mobile 2
1 July 2018

Let the voyage of Discovery begin. The MREW Land Rover arrives in Clapham
19 July 2018

OFF ROAD TESTING with Kinder team members... July 2018

AND THANK YOU TO MIKE POTTS OF KINDER FOR A MORE DETAILED REPORT... July 2018

The JLR Discovery visited Kinder MRT at the end of July; it attended one call-out and was tested on several of our common off-road routes including the old drovers track from Coldwell Clough to Edale Cross — the upper section of the track comprises rough stone with numerous rocky stick-out bits and a couple of nasty rock steps. The old Defender gets up, eventually, but has to battle its way up, leaving the occupants of the vehicle both shaken and stirred! The Discovery, however, simply strolled up the track without a pause — an outstanding off-road performer.

Our main concerns were the amount of electronic wizardry (expensive to repair), the lack of load capacity, the shape of the vehicle (nowhere for the telescopic radio mast to be mounted), a sharp boot-lid corner at eye/forehead height and the sheer weight of the tyres. We suffered a flat as we left the track and it was a job-and-a-half to change, only saved by having someone on scene who regularly changes truck tyres for a living.

However, a very interesting experience, thank you to JLR for the opportunity.

CRO INCIDENT 47: the last opportunity to use the MREW Discovery, with a comfy ride off the hill for a casualty and their partner, along with their mountain bikes
5 April 2018

Oldham team members took a trip onto the moors above Carrbrook and Greenfield to see how the moors were doing a few weeks after the fires. There were some promising signs of progress, but the pictures show all too well the widespread devastation caused.

Travelling up in the team Defender and the MREW Discovery, they stopped off roughly at a mid-point between Buckton Vale and Alphin Pike. Normally this stretch if moor wouldn't be navigable even in a Land Rover, but such is the fire damage they were able to drive up there. It's clear it will take some considerable time for these beautiful moors to recover.

"A very impressive vehicle which both on-road and off-road handled with ease everything we could throw at it" Edale 12 September

ON SHOW AT THE 999 EMERGENCY SERVICES DAY in Heaton Park, just outside Manchester...
9 SEPTEMBER 2018

OLDHAM: INSPECTING FIRE DAMAGE to the moors... 22 August 2018

LOFTEND QUARRY, CROWDEN, taking in the air with a Glossop team ex...
23 September 2018

Images courtesy of: Penrith, CRO, Kinder, Oldham, Edale and Glossop via Facebook #MREWDiscovery.

MIKE FRANCE
MREW CHAIRMAN

No doubt we will all have watched the British Cave Rescue guys on the TV over the summer, out there in Thailand putting together a plan to bring the Thai children from Tham Luang cave. What a great job! I hope you were as proud as I was to have connections with BCRC.

It was no surprise to me that cave or mountain rescue team members were able to manage such a complex rescue. We are given many, many challenging rescues all the time and sort them out. That's not to take anything away from the enormity of that incident, but you guys and girls are given a problem and you sort it.

The good summer in the UK seemed to bring lots of people out into the outdoors and so it should and I think most teams have reported more and more call-outs. That's why we are still working on developing the Adventure Smart programme for England which is running successfully in Wales. We have agreed to try rolling it out through the national parks and the first national park would be Cumbria, so fingers crossed the launch should be in spring next year.

Like Adventure Smart Wales the campaign will welcome people to the outdoors but provide the information they need so they come home at the end of their day safely, with a great experience and, more importantly, didn't have to call us out to assist them — hopefully reducing our call-out numbers. JD Foundation is working closely with us and backing the project. They have already given £6k, matching the £6k each from Langdale Ambleside MRT and LDSAMRA.

Summer also saw the last polo match (for MREW) hosted by the Duke of Cambridge. I am told he is hoping to do something different to help us as he doesn't have the spare time he had. In the meantime, I came away the match with a cheque for £50k. Thank you, Sir.

Also over the summer, I received a letter from the Duke's office letting us know he would like to continue with his patronage for the next five years. For those who don't know, patronages are not for life any more, they are reviewed and renewed, which is why it's very important to keep our politics in-house.

John Hulse and Phil Benbow have now stood down from their SAR-H roles. Thanks to both John and Phil for being part of the team that set up and rolled out SAR-H. It wasn't an easy task but because of their work, we've a great relationship with Bristow Helicopters and the aviation wing at the MCA. I know we can get frustrated with helicopters sometimes and it's right we make our concerns known. It's thanks to John and Phil that we have a pathway to sound our concerns. Mike Park has offered to take on the mantle. Thank you Mike!

Talking about people taking on new roles, don't forget I will also be standing down in eighteen months, so if you fancy undertaking the post of chair and want to know more, please drop me a line.

Things are still moving forward with the CIO, following what feels like loads of meetings with trustees, the management team and the regional chairs group. I think we have a plan for the CIO membership, something to vote on at the full meeting in November. If you don't know the proposed plan, hunt out your regional chair and ask them.

Another area you will see change is around insurance. We need to clean up just how many support members you have in your teams. It may be just a number to you, it's a cost per head to us so here's a question for you : How many supporters do you get out at once?

Also, vehicles. If a team vehicle remains on the national insurance list when you've moved it on, sold or given it away, that vehicle needs to be removed from the list. If you don't remove it, we are still paying for it. And that takes me to motor accident claims and you will need to sit down for this one. In 2017, our claim for motor accidents was £117k up, from £40k in 2016. Going forward, we will be asking a lot more questions of you regarding these claims.

To finish on a positive note, back to the cave rescue guys and BCRC. They have been invited by the Speaker of the House to a reception in Westminster. The Duke of Cambridge has also asked me about meeting them so he's invited them to a reception at Buckingham Palace. Great recognition for an unbelievable technical job done, can't wait for the Hollywood blockbuster. ✪

JULY: SCOTTISH MOUNTAIN RESCUE APPOINTS NEW HEAD OF DEVELOPMENT

Elsie Riley, who stepped into her new role in July, will be working closely with the Scottish Mountain Rescue teams, staff and executive officers.

'I am thrilled to be joining Scottish Mountain Rescue,' says Elsie. 'As a keen fell runner, hill walker and climber, I know the importance of the service the volunteer teams provide. I'm really looking forward to using my skills, experience and knowledge to develop fundraising for Scottish Mountain Rescue, an organisation so vital for all of us who enjoy spending time in the Scottish hills.'

'We are delighted to welcome Elsie,' says Damon Powell, SMR chairman. 'Her role will enable us to ensure Scotland can maintain its world class voluntary mountain rescue service in the years to come.'

TAKING ON THE MREW EQUIPMENT ROLE
PAUL SMITH

You may recall the article 'Dead men don't wave', in Mountain Rescue Magazine, October 2017? Well, the casualty involved is my younger brother, Gary, and that incident was the inspiration behind me joining the Oldham Mountain Rescue Team.

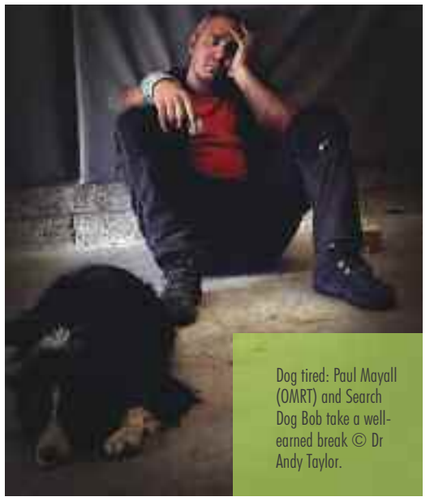
I have two young sons and in my spare time, when I am not involved with MR, I can usually be found cycling around the northern part of the Peak District. With my background in engineering, commercial vehicle repair and recovery, commercial abseiling and now an owner of a cycle repair shop, I plan to use the wide range of skills I have gained in my professional and MR career in this new role of national equipment officer.

Current projects include developing the next generation of vac mattress and Bell stretcher. The vac mat is now in its testing phase and being used on call-outs. Other areas I plan to look at with the subgroup, are a standard Bell stretcher wheel, a central database of suppliers to teams and team members, an equipment page within Moodle, and to reimplement the 'near miss' and incident reporting forms and resolve the ongoing communications issue.

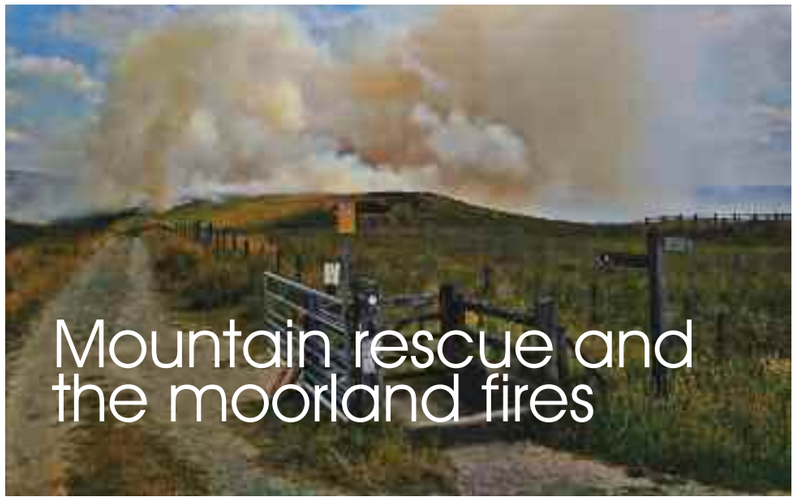
For any equipment related queries you can contact me at equipmentofficer@mountain.rescue.org

Feeling the heat, summer 2018

This photo: Moorland fires on Winter Hill © Bolton MRT. **Other photos:** Moorland fires above Saddleworth and Peak District team members at work. **Inset:** Out on the moors, filming with Dave Guest for BBC North West, 11 July © OMRT.



Dog tired: Paul Mayall (OMRT) and Search Dog Bob take a well-earned break © Dr Andy Taylor.



Mountain rescue and the moorland fires

TEAM TALK FIRE

Team members from across the Peak District and Mid Pennines were involved in supporting their local fire crews, gamekeepers and farmers trying to manage the moorland fires which took hold in late June.

The first incident began on the evening of Sunday, June 24 when fire crews tackled a fire on Saddleworth Moor, near the village of Carrbrook. By the Tuesday, it had been declared a major incident. That same day, a fire broke out on Winter Hill, declared a major incident by the fire service on June 30.

Mountain rescue support began on Monday 25 June for an incident which, overall, in one way or another, continued for well over a month.

In Oldham, team members from the Oldham, Glossop and Kinder teams initially joined the fire service at Higher Swineshaw Reservoir, to provide safety and emergency medical cover and do some fire spotting, as wild fires raged above Saddleworth and Tameside. Holme Valley team members were on standby to support any mountain rescue incidents in the area. This first fire deployment spanned ten hours, the second, thirteen hours, in what proved to be something of a harbinger of the protracted rescue effort to come.

Four days later, with fires still burning, team members were still deployed and continuing to work through the day and night. By now, Oldham team had three sections deployed on the hill. While section one assisted in the Arnfield Flats area with the firefighting, and running water up and down in Polaris 1 (one of two on loan from Rossendale and Pendle MRT), and the OMRT Land Rover, section two was deployed from Chew to do a welfare check on a group of firefighters. Section three operated more locally, above Greenfield, with Polaris 2 helping put out spot fires near Alphin Pike. Despite all this, a fourth section was ready to deploy on any 'normal' jobs.

Team members were also engaged rescuing the wildlife and livestock so badly effected by the fires.

IT'S A TRUE TESTAMENT TO THE WONDERFUL SPIRIT OF OUR COMMUNITY THAT WE ALL CAME TOGETHER IN A TIME OF CRISIS. A HEARTFELT THANK YOU TO EVERYONE WHO CAME FORWARD WITH OFFERS OF SUPPORT IN ALL ITS FORMS OLDHAM MRT

From the start, the community, local businesses and supermarkets turned out to support those supporting the emergency services, with food, refreshments and fundraising activities. And Craghoppers donated socks, hats and caps to replace smoke and fire-damaged kit.

As the fires spread or popped up anew, Oldham team continued to work alongside firefighters, running barrels of water and firefighters up and down the hill whilst also assisting with tackling the blaze with spray guns and beaters.

Finally, on Sunday 29 July, torrential rain arrived and the second of the Polaris off-road vehicles returned home to the Rossendale Valley, along with a different sort of barrel donated by Donkeystone Brewing Company, by way of thanks. The first Polaris had departed for Winter Hill a week earlier to help out with the fires there.

Besides the loan of their off-road buggies, Rossendale and Pendle team members played a key role in assisting Lancashire Fire and Rescue Service, using their mapping capabilities and trackers to circumnavigate the fire line on Winter Hill, so the emergency services could get a better understanding of the scale and movement of the fire.

'We mapped a circumference of 18 miles around the fireline, through woodland, over moorland and road,' says Andy Bradshaw. 'The difficulties soon became evident when the fire went underground, as spot fires were bobbing up everywhere making tracking difficult.'

For Bolton team members, it began with a not entirely unexpected moorland fire at Rivington on 25 June.

'We'd had tinder dry conditions for weeks. But we have long-standing plans in place and we'd just hosted a joint exercise with the wildfire teams from Lancashire and Greater Manchester fire services,' says Steve Fletcher. 'Many fire resources were already deployed to Saddleworth Moor. We were asked to provide one Land Rover on

Top: The Rossendale Polaris off-road vehicles. 'Worth their weight in gold'. **Above:** Rossendale team members in need of a bath! © Steve Fletcher.

TEAM TALK FIRE

standby to evacuate any injured firefighters, and to help transport equipment and personnel. In truth, there wasn't much for us to do but it was good practice for what was to come'.

By the Thursday, with the Saddleworth fire a major incident and two new fires at Winter Hill and Horrocks Moor, the picture looked very different.

'We worked in two shifts that night, ferrying firefighters and equipment onto the moor, helping with communications, getting drinking water to the crews on the hill, and using GPS to plot the fire lines. Our local knowledge proved essential to the fire crews. At this early stage of the incident, there were no tracked vehicles so information about viable access routes for 4WD vehicles on a peat bog proved most welcome!'

THE PUBLIC WERE AMAZING. DONATIONS OF FOOD AND WATER ARRIVED DAILY. CHILDREN CAME TO US WITH ICE LOLLIES AND CAKES STEVE FLETCHER, BOLTON MRT

Job done, the team remained on standby. By the Saturday, given the proximity of the fires to both Bolton and Chorley, it was clear there were real problems with bystanders obstructing tracks, and concerns about members of the public walking through smoke plumes on the same tracks that fire vehicles were driving. The team identified 37 access points onto the moor and, with the agreement of landowners, councils and police, sent crews to post signs at access points to urge the public to keep away.

Whilst this was going on, the wind shifted direction. Smoke from the Horrocks Moor fire began to swamp firefighters on Winter Hill to the west, visibility dropped to less than a metre in places and firefighters on Winter Hill were recalled from the moor. It was at this point a major incident was declared.

'Later that afternoon we were asked to rescue a vulnerable member of the public who'd walked up to Rivington Pike,' says Steve. 'He was spotted from the air by one of the fire incident commanders with his behaviour giving cause for concern.

'After a quick ground search by ourselves and police officers, he was found collapsed, suffering from an asthma attack, less than five metres from the flames.'

Like their colleagues over on Saddleworth Moor, team members returned day after day, during daylight hours, to assist with transport, medical cover, mapping fire lines and, latterly, spotting new flare ups on the moor — at least two crewed vehicles from 08:00–23:00 for the first twelve days of the major incident. And they were joined by neighbours from Bowland Pennine and Rossendale and Pendle teams when additional taskings were discussed.

Fire service crews arrived from across England and Wales. 'It wasn't just a case of endlessly beating flames and dropping water' says Steve. 'Heavy plant was used to create firebreaks on the moor and a number of contractors were brought in to do this. This has left a bittersweet taste. It's great the fire was controlled with these tactics, but visually the moor looks awful in places — vast new scars now exist which will take years to recover.

'Much has been reported in the press from the fire chiefs and others about the true team spirit during this incident. This wasn't just PR stuff. It actually happened. Thanks in part to real leadership by the fire service incident commanders. The public were amazing too. Donations of food and water arrived daily. Children came to us with ice lollies and cakes. Our local outdoors shop Campcraft sent supplies of suncream and midge repellent. There were countless gestures of kindness that made us smile, despite the circumstances'.

IT FELT A LITTLE SURREAL TO BE WORKING WITH LONDON CREWS ON 'OUR' PATCH – BUT, LIKE ALL THE CREWS, THEY RECOGNISED OUR SUPPORT AND WE CRACKED A FEW JOKES TOO STEVE FLETCHER, BOLTON MRT

Bolton team members formally stood down at 11.00pm on 10 July, knowing the fire was now contained, with twelve fire appliances still on scene. Over the course of the next week the number of fire appliances was phased down to two and the fire was finally declared out on Wednesday 8 August — after 41 days, and some much welcome rainfall. ✪

Top & centre: Team members at work on the moors © OMRT. **Above:** Kent Fire & Rescue Services personnel on duty, some way out of their usual 'patch' © OMRT.

SEPTEMBER: WASDALE MRT OPENS NEW RESCUE BASE

Photos © Adomedia.

On Saturday, 16 September, Wasdale's purpose-designed new base was officially opened by the legendary fell-runner and team vice-president, Jos Naylor MBE.

The base, near Gosforth in Copeland, cost £643,000 and took several years to achieve. It was made possible after an allocation from the Copeland Community Fund (CCF) of £218,000, funding from the Lake District Search and Mountain Rescue Association (LDSAMRA) 'Rescue 2020 Fund' of £12,000 and an interest in land granted by the Nuclear Decommissioning Authority. The remaining £413,000 has been met by the team from donations and fundraising.

After 40 years in the village of Gosforth, the team had outgrown their previous base behind a local pub. The project started in earnest in 2014 when a social media campaign went viral, raising over £51,000 plus Gift Aid. The campaign was inspired by Adam Nolan's dog Jasper, which went missing in the team's patch. Found by a member of the public, Jasper was then rescued by the team. In addition, an unexpected legacy from a local woman became the catalyst for action.

The new base is a modern, fit-for-purpose building with enhanced training and welfare facilities, communications and accessibility to the A595. Much thought went into the design of the building and one of the significant early activities was a bit of 'MR tourism', visiting other bases in the Lake District to learn from the great features they had and asking questions about what they would change if they had to design it again. This led to a formal ergonomic study, which determined that the main entrance would be primarily for those responsible for command and control. Otherwise, team members would enter via a second entrance to a changing and gear-up room. Once briefed on incident details, with MRMap feeds via large screens, they can head out directly into the garage and gear store area.

Construction, from cutting the first sod in April 2017, took just over fifteen months and was carried out by Roland Hill Limited. The base went live in mid-August 2018. That same day, the first call-out was recorded, with thirteen incidents recorded before the official opening day.

There are a number of definitive features such as the heating system, which is supplied by a very efficient ground-source heat pump supplemented by roof-mounted PV panels. The ground floor is heated by an underfloor array, which means it is always dry — a major change from the cold and damp converted forge. The temperature of the base has a threshold level that can be raised to operational level via a mobile phone app. In addition to a large wet room and drying area, there is also a separate undercover wash-down area, a retractable 18-metre mast for digital radio communications, automatic up-and-over thermally efficient garage doors, quiet diesel powered emergency generator as well as the latest wi-fi and building security access.

Elsewhere, a mini-hill feature, made from the foundation spoil with trees and rocks, acts as a training area to simulate difficult extrication/evacuation of casualties. Away from the base, a grassy area has planning permission for helicopter landing. Great North Air Ambulance commissioned the area by landing in the field on the official opening day. Unfortunately, their lunch invitation was cut short by the inevitable call-out!

If any team wishes to discuss the base design for their team, Wasdale MRT would be glad to be of help. For more information, visit wmrt.org.uk.

MARK LEWIS: COMMS

For a few years now, in an effort to improve our communications, information from MREW has been sent out via the chair, team leader and secretary of each region and team, but we're often asked about communicating directly with team members.

However, not all teams want every email communication from MREW passed down to the core members and, likewise, not all team members want to know what's going on at MREW. Nor do they want to receive too much MR email generally.

At the May meeting, I suggested that if each team could establish a group email account within their organisation and allow their members the opportunity to opt into the group, MREW could then also send relevant correspondence to these addresses. Of course, this would also rely on teams ensuring that the email group comprises only current team members and that email addresses remain current.

Hopefully, by the time you read this, you will have sent me a group email address that we can use to communicate directly with team members.

I'm aware many teams use G-Suite or Office 365, which are free to not-for-profit organisations. I would highly recommend teams and regions to adopt one of these services and move away from the use of personal email addresses.

If you require any support, help or advice, please let me know. We have many members within the ICT subcommittee who I'm sure will be able to help. You can contact me via ictofficer@mountain.rescue.org.uk.

TEAM TALK

AUGUST: SEEK AND YE SHALL FIND

Fourteen members of Derby team, including the team leader, chair and search managers, travelled to Ryton-on-Dunsmore near Coventry at the invitation of the police, to visit their National Search Centre (PNSC). **Dai Sandbrook** reports.

The PNSC is a joint police and military unit and the sole provider of training in counter-terrorism, crime and missing person search techniques to the UK police service. Formed in 1984, PNSC is now established as a centre of excellence within the College of Policing Campus in Warwickshire. Candidates from all over the UK, and some overseas forces, attend to attain the qualifications of Licenced Search Officer (LSO), Police Search Adviser (PolSA) and Counter Terrorism Security Coordinator (CT SecCo). PNSC also offers bespoke search training, including delivery to international clients and partner agencies.

The Derby contingent were welcomed by Inspector Phil Bradley, head of the PNSC, Sergeant Gary Fretwell and a number of the technical skills trainers, then treated to a tour of the facilities and a presentation on the history, work and aims of PNSC culminating in a brief workshop style discussion on improving communications, interoperability and opportunities for future collaboration.

The main police to mountain rescue interface on Missing Person Searches is the PolSA and both parties recognised the importance of the key players meeting regularly on an informal basis to develop the relationships and mutual understanding of roles and responsibilities. Inspector Bradley observed that 'it is no good meeting for the first time on top of a mountain in the wind and rain'.

We were thrilled to be invited by Phil and his team,' said Derby team leader Martin Dodd. 'The history of the centre and the professionalism of the training team really stands out, as does the desire to improve communications and skill exchange with the voluntary sector as part of our joint roles within the wider search and rescue community'.

PNSC is justly proud of its motto of 'Seek and Ye Shall Find', the experience of the trainers and the quality of the courses. The Derby team members found the visit highly interesting and informative and all left proud to be part of PNSC's 'search family'.

@

LETTER TO THE EDITOR

Alan Green, August 2018

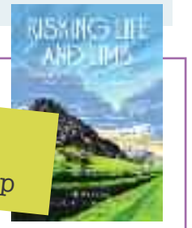
What's in a name?

In March 1971, I'd just turned 22 years old, and was halfway through my graduate training year at the main works of electrical manufacturer GEC in Stafford. Also undertaking his training programme was a fellow student from my university engineering course, a young man by the name of John Francis.

One Friday afternoon that month, John went off with his then girlfriend Jenny Irvine to stay with friends for a weekend in Wales. I didn't know then, and don't know now, exactly where they went. I don't think it was Snowdonia.

John had a lovely weekend, and felt most disinclined to go back to the daily grind of the factory on Monday morning. He decided to extend his stay in Wales a little longer, and 'Throw a Sickie'.

That same weekend, a young man called John Francis fell off Spiral Stairs on Dinas Cromlech whilst climbing with his girlfriend, and sadly suffered fatal injuries. The incident is described in Judy Whiteside's book, 'Risking Life and Limb', chapter three, page 101, 'Slips and trips'. The accident made it on to the national news.



Available from the MREW shop

When my mate John failed to turn up for work on Monday morning, 'The Shit Hit The Fan' big time at GEC. John's colleagues went frantic with worry. I was contacted and asked to find out more. I began efforts to contact John by phone. This wasn't an easy business in those days. STD (Subscriber Trunk Dialling) was a relatively recent innovation, and mobile phones were the stuff of science fiction.

Eventually, I managed to speak to Jenny and asked whether John was all right. She replied, sounding slightly puzzled, 'He's perfectly well, thanks. Why are you asking?'

As I recall, the roasting John might have expected from the management for sneaking an unauthorised day off work was somewhat tempered by their relief that he wasn't the casualty.

Upper Wharfedale team celebrates seventy years

Upper Wharfedale Fell Rescue Association team members found themselves celebrating their 70th anniversary in August with a different sort of 'birthday bash' when they were called just before midnight, to search for two cavers reported overdue from a trip through Dowbergill passage, near Kettlewell.

The mile-long vertical rift that links Providence Pot to Dow Cave normally takes around six hours to traverse and is tortuous in places. With the control vehicle set up in its usual spot in Kettlewell car park, search teams began searching the cave from both ends, stopping at pre-determined points to report progress to the surface using the Cavelink system.

Just after 4.00 am, the cavers were located in a section of tight streamway just beyond the halfway point of the trip. They were tired and cold but otherwise unharmed. The now combined search teams began the difficult task of assisting the cavers back to wider passage but, with dawn breaking, it became obvious things would take longer than hoped.

As some members headed off to their day jobs, additional help was summoned in the shape of the neighbouring Cave Rescue Organisation. The first casualty reached the surface at 11.15 am, the second two hours later, some 24 hours after they went underground.

Caving call-outs are not as frequent as the early days. When they occur they tend to be major incidents — notably the Mossdale Caverns tragedy when six young cavers lost — but perhaps this was a fitting end to the team's seventieth year.

Over seventy years, team members have dealt with over 1315 call-outs including 1586 humans, 433 sheep, four horses,16 cows, eight calves, 53 dogs, 170 lambs, two goats, two cats and even two parrots — plus the various pets rescued when the swiftwater team took part in the major flooding disasters in Cumbria and York.

It all began in August 1948, when local police asked a group of men who were enjoying a drink in a local pub to assist in the search for a missing walker, which sadly ended in a body recovery. The team formed soon afterwards, with local police sergeant George Wilson in the chair. He also provided the team with its first home, an empty police cell at Grassington Police Station. Not the most impressive of buildings but it was certainly secure. The stone bed could be used as a workbench and the team was allowed to use the main office for meetings.

Len Huff, the local stationmaster and a founder member provided an old LMS parcels van (cost £1), as a permanent HQ. This was followed by an old signal box (cost £10), before the team moved to its current building, the first ever purpose-built Mountain Rescue Post in the country with Prince Charles performing the official opening.

Transport was hard to come by in the early days, the first transport officer seemingly voted in because he had a shooting brake! It was 20 years before the team bought their own vehicle, a secondhand Land Rover. Up to this point, members used their own vehicles of varying quality and claimed what was a very poor mileage allowance. Motorbikes — usually overloaded with a passenger who was also hanging on to rescue equipment — also played their part, as indeed did pushbikes.

Along the way, various trailers were bought at knock down prices and, at one point, the team had a mobile canteen which in a previous life had been a travelling dental caravan, costing £5! Thankfully, the team always seemed to have members who were mechanically minded. Currently there are two Defenders and a Volkswagen van (control vehicle), a far cry from its predecessor which resembled a garden hut on wheels.

Len Huff went on to be a leading light in the team for over 25 years and it is fitting that the team's current chairman is his son Peter. A family tradition which is not lost to the team who realise that Peter has, in one way or another, been in the team all his life.

'It was certainly a special moment when I was elected chairman,' says Peter. 'My dad would have been so proud of how the team has progressed to its high level of professionalism and dedication.'

Today's team has 65 members, a healthy mix of new, younger members and long service stalwarts, many of whom have served 40, 50 and even over 60 years in one case. Call-outs continue to rise with this year set to beat the record 57 set a couple of years ago. Safe to say the Upper Wharfedale team has become a major part of Dales life. ✪

From opposite page, top row, left to right: Practice with the Larkin frame © Derek Hammond; Cave rescue practice © Russ Brooks; Memories of 'The Hut' opening 42 years ago. Since then, the building has had three extensions, the third completed in 2016 at more than 20 times the original build cost © UWFRA; Tem members assembled © Sara Spillett.

Opposite page: Buckden Gill tree practice © Sara Spillett.
Inset: Parcels van rescue hut © UWFRA.

Above inset: The distinctive UWFRA Defender livery in action © Sara Spillett.

Archive photo: RAF Leuchars MRT 1984; Today's RAF MRS in action. Photos courtesy RAF.

The kit and equipment may have changed but the heart and soul of our troops remains as palpable as ever.

Seventy-five years of RAF Mountain Rescue

SGT NATASHA CORNS SNCO COMMUNICATIONS MANAGER

Seventy-five years ago, in the midst of the Second World War, there was a huge increase in the size of the RAF and its fleet of aircraft as we battled for air supremacy. Training stations were relocated to the west of the UK to be as far away from enemy attack as possible but, combined with the rocky terrain of North Wales, this led to mass aircraft crashes and fatalities.

At the time, it was the Senior Medical Officer (SMO) of the nearest RAF station who held responsibility of searching for and rescuing survivors. Flight Lieutenant George Desmond Graham of RAF Llandwrog (now Caernarfon airfield) was mortified by such a task and is credited with the creation of the Mountain Rescue Service (MRS) by constantly bombarding the Air Ministry with requests for equipment and training. His tenacity paid off and the MRS was created on 6 July 1943.

Today's RAF MRS is a very different place to its infancy. We've gone from 32 teams (26 UK and six overseas) to a mere three (Leeming, Lossiemouth and Valley) but our primary role remains the same: to save the lives of downed aircrew and perform Aircraft Post Crash Management (APCM) duties of all military assets in the aftermath of such an event. As some of you will know, our secondary role, and a very valuable one at that, is to assist you, the civilian MRTs, wherever we can. This really is a crucial role, giving us real time training and proving vital interoperability skills with all emergency services.

There have been many rescues over the years, most notably the Lockerbie air disaster when Pan Am Flight 103 crashed in 1988, killing 208 people on board. It was sheer devastation and four of the six teams then in existence were tested to their limits. The psychological trauma experienced by many of our troops that day is documented by RAF psychiatrist, Professor Gordon Turnbull in his book, Trauma.

More recently RAF Valley and Leeming have provided APCM duties to two helicopter crashes in Snowdonia National Park: a Defence Helicopter Flying School Griffin HT1 on Yr Aran in 2016 and a civilian Twin Squirrel on Rhinog Fawr in 2017. Despite the tragic devastation of one of those crashes, the MRS attends numerous call-outs where we are able to help save lives, make a difference to the public's safety and bring comfort to the families of those who have perished in the mountains. RAF Lossiemouth MRT know this all too well after recovering multiple bodies from avalanches after a tragic and busy 2018 winter season.

So, how has the RAF MRS changed over the past 75 years? Well, we have sadly witnessed the demise of our famous yellow stalwart of the skies, the Sea King, but in its place seen the grandeur of Bristow's red, white and blue fleet and the added capability that brings. In line with societal changes, we were proud to see the introduction of women to the service back in the 1980s. Our kit and the training facilities Flt Lt George Graham fought so hard to obtain, are second to none and this, combined with the unwavering commitment given by our troops, makes us rich in 75 years of mountaineering history.

We may have seen many changes, but the heart and soul of each and every MR troop remains as strong as ever. Our motto 'Whensoever' reflects this perfectly. ✪

Bolton MRT at fifty. Looking back...

JUDITH ATKINSON

It began in the mid-1960s, with a few friends with a shared interest in caving and fell walking and a loose association with cave rescue in Settle and Ingleton, the South Ribble MRT and Rossendale Fell Rescue Team.

In 1967, plans were being made for designating the Rivington/Anglezarke area as the 'West Pennine Moors' and to develop access for informal recreation. We reasoned that with an upsurge in use there'd be a need for a rescue team in the Bolton area, and to form one would save us the journey to Haslingden for weekly team meets.

A few likely recruits were sounded out and Mike Hope-Ainscough, Mike Marshall and Glen Atkinson outlined the proposal in the Bolton Evening News, convening a meeting at Bob's Smithy Inn. It was well attended and the Bolton Mountain Rescue Team was formed, based in the attic of the Bolton Recreation Club in Back Kensington Place. We painted walls, sanded floors and eventually made equipment lockers. It proved adequate and homely.

With equipment a priority, funds had to be raised. Charity nights at the Cromwellian Club, Bark Street were popular. An issue of 'Non-active' membership cards at £1, and Patron cards at £2, brought in a fair amount but most of the money came from the collection and sale of waste paper with a friendly pub landlord lending us his barn as a store.

By 1969, the team was wealthy enough to buy a Thomas stretcher and casualty bag. Ropes, slings and ironware completed the basics. The recently formed Karrimor Company made us overbreeches in double thickness navy blue waterproof material, elasticated to wear over boots and gaiters. Industrial waterproof jackets in fluorescent orange completed the look, with each team member buying their own from team stock.

One generous member supplied a set of Pye Bantam S/W radio sets which, with a base aerial, gave good comms on exercises and with other teams on call-outs. Transport was personal vehicles — a Ford van, a Bedford Dormobile and Mike Marshall's ex-WD 3-ton Morris truck. The truck was great but his employers at the Old Links Golf Club weren't happy him keeping it at his tied cottage so it had to go. A serious attempt was made to flatter the Ford Motor Co that their 'rugged' Transit van was man enough to transport a mountain rescue team but, alas, a strike halted production so they couldn't spare one.

Training was one evening at base or moor and at least one weekend covering sweep search and quarry ropework techniques. Many sessions were held in Longsleddale which Jim McVeigh of South Ribble and the Lancashire Mountain Accident Panel used as a base. Snow, crag and scree techniques were learned here.

Apart from giving safety cover to organised events on our West Pennine area we were used as back up to local teams in the Lakes, Derbyshire and occasionally Wales. In January 1970, a dozen or so members went to Torridon for a week's Highland snow and ice climbing, four first winter ascents were logged on Meol Gorm, near Applecross.

Getting ever more professional, we took training courses in first aid at Preston Royal Infirmary, aircraft with RAF Stafford and mutual training with the fire service. Call-outs usually came via the then Lancashire Constabulary at Castle Street Police Station, our muster point for calls initiated to Mike Ainscough and filtered down to members.

Fortune shone on the team in 1971 with the offer of premises at New Overdale, with a training space, ground floor — and a garage! We moved in and, as they say, the rest is history.

These early years of make do, learning on the job, fun, friendship and bloody hard work laid the foundation of fifty years of service. Good luck for the next 50! ✪

Archive photos of the early team and today's team members in action with an evening training session earlier this year. Photos © Bolton MRT.

cave rescue

Cast your mind back to 7 July and you may remember hearing an English voice in a Thai cave as a team of British cave divers found twelve members of the Wild Boars football team and their coach deep in the Tham Luang cave system at Mae Sai in northern Thailand. Emma Porter, BCRC Secretary, was already handling a reasonable number of enquiries about the search for the boys but, when that British voice was heard, the world's media went mad — and everyone wanted to talk to British cave divers!

'That's when the British cave rescue network really used its connections,' says Emma. 'We were working on the logistics of getting additional equipment out to Thailand, liaising with other organisations and the Thai authorities and also providing a sounding board for the team involved in the rescue planning and implementation. All of that would have been enough but, with my name and number on the website, I was getting literally hundreds of calls and thousands of emails round the clock,

'IT WAS AN INTERESTING EXPERIENCE – I DOUBT I'LL EVER HAVE A JAPANESE TV CREW IN MY TIDESWELL FRONT ROOM AGAIN! I WAS PROUD OF THE WAY THE CAVING AND RESCUE COMMUNITIES PULLED TOGETHER BUT I MUST ADMIT I WOULDN'T WANT TO HAVE TO DO IT AGAIN!' BILL WHITEHOUSE

with everything from suggested rescue approaches to media queries about how dark is cave dark!'

Like many in mountain and cave rescue, Emma has an incredibly understanding employer who immediately gave her the flexibility to manage the situation. She also got help from EE — simply by getting through to the right person — in terms of cost-effective communications with Thailand.

But it was the extended teamwork of cavers and cave rescuers across the UK that made it all work.

'Once my own partner, Mike Clayton, had gone out to Thailand, I had support from Graham Smith, a fellow Midlands CRO officer and friend I have caved with for more than 20 years,' says Emma, 'and then there was a BCRC team

This issue's media column is different. **Sally Seed** may have pulled it together but the advice, input and experience is all down to two members of BCRC, **Bill Whitehouse** and **Emma Porter**. And if you don't know why 'in the news' is putting it mildly for those two this summer, read on…

News type © Spaceheater. Dreamstime.com

helping on the drafting and approval of media briefing notes on an almost daily basis as we tried to keep everyone up to date and also clear on what could and couldn't be said to the media. It was really important we were guided by statements from the Thai authorities as much as possible so we didn't cause any diplomatic issues and we also had to juggle the six-hour time difference.'

It is unlikely anything quite as pressurised, quite as global and lasting quite as long will ever affect your team but, whatever the situation, here's Emma's advice:

Ask for help 1 — whether from companies who support your work, from your employer or through services you use. 'We managed to crash most of the UK caving websites due to the surge in traffic volume, but the British Caving Association, who host our site, worked with us tirelessly to get everything back up and running as soon as possible — it was a genuine team effort across the caving community.'

Ask for help 2 — from rescue colleagues, fellow cavers or climbers. Once people know what's needed, they're keen to help. This comes into its own with extended searches, flooding or other major incidents but, even for something smaller, if you think there's

Opposite page: The Thai boys prior to rescue © Sky News. **Above:** The 'team' behind the rescue meet with Theresa May at Number 10. © BCRC.

someone in cave or mountain rescue who can assist you, use that contact.

Ask for help 3 — even from the media. 'We struggled to keep up with coverage on radio and TV but found that some outlets were happy to let us have digital recordings for our archives. We kept reminding them we were all volunteers too.'

Create your own hymn sheet — whether the facts are getting confused or things are happening too fast (or both), it is worth agreeing the facts that are OK to be shared. In this case, that ensured everything was consistent with the messages in Thailand but it can be just as important in the UK when you're being asked about facts and figures and need to know the other teams involved are using the same stats.

WORKING ON JUST A COUPLE OF HOURS OF SLEEP FOR NIGHTS ON END IS NOT EASY! USE YOUR NETWORK, BRING IN REINFORCEMENTS AND MAKE SURE YOU'RE USING WHAT TIME YOU HAVE TO DEAL WITH THE PRIORITIES RATHER THAN JUST THE PEOPLE WHO ARE SHOUTING LOUDEST! EMMA PORTER

While Emma and her team were juggling everything in the background, BCRC Vice Chairman, Bill Whitehouse was the face of British caving on the BBC and around the world, especially on BBC Breakfast. Bill has done several media interviews over the years but the Thai incident brought unprecedented interest as well as its own challenges.

'I'm not a cave diver,' says Bill, 'and I made that very clear at every opportunity. However, as the saying goes, in the kingdom of the blind, the one-eyed man is king and I know about rescues and I know about caves. As long as that was understood, I was happy to talk about what it's like being underground for days on end, how cavers work and I was also able to discuss the implications of the options facing the rescuers. From home in the Peak District to the BBC Breakfast studios in Salford isn't too bad a journey and they soon realised I could do several interviews for different bits of the BBC in one trip while I was there. Had it gone on much longer, they'd joked about giving me my own office!'

Bill's priorities were to take the heat off the divers out in Thailand by being as helpful to the media as possible from the UK and to ensure everyone involved had consistent information, knew what could be said, what couldn't, and when. Many of the principles governing Bill's interviews were the same as in any situation but probably under more spotlight than normal:

The truth and nothing but the truth — just not necessarily the whole truth. 'This is where the media briefing notes came into their own as they gave us a clear indication of what could be said publicly. There were times when we knew more about what was happening out in Thailand from our conversations with the Brits out there, but we had to be consistent with the controlled flow of information from the Thai authorities.'

Speculation needs care – the usual rule is you can only answer in three ways: I know and I can tell you, I know but I can't tell you and I don't know. But Bill had to be able to discuss options and explain the thinking and planning in some of his interviews. 'I made it absolutely clear I was speculating or giving my opinion but that was what was needed.'

Understand the journalist's job but keep yourself sane too — Bill insisted on interviews being done in Manchester, on the phone, via his computer or at home. 'I simply said I could meet their deadlines but I was based where the caves are and not in London. Most understood and we worked out ways and means — I realised they had deadlines and I think they got that I couldn't be everywhere at once.'

It's highly unlikely that the media spotlight, time difference and protracted operation will happen again any time soon and most UK incidents would be happening in the context of paid emergency services and their press offices in action too but, the lessons from the media side of this particular rescue are certainly true for other situations.

I'm always interested to hear about any communications challenges your team has had to deal with and keen to learn from your experiences, so please do get in touch. Until next time, thanks. Sally

Against all odds: cave rescue in Thailand

BILL WHITEHOUSE VICE CHAIRMAN, BCRC

Saturday 23 June: Mae Sai, Northern Thailand – close to the border with Myanmar (Burma). Twelve eleven to sixteen-year-old boys from the local Wild Boars football team together with their coach went underground to explore the Tham Luang cave. The first few hundred metres underground is a show cave open to tourists but beyond that are nine kilometres or more of 'wild' cave. The boys left their bikes in the entrance and walked, scrambled, climbed and crawled several kilometres before turning back. Unknown to them there had been a heavy rain storm and as they made their way out they were met by rising water blocking their way.

They retreated further back into the cave and found refuge on a ledge above the water in a chamber about 2300 metres from the cave entrance. They were trapped. The cave only had one known entrance and parts of the way to it were now flooded to the roof.

The alarm was raised when the boys failed to return home that evening and, when their abandoned bikes were found in the cave entrance, a search was begun by concerned locals.

Sunday 24 June:

In the early hours, the search was joined by Vern Unsworth, a British caver who lived in the area and who knew the cave well. Search parties managed to penetrate about 1500 metres before the water made further progress impossible. There was no sign of the boys and it was concluded they must be further into the cave. Hopefully, somewhere above water level.

Monday 25 June:

The Thai authorities were now heavily involved and, at the request of the provincial governor, the search was joined by a team of Royal Thai Navy SEAL special forces divers. By wading and diving they were able to penetrate about 150 metres beyond the Sam Yaek junction where a powerful inlet stream joins the cave from the north. On the way they found some items assumed to belong to the missing party but then rising water from further rain forced them back towards the entrance.

Vern advised the Thai authorities that specialist cave divers were going to be needed and he informally contacted caving colleagues back in the UK to warn the divers that a call for help might be made. The divers alerted British Cave Rescue Council officers and preparations were started to send out a cave diving team if necessary.

Tuesday 26 June:

In the morning, BCRC sent an offer of assistance to Thailand. By lunchtime, triggered by a note passed by Vern to the Thai Minister of Tourism and Sport, a formal request for help was received in the UK together with the information that three seats had been reserved on a Thai Airlines flight that evening from Heathrow to Bangkok.

There followed a frenetic few hours of final preparations by BCRC officers arranging insurance, liaising with the Thai Embassy in London, contacting and seeking support from the Foreign and Commonwealth Office and also dealing with a host of other essential administrative tasks. The cave divers completed assembling their kit and then members of various cave rescue teams ferried divers and equipment from different parts of the country down to Heathrow in time for the flight. Derbyshire police helped with a last minute 'blue light' dash from Buxton to Heathrow with specialist communications and diving equipment. That evening, a team of two very experienced cave divers (Rick Stanton and John Volanthen), a support diver who knew the cave (Rob Harper), and a mountain of equipment were shepherded through customs and immigration by Royal Thai Embassy and Heathrow staff and all were in the air by 22.00. Meanwhile it started to rain heavily in the Tham Luang catchment area and previously accessible parts of the cave had begun to fill with water.

Wednesday 27 June:

The water had forced rescuers back to within a few hundred metres of the entrance and although numerous pumps had now been installed in the entrance sections of the cave their effect was proving to be minimal. The SEAL divers had established a base in what became known as Chamber 3, which is about 800 metres from the entrance, but they had to abandon it as the water rose even further. A huge search had also been started on the surface above the cave in an attempt to find an alternative entrance that might lead to the trapped boys.

That evening, the BCRC team arrived on site after a flight north from Bangkok and they made an initial exploratory dive nearly to Chamber 3 but it was raining heavily again and water was still rising.

Thursday 28 June:

Rick and John entered the cave in the morning, diving through three short sumps to reach Chamber 3, where they discovered four trapped rescue workers. Having to rescue them by diving them out meant it wasn't possible that day to attempt a dive beyond Chamber 3 to search for the boys. That night brought further heavy rain.

Friday 29 June:

Rick and John again entered the cave but soon encountered a Belgian diver (Ben Rayments) retreating from Chamber 3 where he had found underwater conditions impossible to make progress beyond a few metres. The current in the water was too strong, suspended sediment in the water reduced visibility to nil and cables and other debris in the water from earlier rescue efforts created dangerous obstacles.

Saturday 30 June:

Thai Navy SEAL divers attempted to dive beyond Chamber 3 but got no further than Friday's attempt by Ben. During the day, larger industrial pumps were installed and by evening they were beginning to have some effect on water levels in the first part of the cave as far as Chamber 3. The rain had also lessened. Meanwhile the overall rescue effort was continuing to build up with now thousands of police, army and navy personnel, contractors and volunteers from Thailand and beyond gathered on site and involved in a host of activities including searching for entrances, pumping, stream damming and diverting, power supply, road improvement, establishing camps and providing catering.

Sunday 1 July:

Early in the day, Thai Navy divers and Ben had made a little progress, starting from a dive base in Chamber 3, before turning back. Rick and John then made their first dive beyond Chamber 3 and managed to force their way upstream through 800 metres of submerged passages to Sam Yaek junction laying and securing guideline as they went.

Monday 2 July:

Rick and John dived again from Chamber 3 to push beyond their previous 800 metre limit, laying line and surfacing in any above water caverns along the way to sniff the air for signs of the missing party. After diving a further 700 metres they broke surface in a chamber to find the missing boys on a mud bank, alive and in remarkably good spirits. That incredible moment was captured on film.

'How many of you?' called John. 'Thirteen? Brilliant!'

They then dived out, reaching Chamber 3 late that evening after a five-hour trip to report their find, to the relief and jubilation of all.

Overnight, seven Thai SEALs dived through to the boys, following the line laid by Rick and John. This was an incredibly brave thing to do. They were very skilled divers but they had no experience of cave diving and lacked the correct specialist diving equipment. They were seriously pushing the limit of their capabilities.

Tuesday 3 July:

As the day progressed, concern for the SEAL divers mounted. The assumption had been made that their dive would also take about five hours for, although they lacked cave diving experience, they had a guideline to follow. Eventually, twenty three hours after first leaving Chamber 3, three of the divers returned. The dive in had been much more difficult and taken much longer than anticipated and reaching the boys had used up three-quarters of their air. After a rest, the three had only been able to dive back by pooling together the whole team's remaining air supplies. The other four stayed with the boys and were only able to dive out again right at the end of the operation after new air supplies had been taken in to them.

Initial jubilation was now tempered by the realisation that any rescue would be very difficult and might even be impossible.

The boys were alive and were (for the time being) safe in their chamber. The Thai authorities were faced with a number of options:

- They could authorise a rescue attempt by diving but this would be extremely dangerous and difficult and there was no certainty that all, or indeed that any of the boys would survive such an attempt.
- They could hope the impending monsoon rains would hold off and water levels drop sufficiently for the boys to be rescued without the need for diving.
- They could continue pumping, draining and damming operations, which, in the absence of further rain, would increase the chances of sufficiently lowering water levels.
- They could continue to try and find another and dry way in from the surface to the chamber where the boys were trapped.
- They could try and drill an escape tunnel through to the chamber the boys were in.

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Opposite page: The divers who found the boys and then led the rescue, John Volanthen and Rick Stanton © Sky News; the boys' bikes at the entrance to the cave; John and Rick preparing to dive © Photo sources unknown.

Above: Map of the cave. **Right:** Dry rescue between chamber 3 and entrance © Photo source unknown.

• They could dive in sufficient supplies to last the boys through the monsoon season and until water levels dropped.

Wednesday 4 July:

Rick and John again dived through to the boys in what was now called Chamber 9. Chambers 4 to 8 were names given to other sections of passage where there was air space above water level. They ferried in food, lights and batteries and tested the air quality in the chamber with a gas monitor. They were disturbed to get a reading of only 15% oxygen. Normal oxygen content of air is 21% and the likely replacement for oxygen in the chamber was carbon dioxide. This was not good news and another factor for the Thai authorities to take on board. With the four SEALs in there as well there were now seventeen people breathing the air in the chamber.

Whatever was going to happen, additional cave divers would be required and so two more, Jason Mallinson and Chris Jewell (BCRC's Diving Officer) flew out from the UK on 4 July, followed the next day by three non-diving BCRC support team members with additional equipment.

Thursday 5 July:

The cave diving team had now been reinforced by an international group of four — two Danes, a Finn and a Canadian — all resident in Thailand. Together with two Thai SEALs they began moving in air supplies to stations just beyond Chamber 3 to be in place for any future operations.

Friday 6 July:

By the early hours of the morning, concern was rising for the SEALs who'd not returned from the previous day's air ferrying exercise. Then, at 01.30, one of the SEALs surfaced in Chamber 3 to summon help for his colleague who was unconscious underwater some distance upstream. The SEAL was recovered to Chamber 3 but could not be revived. Tragically, he had exhausted his air supply and suffocated. This was Petty officer Saman Kunan, a former SEAL who had gallantly volunteered to come out of retirement to join the rescue operation. His death was a devastating blow and brought home to everyone just how perilous cave diving could be. Saman was typical of the Thai Navy SEALs. He was an exceptionally skilled and courageous open water diver who, in spite of being inexperienced and ill-equipped for cave diving had willingly put his life on the line to help with the rescue.

Later that day, Chris and Jason dived through to the trapped party with more supplies. They also brought back messages on their wet note pads from the boys to their families.

By now it was becoming obvious that most of the rescue options under consideration were unworkable. Pumping, draining and damming was having only a marginal effect. In spite of days of search and exploration by hundreds of workers, no alternative way in to the cave had been discovered. Drilling a shaft through to the boys had been ruled out as it was not possible to determine where Chamber 9 was situated relative to the surface and anyway, the terrain prohibited the rapid deployment of large drilling machines. It had been concluded that maintaining the boys in situ for a long period was not feasible due to now evident resupply and sanitation difficulties. It was also quite possible that monsoon rain could flood the chamber the boys were in — and rain was expected within days.

So, in spite of all its horrendous risks, a diving rescue attempt was emerging as the only possible chance for the boys' survival and with rain expected the window for that was closing. Planning for an operation was accelerated and three more BCRC cave divers were sent for — Josh Bratchley, Connor Roe and Jim Warny. The BCRC team also made a request for two Australian cave divers — Richard Harris (Harry) and Craig Challon. With these reinforcements the diving team strength rose to thirteen.

Saturday 7 July:

Planning for a diving rescue continued with technique trials taking place in a local swimming pool with boy volunteers from a local swimming club. It was important to try out the fitting of positive pressure full face masks, wetsuits, buoyancy aids, diving cylinders and other gear before having to do it in the cave. Also tested were methods of manoeuvring the boys under water.

The divers collectively agreed that the only way a rescue could stand any chance of success would be if the boys were sedated and could be moved out as inert packages. This was essential for if the boys were to struggle whilst underwater they would be a potentially fatal danger to both themselves and their rescuers.

Whilst all this was going on, the two Australians dived through to the boys with supplies and to carry out a medical appraisal. Harry was an anaesthetist and he would be responsible for administering a ketamine mix to the boys prior to their dive.

The operation now had the approval of the King of Thailand and the final green light was given by the Thai authorities for a diving rescue attempt to begin the following day.

Sunday 8 July:

At 09.00 the press and everyone not essential to the rescue operation were moved away from the cave entrance and, from 10.00 onwards, nearly a hundred rescuers from many nations and organisations went underground to take up positions between Chamber 3 and the entrance because, once the boys came out of the water, there was still 800 metres of often difficult cave passage and caverns to traverse before the entrance was reached. A US team took up position at the dive base to

Above: Some serious pumping © Matt Gutman.

Top right: John and Rick in swimming pool working out rescue techniques with a volunteer from the local swimming club © Thai Navy SEALs.

receive the boys and check them medically before they were to be packaged in a Sked-type stretcher to be moved by others out to the entrance using various methods including aerial ropeways.

The diving team of thirteen cave divers began their dive to their various stations late morning. Rick, John, Jason, Chris and Harry went all the way through to the boys in Chamber 9. Three others stopped in Chamber 7/8 which was a 150 metre section of open passage above water the entrance side of the first 350 metre dive out. Here they waited with a stretcher, to transport the boys over the boulders to the next sump. The other five cave divers were positioned to help at two other stations with spare air supplies to hand.

In Chamber 9, the boys had decided which four of them should go first. They donned wetsuits, were kitted out, fitted with a full face mask, provided with a cylinder of 80% oxygen mix strapped to their front and they were then sedated. In the water the first boy was handed to his diver face down. The diver could move him with a handle on his back. They were also connected by a lanyard so they could not become separated and lost to one another in the poor visibility. The first boy and diver then begin the swim out. Three other boys, each with their dedicated diver, followed at intervals.

Just before 17.00, the first boy and diver surfaced in Chamber 3. The message was flashed out to the surface 'Boy One — chamber 3 — alive!'

The plan had worked. Once. Several thousand fingers remained firmly crossed!

The boy was checked over and out at the entrance forty minutes later for transport to hospital. Two more boys and divers followed and then, just after 19.00, came the message 'Boy Four — chamber 3 — alive!'

The day's operation had taken nine hours and had been completely successful. So many things could have gone seriously wrong, but they didn't. Four were safely out but there were still nine in there.

Monday 9 July:

The day saw an almost identical repetition of the previous day although things went a little quicker and the fifth boy and diver surfaced in Chamber 3 about 15.30. By just after 18.00 the day's operation was successfully concluded with four more boys rescued.

Tuesday 10 July:

The teams, both divers and others, deployed as before. Today was the turn of the last four boys and their coach. Five to be rescued meant that one of the divers had to do the first dive with a boy from Chamber 9 to 8 twice, handing one boy over to another diver to take the rest of the way out. The last boy with his diver surfaced in Chamber 3 just after 18.00. The four Thai SEALs who had been in Chamber 9 with the boys for a week then began their dive out using air supplies taken in for them earlier. By just after 21.00, they too were in Chamber 3 and for the first time in nearly three weeks the cave beyond was empty.

In spite of all the planning, testing of methods and the skills of the divers, the risks had been extraordinarily high and many had been fearful the operation would only be partly successful at best. Before the operation, everybody had expressed optimism but, afterwards, many felt able to state what had been their true expectations and fears. The Thai Navy SEAL commander gave his view in a post-operation interview that 50% success would have been good and the senior US officer involved said that just one child coming out alive would have had to be deemed a success. Another senior officer had reckoned the chance of success no better than 60 to 70%. One of the divers said afterwards, 'I was confident of getting them out — the problem was getting them out alive.'

Above: Cartoon poster which was displayed as the team was leaving © BCRC.

In the event, nothing went seriously wrong and problems encountered were overcome. For example, the boys needed top-up injections on the way out to prevent them coming round. This was an operation the divers had to manage themselves — sometimes whilst still in the water. Usually this was done at station 7 and/or station 5 just prior to the longer dives. On one dive, the diver lost contact with the guideline in almost zero visibility. Fortunately, he was able to find and follow an abandoned cable which led him back to an air bell where he was able to relocate the guideline and set off again. And then the operation ended with one last bit of excitement when the pumps failed and some of the passages between Chamber 3 and the entrance began to flood rapidly leading to an undignified and rapid mass scramble out to the entrance.

The last message received in the UK that day was, 'Trying to round everyone up so we can get to a bar'. Just like the end of any cave rescue really! ✪

THUS CONCLUDED, AFTER EIGHTEEN DAYS, PROBABLY THE MOST EXTRAORDINARY CAVE RESCUE EVER. THOUSANDS OF RESCUE WORKERS AND VOLUNTEERS FROM THAILAND, THE UK, THE USA, AUSTRALIA, CHINA AND A HOST OF OTHER COUNTRIES HAD PULLED OFF A REMARKABLE OPERATION WHICH HAD TRULY BEEN AGAINST ALL ODDS.

integro Entertainment & Sport

INSURANCE MATTERS WITH INTEGRO

It is very pleasing to see the increased interaction between team members and Integro over recent months; we are here to help and advise you. There has been much interest shown regarding the responsibilities of trustees and a desire to understand what could expose a trustee and how Trustee Liability Insurance could protect you, so we thought that we would provide you with some additional information.

What constitutes the responsibilities of a trustee, is an interesting question.

The Charity Commission for England and Wales defines a trustee as ***'a person having the general control and management of the administration of a charity'.***

This includes:

- Guiding the organisation and using its charitable funds and assets wisely
- Ensuring that the organisation doesn't put its property, funds, assets or reputation at risk
- Overseeing Risk Management Assessments
- Ensuring that the organisation meets legal and regulatory requirements.

This is all well and good, but what happens if something goes wrong? Even with the best of intentions Trustees can make errors of judgement and mistakes. After all, not all situations are straightforward, and trustees are only human after all! Additionally, errors can also stem from team members — should this occur, then the trustees may be responsible for their members actions or even lack off actions!

Trustees Liability Insurance has been designed to be a put in place as a reassuring safety net — it's been specifically created to protect individual trustees who make an honest mistake. In addition to covering claims arising from wrongful acts the insurance will include the cost of a trustee's legal defence. This particular policy is an important part of MREW's insurance programme as it protects individuals.

THE AFOREMENTIONED IS SIMPLY A GENERAL OVERVIEW OF TRUSTEE LIABILITY. SHOULD YOU WANT ANY FURTHER INFORMATION OR HAVE ANY QUESTIONS, PLEASE EMAIL US AT INSURANCE@MOUNTAIN.RESCUE.ORG.UK

TEAMTALK

Photos: Woodhead MRT.

JULY: LUCKY ESCAPE FOR CLIMBER

Woodhead team members were called to Thurlstone Quarry, near Penistone, to assist Yorkshire Ambulance Service with an incident that surely ranks at Number 1 in the 'Lucky to be alive' charts!

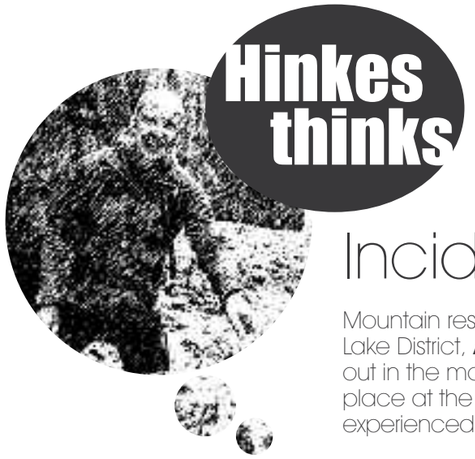
Two friends had spent the previous few weeks visiting the quarry and planning climbing routes. On this particular evening, they decided to 'do a little cleaning' by abseiling down the crag face. They'd just set up a belay at the top when one of the climbers decided to fetch his shovel. On his return, he was about to clip in, when the whole of the top of the crag gave way beneath him, sending him plummeting to the bottom of the crag some seven metres below. Remarkable, he managed to stay on the rock, avoiding the unthinkable, and lay in wait for the emergency services to arrive after his friend had raised the alarm. He was treated for suspected spinal injuries and a possible leg injury, transferred into a vacuum mattress and onto the stretcher for the carry out of the quarry to the ambulance.

April to June 2018

Lake District	
Cockermouth	52
Coniston	35
Duddon and Furness	17
Kendal	33
Keswick	87
Kirkby Stephen	13
Langdale Ambleside	60
Patterdale	58
Penrith	26
Wasdale	76
Mid-Pennine	
Holme Valley	1
North East	
Cleveland	25
North of Tyne	2
Northumberland NP	11
Scarborough & Ryedale	24
Swaledale	4
Teesdale & Weardale	1
North Wales	
Aberdyfi	14
Aberglaslyn	10
Llanberis	45
NEWSAR	20
Ogwen Valley	26
South Snowdonia	2
Peak District	
Derby	19
Glossop	6
Kinder	4
Woodhead	7
Peninsula	
Dartmoor Tavistock	8
Exmoor	4
South Wales	
Brecon	29
Central Beacons	11
Longtown	7
Western Beacons	4
South West	
Avon & Somerset	4
SARA	1
Yorkshire Dales	
CRO	25
Upper Wharfedale	15
Search Dogs	
England	2
Wales	3
South Wales	1
RAF	
Leeming	3
Total	**795**

NOTE: IF YOUR TEAM'S INCIDENTS ARE MISSING FROM THESE STATS, PLEASE CONTACT THE STATISTICS OFFICER VIA STATISTICSOFFICER@MOUNTAIN.RESCUE.ORG.UK

incidents



Hinkes thinks

Incident on High Street

Mountain rescue ambassador, mountaineer and a regular visitor to the Lake District, **Alan Hinkes** is no stranger to the risks associated with getting out in the mountains – and he has an uncanny knack of being in the right place at the right time. This issue, he recounts his experience, in July, when experienced walker, John Cooke, slipped on his way up to High Street.

Haweswater was looking low and lots of people had flocked to Mardale to see some of the old field walls emerging from the reservoir. It was warm with the chance of rain. No problem, I thought, for a quick bimble up Riggindale Ridge, High Street and back via Nan Bield Pass.

On the descent, I could sense something was up. I realised there was an incident not far down the path to Small Water. A couple of people were lingering and it looked like someone was lying down, legs outstretched.

The rocky path had become slippery after the short burst of rain and I jogged down carefully to find a chap (John Cooke) with his boot off and a very swollen, angry-looking lower leg. John, like me, had been walking alone and slipped on a greasy rock just below Nan Bield Pass.

Initially, he had crawled and then tried to hobble with support from a couple of willing fell walkers, but the pain and effort was too much. John's cell phone could not get a signal but, luckily, before I arrived someone else managed to call 999. I could see the first MRT members in the distance about 20 minutes away, trudging up the path, so realised there was no point in trying to move him further. Best to wait for the professionals and do nothing but keep John in good spirits.

John's morale was good and I soon realised he is a very experienced mountaineer and fell walker. He's done all the Wainwrights and Munros as well as expeditions abroad and was keen to hear about some of my exploits. Jokingly, I told him he would have to pay to come to one of my talks later this year (I will be giving him a free ticket for Manchester). We bantered about tripping over and taking more care, and a couple of accidents I've had, including a few years ago when I broke my ankle in the North Pennines.

It wasn't long before the first Penrith team member arrived and took over the situation and, shortly after that, the stretcher arrived. Smoothly and efficiently, John was splinted up, monitored, given oxygen, wrapped up and transferred to the stretcher.

No helicopter was available so it was to be a traditional stretcher rescue all the way down to the waiting vehicles. Tough manhandling, hard work, but it's what team members are trained for. As more manpower was needed, it was good to see a few friends and familiar faces from Kirkby Stephen MRT arrive to help with the carry. A lot of the path was uneven and it was more efficient to lower the stretcher most of the way directly down steep slopes.

Lowering anchors were located and the stretcher was smoothly lowered. I was impressed with the organisational skill and superb teamwork and the whole lowering ran like a well-practised exercise — except this was for real.

It took over three hours to get John down to the car park. I stayed with him to help keep his spirits up. He never complained, which made us all think he wasn't in too much pain, when actually he was, and it turned out he had multiple fractures.

John was very apologetic about having to call out mountain rescue, but very thankful he was rescued. Accidents can and do happen in the fells and I would say that we are always more than happy to rescue humble, experienced mountaineers and walkers like John who have had a bit of bad luck.

ALAN HINKES IS THE FIRST BRITON TO CLIMB THE WORLD'S HIGHEST MOUNTAINS, THE FOURTEEN 8000M PEAKS. AN AUTHOR, PHOTOGRAPHER, FILMMAKER, INSPIRATIONAL SPEAKER, ENVIRONMENTALIST AND MOUNTAIN GUIDE, HE IS ALSO A KEEN ADVOCATE FOR MOUNTAIN RESCUE.

John talks about his experience of the rescue

All my life, I have been 'obsessed' with the drowned village of Mardale, beneath the cold waters of Haweswater. A book I have written titled Mardale Mysteries was due for publication this year. When I heard that the level of Haweswater had fallen dramatically, I drove up to the Lake District to investigate but was disappointed to find the level had only fallen by a very small amount. After my short investigation of the few ruins showing, I decided to climb to the summit of High Street. Just short of the top I was hit by a rainstorm, the first rain this area had experienced in many weeks. It was on my descent that it all went wrong. I placed my foot on a downward-sloping rock and slipped backwards.

The pain was excruciating. I immediately knew something was seriously wrong. I took off my boot and my foot had taken on a very serious swelling. I attempted to crawl down the slope but, after 40 minutes, I'd only made progress of about 200 yards. I was then amazed to meet up with Alan Hinkes, whom I immediately recognised from many of the accounts I'd read of his Himalayan exploits. Mountain rescue were notified, and I was negotiated down the mountain by means of their unbelievable expertise and care.

I was taken to Penrith hospital and then on to Carlisle where x-rays showed multiple fractures of the left fibula. It was 4.00 am and I really was 'out on a limb' in more ways than one. The orthopaedic surgeon informed me I'd need surgery to reset the bone but, because of swelling, this could not be contemplated for at least a week. I arranged a taxi to get me home to Merseyside and then had to arrange for my car to be picked up and brought back. I had my operation in Aintree Hospital on 21 July. I am still recovering. All I need now, apparently, is patience...

Photos: © Alan Hinkes.

Raising funds for rescue

'I'VE GOT A GREAT IDEA, HONEY': THE BEARDED BIMBLER #PARKRUN2019 MIKE CREIGHTON ON RUNNING FOR THE PEAK TEAMS

This is how I usually announce my plans. It receives the inevitable 'go on then' response from my long-suffering beloved before I outline some daft adventure that will see me disappearing for some time in the year. And so it was with #parkrun2019.

Born from a desire to explore the unique and often overlooked parts of the UK, I sought a challenge no one else had tried, something within my reach that wouldn't take me away from family, home or work for too long. But this isn't your Sunday morning trot around the local park. No no. That would be too easy. This little jaunt involves traversing across some of the most amazing and remote terrain the UK has to offer.

Our national parks are a precious and zealously protected resource, stretching from the southern shores of England to the eastern fringes of Scotland, some 36.4% of England, Scotland and Wales. So, in real terms, by the end of 2019 I should have run across 36.4% of the UK.

There are fifteen of these glorious parks: Peak District, New Forest, Dartmoor, Exmoor, Lake District, Cairngorms, Loch Lomond and the Trossachs, Brecon Beacons, Broads, Snowdonia, Northumberland, North York Moors, Pembrokeshire, South Downs and the Yorkshire Dales. Over the last year, I've been reading about and marking out routes that traverse these wild and remote landscapes. I've been lucky that some parks contain already signposted, long-distance walking routes (the Brecon Way, South Downs Way, Two Moors Way and the Pennine Way) — which will make the experience that little easier, but none the less strenuous.

As far as I know, I will be the only person to run and wild camp all of the parks in a twelve-month period. So let's look at a few facts...

The total distance comes in at around 1000 miles, not a lot over twelve months considering I ran 1000 miles the year before, but this time frame rests on covering around 30 miles a day. It's a rough estimate which will change depending on terrain and any diversions, along with the inevitable lost miles and redirection I've become used to making on my journeys! This gets harder when you take in the total ascent of around 133,448.02 feet. To put this into perspective, this is between 4-5 times up Everest, carrying my own kit and camping equipment.

My rough timetable also has to take into account the British weather — which makes planning any events for 2019 all the more difficult! I've decided to start low (New Forest) and go high (Cairngorms) so, hopefully, I won't be struggling through snowdrifts.

If you fancy following my journey, pop over to @beardedbimbler on Facebook for stories, photos and kit reviews.

Right: Meeting some of the Edale team members in September © the Bearded Bimbler.
Background photo: July's front cover shot of the Peak District joint exercise, which took place earlier this year © Jimmy Hyland.

Avalanche burial. Rescue response

DR ALASTAIR GLENNIE SMR MEDICAL OFFICER & ABERDEEN MRT

Alastair Glennie (SMR Medical Officer) and Damon Powell (SMR Chair) ran a workshop on Avalanche Protocols. This article is adapted from the document compiled by the avalanche working group which represents mountain rescue teams working in Scotland.

Across the UK, the police have responsibility for coordinating land-based search and rescue and for an avalanche burial event they will ask the local mountain rescue team to lead the rescue response and to coordinate the efforts of all the resources tasked to the incident.

Documents have been compiled to guide the rescue response and medical considerations, and these have been agreed by mountain rescue teams in Scotland. This article aims to describe the different phases, and the changing priorities, of an avalanche rescue mission.

Phase 1: First notification to the arrival of hasty team at site

Priorities:

- Immediately assemble a hasty team with appropriate skills and equipment
- Contact Air Rescue Coordinating Centre (ARCC) to request assistance of two SAR helicopters
- Safe travel to and ongoing safety of all at scene
- Arrival of rescue personnel at avalanche tip as quickly as possible.

The Rescue Coordinator will want to immediately assemble a hasty team of approximately four team members who ideally will be:

- Able to interpret ongoing avalanche risk
- Expertise in avalanche search techniques
- A doctor or have advanced CASCARE skills
- A SARDA avalanche search dog and handler.

Note that the despatch of the hasty party should not be delayed due to the lack of a doctor or a dog.

During this initial phase, the focus will be on delivering this hasty party to the avalanche site as quickly as possible. The aim of any avalanche rescue response is to maximise life chances.

The hasty team must travel fast and light and not be weighed down by heavy or bulky rescue equipment. Rescue team's response plans should detail the equipment to be carried by this party.

All rescue personnel attending the scene must be wearing avalanche transceivers. It should be understood that these devices only provide a benefit if other rescuers with transceivers are nearby and immediately available to search if a colleague is buried by a subsequent avalanche.

ICAR data shows that 90% of avalanche victims survive if they are dug out within first 15 minutes and the survival rate thereafter drops dramatically, mostly due to asphyxia. By 50 minutes, the chance of survival has reduced to little better than 30%. Thereafter, the chance of a live find continues to diminish the longer the victim remains buried. However, live finds, following significantly longer burial times, do happen and rescuers should guard against moving from rescue mode to recovery mode too early.

If buried victims are not immediately dug out by their companions, the availability of a SAR helicopter to speedily transport the hasty party is the best chance of survival for the buried victim(s). The Rescue Coordinator will usually request the helicopter to come to the rendezvous site (RV) to collect the hasty team rather than flying direct to the avalanche site.

The SAR helicopter transiting to the incident should make earliest possible radio contact with the Rescue Base using channel 62A or a declared Airwave channel.

In 2013, following representation from Scottish Mountain Rescue, the ARCC at Kinloss agreed that an avalanche burial incident was a two aircraft event. This agreement took account of the need to quickly transport a large number of rescuers and equipment to the scene. Should a helicopter evacuate a casualty to hospital, the second helicopter remains on scene to assist with the ongoing rescue effort.

Phase 2: Arrival of hasty party at scene

Priorities:

- On-going safety of all at scene
- Gather witness information
- Transceiver search of the avalanche site
- Identify and mark any surface clues
- Triage of any surface casualties
- Identify and prioritise areas for searching and probing
- Communication with base.

Only life-saving first aid should be administered to breathing casualties on the surface, using internationally accepted triage principles. The overriding priority in majority of instances will be the swift location of those still buried. Survivors can provide important information which can help identify possible 'hot spots' for immediate spot probing and rescuers should guard against unnecessarily swift evacuation of survivors before they can be debriefed. Information about the area last scene, likely fall line, proximity to others when avalanche struck and confirming ownership of articles found can provide vital clues as to the possible location of others.

Statistically, those buried near the surface have best chance of survival. Although there are notable exceptions, the majority of victims caught up in avalanches in Scotland are buried at relatively shallow depths. This may afford an opportunity for a swift find if part of their body or attached equipment is visible.

Phase 3: Transfer of additional rescuers and equipment to the site

Priorities:

- On-going safety of those at site
- Location and extraction of buried victims and establishment of a patent airway
- Delivery of additional rescue personnel and medical equipment to the scene
- Appropriate medical care of survivors
- Appointment of key posts at scene.

The Rescue Coordinator at the base retains responsibility for the management of the incident and, having dispatched the hasty team, will coordinate the call-out of the remainder of the MRT and, if required, neighbouring and RAF MRTs. Police should appoint a Liaison Officer to attend at the base. Depending on circumstances, other agencies including Ambulance Service, air ambulance retrieval services, and the receiving NHS hospital may be alerted. In Scotland this is facilitated through the special services desk at Scottish Ambulance Control.

It is essential that additional MR personnel arrive at the avalanche tip as quickly as possible to support the priorities listed at Phase 3 above.

Unless there is an overwhelming medical case for a casualty being immediately evacuated to hospital, the most effective use of the SAR helicopter during this phase will be the transportation of further MRT personnel and equipment to the avalanche site. The decision for the SAR helicopter to depart the scene for hospital should be agreed by the Rescue Coordinator (or Site Commander, if now appointed). That decision being based on medical assessment by the senior medical officer in attendance. The option of evacuating the casualty to the RV site where they can be handed over to road or air ambulance should be also be considered.

As soon as sufficient rescue personnel have arrived at the site there are a number of key posts which should be allocated to suitably skilled individuals.

Site Commander assumes responsibility for overall safety and is ultimately responsible for all key decisions on the hill. They will task the activities of all rescue assets at the scene. The Rescue Coordinator at base will now work in support of the Site Commander.

Medical Coordinator identifies 'medics' to care for any existing casualties and prepares other rescuers to respond to further finds. Ensures all medical equipment is assembled and if necessary arranges for delivery of additional medical equipment. Prioritises the order of casualty evacuation.

Safety Officer monitors safety at the scene, identifies safe emergency RV point and sounds warning, usually a whistle, if further avalanche occurs.

Briefing Officer works alongside Site Commander briefing new arrivals, keeping record of all at scene, controlling access onto the avalanche tip and maintains communications back to base.

Probe Team Leaders allocated a team to carry out probe searches as directed by Site Commander.

The Site Commander will use their experience, training and information accrued from witnesses and others to make intelligent decisions about priority search areas.

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Avalanche training at Glenshee. Photos courtesy of Scottish MR.

ICAR research has established that casualties buried for an hour or more are likely to be affected by 'Triple H Syndrome', (Hypothermia, Hypoxia, and Hypercapnia). They have issued an Avalanche Victim Resuscitation Checklist (visit ICAR website at alpine-rescue.org) in the form of an algorithm, which provides guidance on treatment.

Avalanche victims frequently sustain spinal injuries, dislocations and long bone fractures, are at risk from internal bleeding, cardiac arrest and, if buried for over an hour, are likely to be hypothermic. Medics likely to encounter avalanche victims should undergo special training to ensure they provide appropriate medical care and the specialist handling required.

The Avalanche Medical SOP should be followed by the medical coordinator and personnel at the scene administering first aid.

Avalanche burial incidents in Scotland have been relatively rare and when they do occur they attract considerable media attention. With the likelihood of several agencies being involved, the potential for confusing, inaccurate and perhaps contradictory media statements being issued is quite high. To avoid causing further unnecessary suffering to relatives and friends it is strongly recommended that all press releases are cleared by the Police Incident Officer. Remember the police are required to hold back some information until identities have been confirmed and next of kin are notified. Premature press releases by others can undermine this necessary process.

All unexpected deaths in Scotland have to be investigated by the Procurator Fiscal (Coroner in England and Wales) and anyone involved in the rescue effort may be required to give evidence at any subsequent hearing into the facts. It follows that accurate records of decisions and activities are maintained right from the outset. ✪

Aberdeen MRT members demonstrate the digging formation.

Hypothermia

Your comprehensive guide

Les Gordon (Langdale Ambleside MRT) with everything you need to know and probably a bit more besides

Hypothermia is an involuntary drop in core body temperature below 35°C and is potentially fatal. It is a topic that all mountain and cave rescue personnel are aware of, if only from personal experience of becoming cold themselves. This article provides an up-to-date overview of the topic and includes some important practical tips.

Therapeutic hypothermia is something that doctors deliberately do to patients. They lower the body temperature by a controlled amount, either to help the brain recover after eg. cardiac arrest due to a heart attack, or to enable certain surgical procedures to be performed eg. open-heart surgery, when they may drop the temperature to ≈18°C. Accidental hypothermia is what we see in rescues. It is unplanned, unwanted, uncontrolled and difficult to manage, particularly in remote locations. It is particularly significant in the presence of medical illness or trauma when it increases mortality, so it's very important that all rescue personnel know how to recognise and manage it in remote locations because getting this right will minimise its impact and maximise the outcome for casualties, potentially saving lives.

Although hypothermia in the outdoors may be simply caused by exposure to a cold environment overwhelming the body's ability to maintain a constant temperature, it can also occur in more benign conditions, particularly in people who have impaired thermoregulation eg. due to chronic illness or in the presence of trauma, alcohol or drug abuse. The world literature contains many reports of both extraordinary survival and unfortunate fatalities due to hypothermia during sports and recreation.

How common is hypothermia on the mountains?

There are no up-to-date data about the incidence of hypothermia of any severity on the UK mountains. The potential danger of cold exposure was emphasised in reports in the 1960s of hypothermia in hikers. Subsequently, in a study published in 2003 from Scottish mountain rescue teams covering January 1998 to December 1999, 3.5% (2/57) of fatalities were due to hypothermia and 13.8% (46/333) of all non-fatality incidents were persons suffering from cold or exhaustion without other injuries or illnesses. The Lake District Search & Mountain Rescue Association annual reports from 2010-15 indicate about 5-10 cases per year. These figures are almost certainly an underestimate. In 2017, an international survey of 28 mountain rescue teams in ten countries reported an annual incidence of severe hypothermia per rescue team of five cases or fewer.

The ambient temperature in the UK is always below body temperature, sometimes by a lot, so even if not recorded in official figures, some degree of hypothermia should be expected in most casualties who become disabled and have to wait on the mountainside. Anyone who is out on the hills is potentially at risk of hypothermia. The people potentially affected are not just climbers and hill walkers, but also mountain runners and people involved in endurance events that cover extreme distances.

STAGE	SIGNS	DESCRIPTION	CORE TEMP
HT I	PATIENT CONSCIOUS AND SHIVERING	MILD	35°C–32°C
HT II	IMPAIRED CONSCIOUSNESS; MAY OR MAY NOT BE SHIVERING	MODERATE	<32°C–28°C
HT III	USUALLY UNCONSCIOUS; VITAL SIGNS PRESENT	SEVERE	<28°C
HT IV	APPARENT DEATH; ABSENT VITAL SIGNS	SEVERE	VARIABLE

TABLE 1: GRADING OF HYPOTHERMIA SEVERITY

International Clinical Staging and Classification of hypothermia

- NB: Temperatures are only a guide. Transition from one stage to next is gradual, not a step.
- Shivering and consciousness may be impaired by comorbid illness eg. trauma, brain or spinal injury, or drugs independent of core temperature
- Vital signs usually disappear <24 °C. Lower is possible, esp. in children. Lowest recorded is 17°C (3 year old).
- Although lowest temperature (adult) from which successful resuscitation and rewarming achieved is currently 13.7°C, this does not preclude resuscitation attempts at even lower temperatures.

Grading of hypothermia severity

The normal core body temperature is ≈37°C (± a little). The term 'core' refers to the central tissues such as the heart. Although technically, hypothermia is any temperature below normal, it only starts to become a real issue if the temperature is <35°C, but importantly <36°C in the presence of trauma, particularly if major. Degrees of hypothermia are indicated by the terms mild, moderate and severe (Table 1). These terms indicate not only how far away the body temperature is from normal but also how much of a threat to life is present.

Speed of onset

Body temperature will drop rapidly once thermoregulation is compromised, although the cooling rate will depend on several factors (eg. temperature gradient between the environment and body; thermal conductance of water or air; wind; wet conditions) and physiological factors (eg. body composition; fatigue; nutritional state; etc.). Immersion in cold water causes very rapid cooling (3-4 minutes). The most common scenario in the mountains is a slower onset where there is continuous gradual heat loss over hours. Case reports from avalanche accidents have reported cooling rates ranging from <1 to 9.4°C per hour, the wide range reflecting the insulation capability of the clothing worn by the victim.

TYPE	HOW HEAT IS LOST	% BODY HEAT NORMALLY LOST BY THIS ROUTE
Conduction	Transfer from a warmer to a cooler solid object when the two are in direct contact.	3% (by air conduction). Body loses heat 25 times faster in water.
Convection	Body heat warms the air in contact with the skin. The warmed air rises away from the body and is replaced by cool air.	15%.
Radiation	Does not rely on contact between heat source and the heated object. Heat is transmitted by infrared waves from the warmer body to the cooler environment. Radiation is how we feel the heat from the sun.	65%
Evaporation	Water in contact with the body surface evaporates using body heat	Variable. ≈20% at rest rising to 85% during intense exercise in heat.

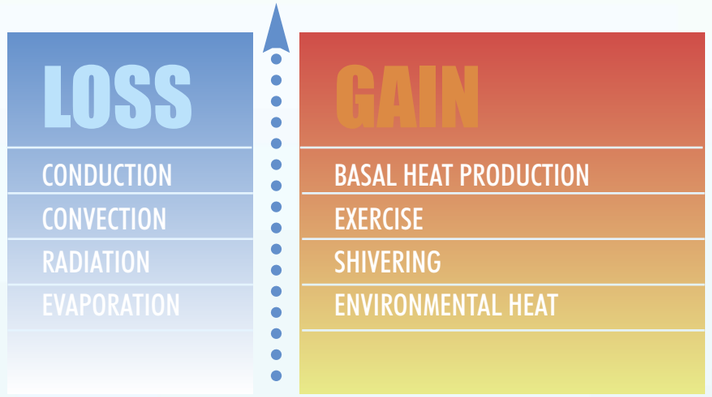
TABLE 2: HOW HEAT IS LOST FROM THE BODY

How heat is lost from the body

Hypothermia is the result of net heat loss from the body. The physical mechanisms and an explanation are shown in the table below left .

The normal body response to cold

Maintaining a stable body temperature is fundamental for survival. Consequently, exposure to any extremes of temperature will trigger a series of behavioural and physiological responses to modify heat flow between the core and the environment to keep the temperature constant. As this article is about hypothermia, what follows will focus on that.



Heat is produced by a combination of several mechanisms. Whether the body remains at a constant temperature, warms up or cools down depends on the balance between the two (see figure above).

Physiological mechanisms to reduce heat loss

Apart from behavioural responses (eg. seeking shelter), vasoconstriction, heat production by shivering and activity are very effective mechanisms to preserve heat in mild hypothermia. These mechanisms fail when the body temperature gets into the low 30°s and so heat loss then increases rapidly. The magnitude and effectiveness of the overall physiological response to cold, and the consequent vulnerability to hypothermia, depend on many factors eg. age, gender, body physique, concurrent disease, previous physical exertion, nutritional status, lack of sleep, fatigue, trauma, intoxication, analgesia, sedation etc.

Vasoconstriction

Narrowing of blood vessels reduces blood flow to non-essential areas. It starts at ≈34°C and becomes maximal at ≈31°C. The downside is that muscle blood flow also falls with consequent impairment of function. This will compound the impairment of function that also occurs as muscles cool.

Shivering

Shivering is involuntary repeated rhythmic muscle contractions, during which most of the metabolic energy is liberated as heat and little external work (ie. causing body movement) is performed. It is initiated by a fall in skin or (especially) core temperature and is only seen in mild hypothermia. Shivering peaks at ≈34°C. Although costly in terms of energy expenditure, at rest, shivering can increase heat production by 5-6 times the resting metabolic rate leading to a temperature rise of 3-4°C/h. Although this is at the expense of increased oxygen requirements, this is unlikely to be a problem in an uninjured person with normal cardiorespiratory function. In a casualty with mild hypothermia who is otherwise well, has sufficient energy reserves and in whom further heat loss is minimised, shivering will be sufficient to restore normal temperature. Importantly, external heat is little better than shivering as it reduces shivering heat production by an amount equivalent to the heat applied. Due to the body's ability to use a wide range of energy substrates when body sugar stores are depleted, a high level of shivering heat production can be 36

maintained for ≈4-6 hours before it starts to decline. This occurs when energy stores are depleted or when the core-temperature drops below an individual's threshold (≈31°C), although this varies depending on many physiological factors including fatigue. Once shivering has ceased, the body requires external heat to rewarm to a normal core temperature.

Exercise

Physical exercise can predispose a person to greater heat loss and, therefore, a larger decline in core temperature when exposed to cold air. Strenuous exercise blunts the vasoconstriction response to cold because during the exercise phase, the body is trying to lose heat. When exercise ceases, the temperature will drop quickly because of sweat evaporation and heat loss through vasodilation, particularly in adverse weather conditions. Although heat is produced by basic metabolic processes, unless the body is well insulated and sheltered from the environment, basic metabolic heat alone is insufficient to maintain temperature, particularly in a cold environment.

Exercise is an excellent way of increasing metabolic heat production. However, it can be a mixed blessing. In theory, it can lead to a rate of core-temperature rise (°C per hour) that is ≈40% greater than the application of external heat or shivering, amounting to almost 5°C/h. However, although the temperature rises more quickly with exercise, it is occasionally associated with an initial temperature drop (called afterdrop). If someone with a temperature in the low 30°s starts exercising, the increased blood flow through the muscles means that until the muscles warm up, the blood initially returning to the heart will be cold and this will make the core temperature drop further and theoretically increase the risk of a cardiac arrest. When all this is put together, the net rewarming time for exercise, shivering and external heat is about the same. Exercise to the point of exhaustion is a major risk for hypothermia and is discussed below.

Importance of food and fluid intake

People exercising in the cold expend more energy (by 10–40%) due to the increased effort required in difficult conditions eg. snow and the necessary heavier clothing and equipment. Energy is also used to keep warm through shivering when the weather is cold, although this depends on how well the individual has protected themselves through proper clothing choices. Exercise can be maintained for longer by regularly ingesting carbohydrate. Fluid balance is affected by cold-weather exercise. This is partly through increased sweat loss due to raised core temperature when wearing heavy clothing but also because if skin temperature falls, thirst is less noticeable in cold compared to hot weather. The mechanism is thought to be related to vasoconstriction which effectively increases blood volume because less blood goes to the skin and other non-essential organs. The greater blood volume fools the brain into thinking that hydration is better than it really is.

Importantly for MR practice, hypoglycaemia (<3 mmol/l) impairs the shivering response via the brain, and therefore heat production. Studies on hypoglycaemic diabetic patients has shown that shivering starts at a lower oesophageal temperature and is less intense, resulting in a fall in core temperature. Hypoglycaemia is also accompanied by a reduced perception of cold. Shivering restarts almost immediately after glucose has been administered and absorbed. Interestingly, spontaneous hypoglycaemia has also been described during rewarming from severe hypothermia so it's important to continue calorie intake at this time

Factors that increase the risk of hypothermia

Studies have shown that body temperature can be maintained during exercise bouts of moderate intensity in cold air. Thus, severe hypothermia in a healthy person is unlikely as long as they are responsive and able to move. However, the presence of wet and/or windy conditions, low intensity activity or inactivity result in cooling. In addition, certain situations create an increased hypothermia risk. Reduced conscious level from any cause affects all protective behaviours (exercise; seeking shelter; taking in food and water).

Fatigue and exhaustion

The important association between exertional fatigue and hypothermia in mountain walkers and climbers was first reported in the 1960s. Body temperature only drops slightly during prolonged (hours) low-intensity exercise in cold conditions (5°C, wet and windy), or following multi-day bouts of prolonged exercise, provided that there are no other issues and nutritional input is maintained. However, the combination of cold stress and exertional fatigue mean the point of exhaustion is reached earlier than when they operate separately. Fatigue and exhaustion lead to a reduced workload and decreased heat production, thereby increasing the likelihood of a fall in core temperature. Exertional fatigue is particularly seen following prolonged exposure to cold when several stressors are present simultaneously eg. exertional fatigue + sleep loss + inadequate energy intake. Rest, sleep and re-feeding will reverse these effects. Although muscle fatigue is enhanced by muscle cooling, if core or muscle temperature does not fall, maintaining carbohydrate intake can enhance the capability to perform prolonged exercise in the cold and, therefore, carbohydrate loading to maximise muscle glycogen stores before exercise in the cold may be beneficial.

Age

Older adults are at increased risk due to due to reduced physiological reserve (reduced vasoconstriction, reduced heat production because of a smaller muscle mass, and a decreased awareness of having cooled). Aging also reduces the deep body temperature threshold for the onset of shivering and cutaneous vasoconstriction. These changes start to become an issue >60 years. Small children are at increased risk of hypothermia because they generally have a higher surface-area to body mass ratio, which increases heat loss, and generally have lower fat reserves for insulation.

Trauma

This is a particular concern as the casualty may be unable to exercise sufficiently to maintain body temperature, unable to seek shelter and unable to get off the hill on their own. In addition, hypothermia has deleterious effects on many body processes that are important in trauma, particularly blood clotting. Spinal cord injury is a particular issue because it not only prevents protective behaviours but may also cause uncontrolled vasodilation in the skin so that vast amounts of body heat will be lost rapidly. Burns patients lose heat extremely rapidly because the skin no longer performs its normal function for heat conservation.

Concurrent chronic medical conditions

This includes chronic illness, drugs and alcohol. People in this category may be malnourished, have reduced physiological reserve, and may not have the best mental abilities for dealing with difficult situations. Many drugs can impair thermoregulation. Although alcohol is well-known, others include antidiabetic drugs (if they cause hypoglycaemia), some antihypertensive drugs (impair skin vasoconstriction), and some anti-anxiety and antidepressant drugs (affect thermoregulation control in the brain). Clearly, a drug overdose will increase hypothermia risk by the effect on conscious level.

Clinical features of hypothermia

The 1960s paper on hypothermia in UK mountain walkers, climbers and campers was also summarised by the author in Climber & Rambler magazine. His observations and lessons are still very relevant today so it's worth reviewing the main points. The paper described 25 deaths (age 12-39; most in their teens or 20s), five cases of unconsciousness and 58 milder cases. Most occurred at temperatures near freezing accompanied by gales, rain or snow, but some occurred in warmer months when the temperature was >10°C. The author describes the circumstances:

> *'Accidents occurred on trips that would have been considered easy in fine weather. Symptoms usually began about six hours after setting out, and occasionally within one to two hours of the onset of bad weather. Early symptoms were slowing, unsteadiness, cramp, muscle weakness, stumbling and falling. Subsequently, mental effects became apparent eg. irrational behaviour, apathy and confusion. The three important predisposing factors were impairment of mental function, physical exhaustion and being wet through.*
>
> *'At a rectal temperature of 34°C, further progress is impossible because of cooling of the muscles. At this stage, the victim lags behind and falls repeatedly. After a final collapse, unconsciousness comes on at 30°-31°C and death occurs at 26°-28°C from ventricular fibrillation.'*

What's also interesting is the recommended preventative management:

> *'Indeed, the casualty officer at Bangor Hospital commented that "when a party has become exhausted and does not take shelter by nightfall, only dead bodies are found in the morning".*
>
> *'Two simple measures: (1) not getting wet through; (2) Taking avoiding action before exhaustion sets in. … If a person can get into a plastic bag, he will be completely protected from wind and from cooling by the evaporation of moisture from his clothing [LG: we now call this a vapour barrier].*
> *'As long as the air temperature is not too low, he will almost certainly survive a night in the open, provided he is not exhausted.'*

In mild hypothermia, mental functioning is normal, shivering is at its peak and generally, the victim is able to walk fairly well. As described above, as mild hypothermia progresses to moderate hypothermia, shivering will stop and protective mechanisms gradually fail, leading to the inability to walk and globally-impaired mental functioning. As cooling proceeds further, consciousness will eventually be lost and the heart will become increasingly irritable so that a cardiac arrest can easily occur. When the temperature is somewhere in the mid-low 20°s, signs of life will be extremely weak or disappear. For example, the respiratory rate can fall to 3/min and pulse to 6/min but the casualty is still alive.

On-site assessment and management of hypothermia

It is essential that MR personnel are able to identify and manage hypothermia of all severities. Mild hypothermia is very common and is not usually a major problem on its own. However, it has been repeatedly shown to be a significant risk factor for mortality following trauma, especially when trauma is severe. Although rare in UK MR practice, moderate and, especially, severe hypothermia, are threats to life.

Although hypothermia severity can be assessed by clinical signs alone, it is much more accurate if the body temperature can be measured. A reasonable way if done correctly is with a low-reading infrared tympanic (ear) thermometer. Other routes of temperature measurement (especially skin, rectal) are less accurate and should not be used.

Detailed management is described in the MREW Mild and Severe Hypothermia protocols (available for download from the MREW VLE website), but is summarised here. For simplicity and particularly if a MR team does not carry a thermometer, it makes sense to divide casualties into just two groups: those with simple mild hypothermia with no other risk factors, and everything else. The former has a temperature >32°C, are fully conscious, normal mental state and shivering,

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The effects of severe hypothermia on the body: Cooling damps down all bodily processes. The lower the body temperature, the more this is so.

Breathing	• Initial hyperventilation with shivering. • Decrease in breathing rate, depth and regularity as cooling proceeds reflecting the general 'damping down' of bodily processes, but also because the body's metabolic rate has fallen so less oxygen is required and less carbon dioxide is produced.
Cardiovascular	• Intense vasoconstriction occurs in mild hypothermia and is blocked by alcohol. Vasoconstriction decreases as cooling progresses and fails completely when the temperature is in the mid-twenties. • Heart rate falls (typically 50% of normal at 28°C). The ECG rhythm often becomes irregular and cardiac arrest is imminent. Older hypothermia classifications described the heart stopping at 24°C but there are many case reports with vital signs well below that.
Brain	• Starts to malfunction ≈33°C leading to confusion and reduced conscious level. • Pupils usually dilated and cease reacting to light <28°C so this cannot be used to diagnose death. • Brain wave activity (EEG) ceases at 18-20°C. • Brain metabolism falls as cooling progresses which is why full recovery is possible, even after a cardiac arrest.
Kidney	• Hypothermia leads to increased urine production so victims will be dehydrated.

cardiovascular stable (regular pulse), no injuries and able to move. All other cases should be treated in the same way as severe hypothermia. The only other things to remember is that those with severe hypothermia should ideally be transferred directly to a specialist hospital for rewarming with ECMO or cardiopulmonary bypass, particularly those with cardiac arrest or severe cardiovascular instability (BP <90; arrhythmias).

Assessment

Primary Survey in an apparently mildly hypothermic casualty

- **A** and **B** are likely to be fine.
- **C:** Check pulse, paying attention to rate and regularity. Capillary refill time will be prolonged in hypothermia due to vasoconstriction of skin blood vessels.
- **D:** Most important is conscious level. A thermometer is very useful but not essential. If equipment is available, check capillary glucose (BM) in casualties with altered level of consciousness, particularly if the temperature is >32°C. Hypothermia does not cause significant changes in conscious level when the temperature is >32°C.
- **E:** Insulation, rewarming, etc (see below).

Check for high-risk features

- **Conscious level** (very important).

Consider impaired consciousness as a 'red flag', regardless of the temperature, and treat as for moderate hypothermia. Also remember that other medical conditions and drugs can affect consciousness eg. hypoglycaemia, stroke, drug overdose, alcohol etc.

- Shivering present/intensity. Concurrent medical conditions or trauma reduce the ability to shiver and can affect conscious level and vital signs, thereby making the assessment of hypothermia more difficult without a reliable measurement of temperature. The presence of these conditions will also mean that more aggressive rewarming will be needed earlier for a given temperature than would otherwise be the case.
- Cardiovascular instability (BP <90; pulse irregular and/or rate <50 or >100 at rest).
- Temperature.
- Age (>60y); inadequate food and fluid intake in the preceding hours.
- Injuries; ability to walk.

Check for other important factors

- Wet clothing.
- Ambient conditions (wind; wet; exposed or sheltered; temperature; day/night).
- Location.
- Distance from safety.
- Predicted difficulty of evacuation.

Primary Survey in moderate and severe hypothermia

Similar to above but all parameters will be reduced eg. slower respiratory rate and pulse, lower BP, reduced conscious level.

Management

Principles applicable to all cases

- Block routes of heat loss. Insulation and shelter are key to minimising further heat loss so use as much as possible. In addition, if the casualty cannot rewarm themselves, provide external heat.
- Once hypothermia has occurred, there is no easy way to recover body temperature so minimise how much you expose the casualty to examine them.
- If possible, attempt to measure the temperature. The conscious level should be consistent with the temperature. For example, if the patient is semi-conscious and the temperature is 33°C, this is not due to hypothermia alone. Something else is going on.

Mild hypothermia – no high-risk factors

- Provided that sufficient energy reserves are available and adequate insulation is provided to retain heat, shivering and active movement are very efficient mechanisms of heat production and are good rewarming strategies for these casualties. Wet clothing can be exchanged for dry (inside a shelter, not in the open), insulate, rehydrate, give food, and then encourage exercise and walk them off the hill.

A reflective blanket can be useful whilst the casualty is rewarming. If they are well enough, they can walk off, but if they start to get tired, consider alternatives eg. stretcher, helicopter. Rescuers can use their own spare clothing if available but under **no circumstances** should they let themselves be caught out in order to help the casualty. Rescuers will be at increased risk of cooling once they stop moving. It is important to remember that group shelters will cool very quickly, particularly if it is windy.

- **Feeding facts:** A warm, sweet, non-alcoholic drink will not provide enough heat to rewarm a mild hypothermic casualty but will supply some carbohydrate to fuel continued shivering and help with rehydration. Although carbohydrates represent only 1% of energy stores in normal subjects, carbohydrate metabolism can account for up to 60% of total heat production during cold exposure. Therefore, unless the casualty categorically states that they have been eating substantial amounts regularly, insist that they replenish stores soon after the team arrives on scene. Whilst feeding is under way, if fluid is available, give them that too. Dehydration becomes a problem in hypothermia.
- Throughout this process, continually reassure the casualty that they will be fine. A positive mental attitude makes a big difference when it comes to coping with and surviving physical adversity.

Management points in severe hypothermia

Dead or just cold?

It is important to appreciate that as the body cools, the muscles and joints become very stiff. This can be so severe that it mimics rigor mortis (sometimes referred to as 'pseudo rigor mortis'). Therefore, as far as non-healthcare professionals are concerned, in the absence of clear evidence of death (eg. lethal injury; animals have picked at the body; face down in water; avalanche burial and airway blocked with snow), treat all casualties as potentially salvageable. The final diagnosis can be made in hospital.

- Only exchange dry clothes for wet in people who are fully conscious and shivering. Otherwise, use a vapour barrier, as described in the MREW severe hypothermia protocol.

Colder cases

- If present, vital signs can be remarkably abnormal eg. respiratory rate 3/min; pulse rate 10/min. This is 'normal' if your body temperature is in the low 20s. The pulse can be too weak to feel. This is where an ECG monitor comes in handy. If breathing is sustained, then cardiac arrest has not occurred so do not start CPR.
- If they still have signs of life, the aim is to avoid a cardiac arrest. It's better for the brain and will facilitate rewarming in hospital. Keep the casualty horizontal and move carefully to avoid triggering a cardiac arrest. In one case report, the patient who had a temperature of 26.4°C was moved to remove wet clothing and complete the secondary survey. While on his side, the patient lost palpable pulses, and the cardiac monitor showed cardiac arrest.
- Maximum insulation. Put a hat on the casualty if there are still signs of life to reduce heat loss from the head.
- External heat should be applied to exhausted casualties; those who can no longer walk; all casualties with trauma and those with altered consciousness. External skin heating is usually applied to the torso. Place pads in the armpits, chest and back and not directly on to skin.
- If a cardiac arrest occurs, expect to need prolonged CPR unless this would put the team at risk. Remember that if the location is difficult and a mechanical CPR device is not available, it is allowable to use intermittent CPR in (and only in) hypothermic cardiac arrest. This is explained in more detail in the MREW Severe Hypothermia Protocol but is essentially five minutes continuous CPR and five minutes off, during which time, the casualty can be moved eg. to a safer location.

Overview of the rewarming techniques used in hospital

Many hypothermic patients can be very effectively rewarmed in a general hospital. However, if the cardiovascular system is unstable (irregular pulse; BP <90) or a cardiac arrest has occurred, rewarming by a heart-lung machine is the most effective way. The system most commonly used is called ECMO but is only available in specialised centres. When referring a casualty to an ECMO hospital, remember to fill in the special Referral Form (available for download on the MREW VLE website). This will provide hospital staff with essential information which will be very helpful when they take over the care of the casualty. ✪

Treat the following in the same way as severe hypothermia is managed

Mild hypothermia with high-risk factors	Temperature >32°C; fully conscious; normal mental state and shivering but have one or more additional high-risk factors: injuries; older person; inadequate food intake; pre-existing medical disease; irregular pulse; exhausted; unable to care for self or walk. The risk of cardiac arrest is not present in this group but they need maximal protection and rewarming.
Moderate hypothermia	Temperature ≤32°C; shivering stopped; reduced conscious level/confused; immobile plus any of the high-risk factors listed above. These casualties have passed the threshold for cessation of shivering, altered mental functioning and the ability to rewarm by insulation and/or exercise alone, and are increasingly at risk of cardiac irritability and cardiac arrest.
Severe hypothermia	Impaired conscious level or unconscious; minimal or no signs of life due to hypothermia. Very high risk of cardiac arrest if it hasn't already occurred.

Important take-home messages

In the UK, the ambient temperature is always below body temperature, and usually by a large amount, so expect hypothermia in all casualties at any time of year, particularly if they have been stationary for any time and particularly if injured.

In mild hypothermia with no risk factors, refuelling and exercise are effective ways to rewarm the casualty. If they are shivering, don't worry about it. It will help rewarming.

In the absence of features that are clearly incompatible with life, treat all cold casualties without signs of life as potentially salvageable.

Once hypothermia has occurred, there is no easy way to recover body temperature so stop further cooling eg. minimise how much you expose the casualty to examine them.

Measure the temperature if possible. Do not use any method that relies on skin or rectum. They are too unreliable, especially in severe hypothermia. The conscious level should be consistent with the temperature.

In severe hypothermia, a slow breathing rate is 'normal' and does not need assistance. If breathing is sustained (no matter how slow), then cardiac arrest has not occurred so do not start CPR. Rough handling or sudden changes in posture can provoke a cardiac arrest that is unresponsive to treatment if temperature <28°C.

Consider the history when assessing the casualty. Expect a significant degree of hypothermia in anyone who has been out on the hills for several hours. If they then have a cardiac arrest, unless there is obvious evidence of major trauma that could cause the arrest eg. haemorrhage, treat as a hypothermic arrest and manage appropriately, regardless of any other injuries that might be present. In severe hypothermia, no one is dead until warm and dead, so never give up resuscitation attempts without a very good reason.

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Hypothermia world records

It's amazing what is possible

Lowest recorded temperature with no vital signs who went on to make a full recovery after rewarming: 13.7°C (adult); 14.2°C (child); 14.8°C (infant)

Lowest temperature with vital signs still present:
17°C (3 year old)

Longest manual CPR with successful outcome:
6h 30m (in Arctic Norway)

Longest total resuscitation time:
8h 40m (CPR 4h 48m; ECMO 3h 52m)

Longest persisting ventricular fibrillation:
6h 45m (stopped when rewarmed)

From the archive

Back from the dead

At the 2008 UK Mountain Rescue Conference in Stirling, delegates heard the story of Anna Bågenholm who had recovered from severe hypothermia following a skiing accident in Norway. The following article is a summary of an interview with Anna and her partner Torvind Næsheim, by **Judy Whiteside**, first published in Mountain Rescue Magazine, October 2008.

The accident left Anna wedged for almost two hours under thick ice, submerged in freezing water. Her core temperature had dropped to 13.7°C. She was 'clinically dead'. Yet five months later she was back at work and back on the piste.

Swedish-born Anna and Torvind were both highly experienced off-piste skiers. In 1999, they'd moved to Narvik, a subarctic town in northern Norway, to work as junior registrars at the hospital and play in the mountains. They took to the slopes at every opportunity, skiing back country runs only accessible by walking or running up the ridge, or hitching a ride in a helicopter.

By 20 May 1999, they'd skied a lot. But a diary note seven days before, reminding Anna to edge her telemark skis, had gone ignored. At 6.20 pm, with their friend Marie, the pair were skiing together down a route they had taken many times before. There was still snow higher up but, on the lower slopes, the snow was melting, the only track back to civilisation through a steep gully and down a frozen waterfall.

Anna slipped and fell, sliding on her back, head first down the 30 degree slope and under a section of ice cracked by the early summer sun. The speed at which she had been travelling forced her deeper under the ice shelf, her head and body partly submerged in the freezing water beneath. Only her skis, still strapped to her feet, prevented her from disappearing altogether.

As Torvind and Marie struggled to free her from above, Anna scratched and banged on the ice. They had expected her to drown in the icy water but her continued movement indicated this was not a drowning – an important factor in the subsequent rescue operation. Seven minutes after Anna's fall, Torvind called the emergency dispatch centre at Narvik Hospital, alerting them to a possible hypothermia.

'Two of the group were at home gardening,' says Torvind. 'They ran the three kilometres up to the site with a shovel so we could dig a hole downstream to lower her down through the ice and out of the hole. Our plastic shovel was useless on the ice.'

By 7.00 pm Anna had stopped moving. 'She was 40cms away from us, under the ice. I knew we should start CPR as soon as possible but couldn't get to her to do it'.

When the rescue team arrived, they cut a hole in the ice and she was freed but 'she looked dead'. She wasn't breathing, there was no pulse. Hoping this was not death but severe hypothermia, Torvind began CPR.

Four minutes later, a Sea King, en route to an emergency elsewhere, was redirected to the scene. (A fixed-wing plane was despatched to the other patient). Intubated and ventilated with 100% oxygen, the CPR continued as Anna was flown to hospital.

'They put an ECG on my chest in the helicopter. At one point, they thought I'd had gone into fibrillation, and tried the defib but it didn't work. Then they realised it might just be the vibration of the helicopter so they continued with oxygen and CPR'.

Mads Gilbert, professor of anaesthesiology at the University Hospital of Tromsø, was one of the 150 doctors who treated Anna during her stay in hospital and later described her case in The Lancet. 'If you have a warm brain when you die, you get brain oedema (swelling) after resuscitation. If you have a cold brain you don't.'

On arrival at Tromsø at 9.10 pm, Anna's core temperature was 14.4°C. She had no spontaneous respiration or circulation, her pupils were widely dilated and unresponsive to light. A team of cardiac surgeons, anaesthesiologists, perfusionists and specialist nurses continued CPR whilst Anna was prepared for cardiopulmonary bypass – a process which takes blood out of the body, puts oxygen and pressure back in, warms it then returns it the body.

By 9.50 pm, full cardiopulmonary bypass bloodflow was reached, at which point rectal temperature dropped to 13.7°C. At 10.00 pm, ventricular fibrillation started, which converted spontaneously to a pulse-generating cardiac rhythm after fifteen minutes. Anna was disconnected from bypass after 179 minutes, by which time her rectal temperature had reached 36°C. Then came the tricky part.

'There was a lot going on in Anna's chest,' says Torvind. 'She had a litre of blood in her cavity from a cut in the left subclavian artery caused by previous cannulation of the subclavian vein. They fixed that, then her lungs stopped working properly so she was on ECMO for five days.' [Extra Corporeal Membrane Oxygenation, involves modified cardiopulmonary bypass to support gas exchange, which allows the lungs to rest and recover.]

After that, she was on a ventilator for six weeks – with lots of near misses where she nearly died five or six times. When Anna woke – two and a half weeks later – she was surrounded by an impressive array of machinery, with infusion lines everywhere and respiratory support, and unable to move from the neck down.

Then one day, two months on, she could see a finger moving.' It came slowly – in the arms and legs first. Then I could sit, then stand. I had bilateral dropfoot, the same sort of thing in my hands.

'No one could explain why the motor nerves, which control movement, were affected. There was no spinal injury. The neurologists thought it would come back, but they didn't know for sure. My hands tingled all the time, my fingers didn't have proper feeling. It was two years before I could do things totally on my own.'

Four months on, against the advice to remain in rehab for a year, Anna returned to her life and work. And, despite the lack of function in her hands and feet, she was back on the piste the following year, in Canada.

She firmly believes that her sporting activity – and a positive mind – were the key to her rehabilitation. 'Focus on what you can do, not the things you can't.'

One of the key points made by Anna and Torvind was that it is vital to get the hypothermic casualty to the appropriate hospital. For her, the 'take home' message is clear – to survive hypothermia doesn't just depend on how the hypothermia develops, or how severe the cold, but also on the first aid given and the decision not to give up, alongside the skill and endurance of both the rescue teams and the intensive care unit.

'However dead the casualty might look, however cold, start treating them and don't stop until you get to the hospital.'

In other words, you're not dead until you're warm and dead. ✪

Above: 21:35: Full ACLS (Advanced Cardiac Life Support) with chest compressions and ventilations and cannulation of the left internal jugular vein: a period of intense concentration and focus.

Top: The surgeons finish the femoral cannulation of the artery and the vein which attached Anna's blood circulation to the bypass machine.

Above: 21:55. Anna is on full cardiopulmonary bypass ans the team can rest their hands, waiting for the effects of the rewarming.

Photos © University and Regional Hospital of Tromsø, Norway.

When the Women Climb website ran a series of articles about women in mountain rescue, the idea was to celebrate the volunteer ethic of mountain rescue, challenge a few gender-based assumptions and inspire more women to get involved.

Emily Thompson, a member of the Holme Valley MRT and a keen climber herself, interviewed a number of key women across England and Wales, in operational and non-operational roles in mountain rescue.

Top: Emily Thompson © Emily Thompson.

Above: Ellie with Search Dog Pepper. **Inset:** Pepper. Photos © CVSRT.

women in mountain rescue

Ellie Sherwin
Calder Valley SRT

Ellie Sherwin is one of the most dedicated members of mountain rescue I've ever met. With over 28 years service in Calder Valley Search and Rescue team, she's had a variety of roles including team secretary, but it is through her involvement in the Search and Rescue Dog Association (SARDA) that she has provided her team with an invaluable service.

What made you join mountain rescue and get involved in SARDA?

I was employed as a Countryside Ranger, enjoyed outdoor activities such as mountain walking, water sports, swimming etc. A few years after moving to the area I became involved in acting as a dogsbody for the search and rescue dogs. I thought, for credibility, I ought to join a mountain rescue team to establish my suitability and commitment.

I already had a pet dog so was interested in dogs generally. After a while, I'd gained enough insight into what was involved to decide I could probably do it just as well as anyone else and that it would be very rewarding. I did find bodying difficult to do for prolonged periods, although it does show you how cold and uncomfortable you soon become — and how slowly time goes — when you're lying motionless on the hill all day.

After I joined the team, I got a puppy and started training it. Training a dog is very time consuming and I've tended to concentrate on that rather than taking on more responsibility within the team. In contrast, I have involved myself in the organisation and administration of SARDA, where I have been secretary (for two stretches), members rep (twice), and also training officer.

How do you manage to fit team commitments around your work and family life?

When I started out, I was single and working as a Countryside Ranger, so I had the advantage of fairly flexible working arrangements. I worked additional hours and also a lot of weekends so could attend incidents in either my own time or in time owed. When I started training a dog, it also meant that I could take the dog to work — a great advantage.

The disadvantage was that my work commitments impinged on the amount of free weekend time I had, as I was either working or attending national dog training weekends.

Since then I have been office-bound, got married and I'm now retired. You have to make the most of your situation at the time.

You mentioned just how time-consuming it is training a dog – and that's not to mention incidents and team training. How much of your time would you say you spend on mountain rescue?

On average, the team gets around 80 call-outs per year. We meet every Tuesday and the team expects at least 50% attendance, although for dog handlers who have considerable time commitment in addition to this, it tends to be reduced. Most dog handlers in Calder Valley, including myself, put in more than the minimum. Two Tuesdays are devoted to training in some form or other, one to maintaining the equipment, and one to admin and business. There's also an expectation that team members will provide support for team events and these could be sporting events or fundraising activities.

As a dog handler, you are also expected to attend at least seven days a year on a national course but training a dog and keeping it operational requires a lot more input besides.

Locally we train Thursday evenings and Sunday mornings with the dogs. And there's the daily commitment to owning a dog, exercising and training it. So a lot more than just team commitment!

How long does it take to train a search dog?

It varies but on average it takes two to three years to get a dog onto the call-out list. Once you've graded your first dog, you have to repeat the process in a couple of years and show you have improved and become a more effective team. Throughout the dog's working life you are observed working in the sort of terrain you are likely to be called out to such as woodlands, water edges, forests, farmland etc.

What has been the most difficult thing for you during the time that you've been in mountain rescue?

Getting a dog on the call-out list is one of the most difficult things I have ever done. During the training stages, it's usually a case of one step forward and two back. Never work with children and animals comes to mind!

If you survive that, you're then faced with the three or four-day assessment, when you can be successful right up to the last session and then fail at the final hurdle. The stress and pressure of having to consistently perform well is tremendous. Fortunately, with the first dog, I was awarded the novice shield for the best performance by a novice dog and handler. However, the performance has to be repeated after a couple of years to demonstrate that your efficiency and team working have improved. I struggled at this stage and failing an assessment is very demoralising. The only way to deal with it is to put a lot of time in, building up fitness and confidence for both you and your dog and try again.

What life experiences have you had that have influenced you role in the team, if any?

Primarily, my work experience of an outdoor career, working to engage people in their local environment, having to deal with situations which occurred, which were many and varied.

An interest in hill walking — I was already a member of the Fell and Rock Climbing Club of the Lake District when I joined the rescue team, so had navigation, fitness and endurance skills.

What would you say to someone wanting to join now?

Providing you have enough enthusiasm and commitment you should be successful. Due to the level of interest, current candidates tend to have quite a lot of outdoor experience before they join, so you may need to find out exactly what the requirements are and brush up on the ones you fall short on. And being a team player helps. ✪

You can find the Women Climb website at womenclimb.co.uk.

TEAM TALK

CALDER TEAM WINS BRONZE MEDAL IN DOLOMITES RACE

The spirit of adventure is strong in Calder Valley with team members Al Day, Alistair Morris, Paul Taylor and probie member Dan Kelly representing the team in the sixth Mountain Rescue Dolomites Rescue Race in Pieve Di Cadore, Belluno Italy.

The Dolomites Rescue Race is the only event dedicated to members of the international MR community and includes technical and endurance tests. It was conceived primarily to create an annual occasion to meet en masse, the ultimate aim to get together outside the usual pressure-cooker environment of a mountain rescue operation.

The total elevation of the race is 1250m, while the descent is a negative 1440m. Along the way, competitors have to assemble a stretcher and configure the team in 'emergency standard' to take it to the finish line in the main square of the town.

'It was the perfect opportunity, says Alistair Morris, 'to raise awareness of the 6.2 magnitude earthquake in August 2016, in the Amatrice area of Italy, which killed 297 people and left hundreds injured. Whilst we were unable to send team members or search dogs to assist with the aftermath, we can highlight the incredible efforts of the search and rescue teams and volunteers involved with the disaster.'

Top: Left to right: Paul Taylor, Al Day, Alistair Morris and Dan Kelly © CVSRT.

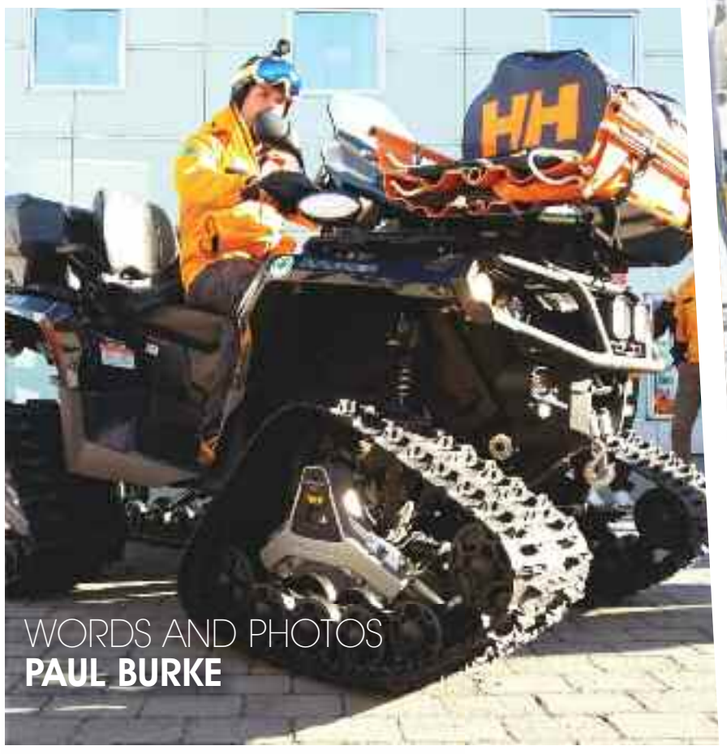
SHARING GOOD PRACTICE AND HELPING EACH OTHER

TIM CAIN

Peer Review Lessons Learned Seminar

When: Saturday 24 November 10:00 hrs to 16:00 hrs 2018.
Where: Edale MRT.
What: The aim of this seminar is to allow teams who have conducted peer review to share the lessons learned with peers and network to continue their development. What's going well and what could we do with some help on. The day is not about the peer review process itself, rather an operationally-focused networking opportunity.
How: Teams who have conducted peer review are invited to send representatives who will give a short (under 10 minutes) presentation sharing their findings — what was 'Highly Developed' through to 'Areas for Development'. After each presentation there will be an opportunity to discuss findings and share ideas with peers. Teams who have not conducted a peer review are invited to attend as delegates to share lessons learned and join the dialogue.
Teams are invited to join this event either as presenters or as delegates. Each team is limited to two people. Email your intentions to attend to me at tim@timcainleadership.co.uk.

Afternote: Opportunities still exist for reviews into 2019.
Again contact me to discuss your ideas.



TEAMTALK

Less Enid Blyton, more Travel Man, as Five Go Mad in Oslo for 48 hours

Sometimes it is really good to look beyond your own boundaries to see what you are doing (or not) at home. So we did, we went to Norway.

WORDS AND PHOTOS
PAUL BURKE

Five members of the Langdale Ambleside Team travelled to Oslo at the end of April for the Norwegian People's Aid annual conference. We'd been invited to give a presentation on the UK's and, specifically, our team's approach to mountain rescue which gave us the opportunity to be exposed to a whole new cosmopolitan world! We were able to look at how they work in Norway, which turned out to be similar — but different in so many ways.

Norway's mountains, glaciers and deep coastal fjords are spread over an area nearly twice as big as the UK, with a population of five million. It seems to struggle with similar issues to the UK, such as the financial strains of the credit crunch affecting statutory services, a greater reliance on the voluntary sector for resilience in civil contingencies and an increase in 'adventure' tourism.

Norsk Folkehjelp, the Norwegian People's Aid (NPA), was founded in 1939 to provide post-conflict reconstruction assistance and humanitarian relief during conflicts. Now, the NPA is engaged in more than 33 countries in de-mining and humanitarian relief, manages refugee reception centres, anti-racism campaigns and a volunteer ambulance service. It also has volunteer rescue teams across Norway — about 2000 members in about 60 teams, covering about 300 call-outs per year. The majority of incidents are around missing persons.

The volunteers are supported by about a dozen paid members of staff, mainly based in their offices in Oslo. Most teams do not have operational bases. Some use their houses as storage (ie. the garage) and many work exclusively from vehicles. Equipment is stored in vehicles and kept at team member's homes. They have a very corporate approach to identification which extends from leaflets to vehicles to a national uniform which the volunteers have to purchase themselves. Their national digital radio network is part of the Norwegian Public Safety Network. That same corporate approach extends to training with a very structured programme for trainees to instructors.

Non-medical staff are not trained or allowed to use drugs (including oxygen and entonox), or invasive medical procedures but they want all team members trained to be confident in good basic level first aid. Anyone who is medically trained can give drugs, but only if they have spoken to the on-call doctor first.

The way the NPA is funded was a bit of an enigma for us — which may have been down to difficulties in translation — but they appeared to have no 'charity' funding. They are, however, able to charge the government for any equipment used during an incident. Other than that, they appear to be self-funded.

When speaking at conferences it is easy to become focused on what you are bring to the event and sometimes miss what you can learn from it. That wasn't so here.

AS GROUCHO MARX ONCE SAID, 'LEARN FROM THE MISTAKES OF OTHERS. YOU CAN NEVER LIVE LONG ENOUGH TO MAKE THEM ALL YOURSELF'. WE CAN ALL LEARN FROM OTHERS SUCCESSES AS WELL

There was a genuine desire to include us in all that was going on. With very few exceptions their command of the English language was excellent. We were aided through the presentations by the interpreters.

Looking out over the 250 delegates, we were struck by the differences in demographics with an equal split of male and female and mostly well under 50. This caused one of the many discussions during our time there: how could they do it and why do we struggle to attract a more balanced spread of team members? It might be because volunteering in Norway is seen as a very social activity compared to the UK but we've some way to go to get near to what they have achieved.

A dedicated national officer develops their youth programmes and all teams have a youth arm with a 9–19 age membership. Once a member, they can transfer to any other team in the country in the future.

Some similarities were shockingly close to our own experiences. They have the phrase 'Instagram tourism' which is causing them a great deal of concern, especially around some of their World Heritage Sites. This related to a dramatic rise in the number of visitors, many of whom have no experience, skills or equipment who venture into wild areas just to get 'that' photo to post on social media. There was one horror story of 100 people caught out on the famous Pulpit Rock after a change for the worse in the weather. Despite all the information and signs, they found people only equipped with bin bags to protect themselves from the elements.

A recently introduced national interactive mapping search and rescue tablet system is based on Viewranger. All agencies use it and it enables those on the ground to have as much information and overview as those at their operational bases. This gives a real-time picture to all ground personnel of areas covered and the location of all other team members and enables photographs to be taken and plotted on the system as points of interest. This is a great help to the police who can view items remotely and prioritise items for further investigation.

We've made some great contacts and it was obvious there is a real desire to continue the already established link with a number of offers to visit 'real' mountains and see proper snow — so winter training in Norway seems a real possibility!

A very successful and fulfilling few days. If the opportunity arises, I would happily recommend it to other teams.

As Groucho Marx once said, 'Learn from the mistakes of others. You can never live long enough to make them all yourself'.

But we can all learn from others' successes as well. ✪

AMAZING SUPPORT CONTINUES FOR FIRE DAMAGED TEAM

Nearly ten months on from the fire which devastated the Central Beacons team base in Merthyr Tydfil, support has been non-stop from all manner of sources, local and national, individuals and organisations, community and companies.

On the night of Saturday 25 November 2017, a fire broke out inside the team's incident control vehicle and spread through the vehicle parking bay area, destroying it, the two 4x4 response vehicles that were there and the rescue medical equipment stored inside.

Initially, the team had a loan from the local emergency services and a rental company but the ideal was to have a suitable vehicle that could be fully equipped for mountain rescue work. Not cheap.

The recovery project after the fire began immediately with the response from the public, other emergency services and corporate organisations described as 'exceptional' and 'overwhelming' and that support is unwavering with the latest arrival of a loan vehicle from Jaguar Land Rover UK.

The Land Rover Discovery has been marked with mountain rescue livery and the team's badge, and blue lights and sirens are soon to follow. The vehicle will be used primarily as the first response vehicle to transport team medics and incident controllers quickly to the scene of any incident.

Photos: Central Beacons MRT.

The Discovery has already been put to use — as part of the South Wales region's Off-Road Driving Instructors Course, serving as a hilltop checkpoint for a mountain race across the Brecon Beacons and as a display model at the recent JD/Go Outdoors show.

'Having the right vehicle with the right equipment is crucial,' says Central Beacons team leader, Penny Brockman. 'This amazing support from Jaguar Land Rover UK provides a massive boost to us while we await the delivery of our permanent replacements.'

Since the fire in November 2017, Central Beacons has remained operational thanks to loaned and donated vehicles and equipment. The team has responded to over 100 calls for assistance so far this year and continues to fundraise, with the first anniversary of the fire fast approaching. ✪

TEAMTALK

AUGUST: UNUSUAL OPERATIONAL REQUEST FOR LONGTOWN MRT

Longtown members received an unusual request for assistance to recover the remains of a crashed glider from the eastern slopes of Pen Y Manllwyn, in the middle of the Black Mountains. Deputy team leader **Neil Rothwell Hughes** explains.

The request came from a local gliding club after one of its pilots lost his way in a rain squall and crash landed. Fortunately, neither of the two pilots were seriously hurt and had been able to walk back.

Longtown has experience of glider recovery, as we recovered another which had landed intact in 2006. The difference this time were that this glider was much further down the slope of the hill in one of the interior valleys of the Black Mountains, it was significantly heavier and larger, as a two-seater, and wasn't intact.

A reconnaissance established the position of the glider and it was confirmed that dangerous articles such as lithium ion batteries had already been removed. The first day of a three-day operation carried out over three weekends then started. With the aid of ground anchors, a five to one pulley system and much pushing and shoving, the glider was hauled back up the slope onto the ridge leading to Waun Fach, a horizontal distance of some 400m and 50m of climb. Around 100m short of the ridge path, the rear fuselage section which had been badly damaged broke up under the strain of being dragged, and was then detached from the cockpit section. At this point the wings were also detached and it was decided to recover only the relatively light rear fuselage and half a wing in the time left that day. Two hours later the first parts of the glider were delivered to the airfield, the remaining parts having been secured in a sheltered spot and labelled with police tape.

We returned a week later, armed with a lightweight scaffold pole to recover the front cockpit section of the fuselage. The pole was used to balance the cockpit upright so it could be wheeled on the glider's main wheel. In this way the fuselage was dragged and wheeled back to the road head and on to the glider field. This second day also succeeded in recovering the other remains of the wings to a point at the top of the path 400m above the road head.

A final Sunday morning's work, completed in heavy blustery rain, saw the wings safely dragged down, though with some care required in the gusty wind, given that they were designed to provide lift. The glider club was very grateful for the team's assistance once again in solving what would otherwise have been a difficult operation for its members.

Photos: Longtown MRT.

Team members were also amused to learn that one very senior team member had flown in the glider on an air experience flight the week before its unplanned landing in the Black Mountains. The team's leg-pulling tradition would dictate that as he was the last team member to have touched the equipment before it sustained damage he must bear some responsibility for the loss. ✪

SEPTEMBER: FORTY YEAR LONG SERVICE AWARD FOR WOODHEAD'S JOHN HALSTEAD

Since joining the team in 1978, aged 23, deputy team leader John has held many roles, including team leader, and says he's seen many changes and experienced many special rewarding moments.

'Two years earlier, some friends and I had been ascending Scafell Pike, when we found a seriously injured climber at the foot of Broad Stand. We sent for help and got the stretcher from the box at Mickledore and helped to carry him down, but sadly he died. Most of the lads who were there that day joined the team but I'm the only one left now.

'There have of course been low points when things haven't gone to plan for various reasons, but the high points have been the awards and commendations the team has received from the police, and the forty years I've stood shoulder to shoulder on the hill with my fellow team mates past and present. That, has been an honour and a privilege.'

Above: Left to right: John Halstead, Brian Bailey (chairman) and Keith Wakely (team leader).

OBIT

Photo: Dave Heavy Whalley.

TED ATKINS

The mountaineering world was shocked and saddened in August, to hear that 'RAF legend' Ted had fallen to his death, while climbing Monte Civetta in north-east Italy.

'Ted was a legend in the RAF Mountain Rescue Service', wrote his old colleague and pal Heavy Whalley. 'He lead our successful Everest North ridge expedition to Tibet in 2001. It was his vision that took us to the summit of the world and how he got the powers-that-be to let us go was incredible *.

'Ted was just a Flight Lieutenant, a lowly rank in the military, yet he got us the sponsorships and the authority to go to Tibet. I was with him for nearly four months on that trip. It was unguided — just twelve pals who knew each other. We all came back, still pals and with our all our fingers and toes and it was a hugely happy expedition.'

Ted moved through the ranks to become an officer. He was a renowned figure in mountaineering and RAF mountain rescue circles, known for 'thinking out of the box'. His invention of an oxygen tank using a condom and Coca Cola bottle almost ended in tragedy in 2004 when one of his cylinders went missing on Everest. He was left for dead at the summit and recalled later: 'People stepped over my body and some kind person rushed to be the first to 'blog' my demise by satellite phone so my wife read of my death before I even knew I was dead.'

After leaving the RAF, his Topout Oxygeneering company in Nepal supplied oxygen to so many expeditions, his unique delivery system became the industry standard. Minus the cola or the condoms!

'If there was a man who lived life to the full,' says Heavy, 'it was Ted. We've lost a true man of the mountains. A true adventurer and lover of life. We will miss him.'

** Read Ted's own account of the RAF MRS expedition to Everest on page 50.*

BARRY PELMORE

Photo: OMRT.

It was with great sadness that Oldham MRT announced the death of long-serving team member Barry Pelmore in July, after facing a long and valiant challenge with cancer.

An avid walker, Barry joined the team in November 1989. Coming from a military background and as a keen 'petrol head', his experience with Land Rovers and off-road driving was invaluable — the 'go to' man when vehicles got stuck in particularly nasty spots!

As he stepped away from front line operational duties, he took on a significant role as head of the team's fundraising, throwing himself in with gusto and widely known locally as the main liaison between team and community.

Barry truly was one of the unsung heroes of the mountain rescue fraternity, without whom the team couldn't function, yet never seeking notoriety for what he did. Such was his bravery and enthusiasm, he was still arranging events up until a few days before his death and insisted he stayed 'on call', to help where he could, up until the end.

For many in the team and the community, he will perhaps be best remembered as Master of Ceremonies at team events. Resplendent in his 'Rhubarb' jacket and boater, Barry's wit and warmth behind the microphone endeared him to many a team member and the public alike. He really will be a hard act to follow.

Rest in peace 'Oldham Pelmore' you'll be sorely missed.

MREW TRUSTEE **JAKE BHARIER** ONE YEAR IN

MREW is an astonishing organisation, with a level of engagement and professionalism among the volunteers that I have seen in no other voluntary organisation and a reputation that is second to none. And, as was seen with the Thailand cave rescue, part of an international community, where respect for experience and working cooperatively is paramount.

I was elected a trustee to the proposed CIO (Charitable Incorporated Organisation) last year. At our first full meeting in August, we considered many of the matters that need to be in place at the formal date of conversion. As trustees, we need to be satisfied MREW is well run and responsive to our members, and that we are managing organisational risks effectively.

The move to convert to a CIO has been slow but steady, and this work means we are looking inward at the moment. It's probably necessary. Some parts of the voluntary sector have come under intense public scrutiny over the past couple of years: Oxfam, RSPCA and RNLI are cases in point. We should be proud of what we do, and do well, while also being ready to answer challenging questions about the way we manage ourselves. We also need to regain our outward focus on the work we do to support our members – we should be clearer about what members can expect from MREW, and what MREW should expect of our members.

While I may have brought a lot of useful experience to MREW, none of it has been in the area of search and rescue. I've learned a huge amount during the past year and want to learn more, both about the work of search and rescue, and about the people who do it. And I want to help make MREW more responsive and effective. I look forward to talking with many more people within MREW during my time as a trustee. ✪

TEAM TALK

Above: Left to right: Brian Asher (headmaster, Lockerbie Academy), Dave Walcock (paramedic), Collin Dorrance (a now-retired police officer, the man behind the trip), Heavy and Paul Rae (fireman) are representing mountain rescue, the military and SARDA.

CYCLE TO SYRACUSE: UPDATE

In late October, Heavy Whalley sets out with the small team of five intrepid cyclists taking on the memorial cycle from Lockerbie to Syracuse University in New York State, in memory of the Lockerbie disaster.

So far training is going well, with 2000+ miles already under their belts including a ride between Lockerbie and the Scottish Parliament (70 miles in a day) followed by a reception event in the castle, and the Lockerbie Loop (another 70 miles with 4500 ft ascent).

'It's been hard going,' says Heavy, 'passing lots of places where the memory had shut out! A PR day in September, at Tundergarth School, was close to where the nose cone of the aircraft was. That was hard!'

FOLLOW HEAVY'S PROGRESS AT HEAVYWHALLEY.WORDPRESS.COM.

SARCALL AND REEKS SUNDAY 2018

Reeks Sunday (*Domhnach na Cruaiche*), or Garland Sunday, has been held on the last Sunday in July for the last 1500 years or so. Pilgrims make their way to the top of Croagh Patrick, in Co Mayo in the West of Ireland, and regular masses are held around the small summit chapel throughout the day. **Donal McNamara**, SARCALL regional admin for Mountain Rescue Ireland, reports.

Scholars believe it pre-dates Christianity, a ritual associated with the festival of *Lughnasadh*. It has its own Wikipedia entry and was the subject of a presentation at the recent Killarney ICAR conference. People have been known to get married up there on quieter day!

The mountain rescue response has now evolved into a national operational event — with Mayo MRT the lead team. Calder Valley team members also regularly drop over to give us a hand. Hill parties work staggered shifts from before dawn to late in the day. The number of pilgrims is typically 15,000–20,000 but this still requires a massive coordination effort. And, despite being held in the summer, weather conditions vary a lot.

SARCALL has been rolled out to the Irish teams over the last eighteen months with some teams further ahead in their journey than others. My own team, South East MRA, was very impressed with the incident logging function over the fours days of the 'big snows' earlier this year with seamless handover between three incident commanders responding to 27 individual taskings from various statutory bodies.

We also used the incident logging, task function on a multi-team exercise later in the spring. We felt SARCALL could be really useful and this was an opportunity to demonstrate the capabilities of the system, with multiple MR teams on the hill, voluntary first aid agencies, casualty clearing stations, HSE ambulances and an Aer Corp AW139 helicopter on station for the weekend. With 20,000 walkers, we might expect up to 50 casualties, with multiple stretcher carry-offs.

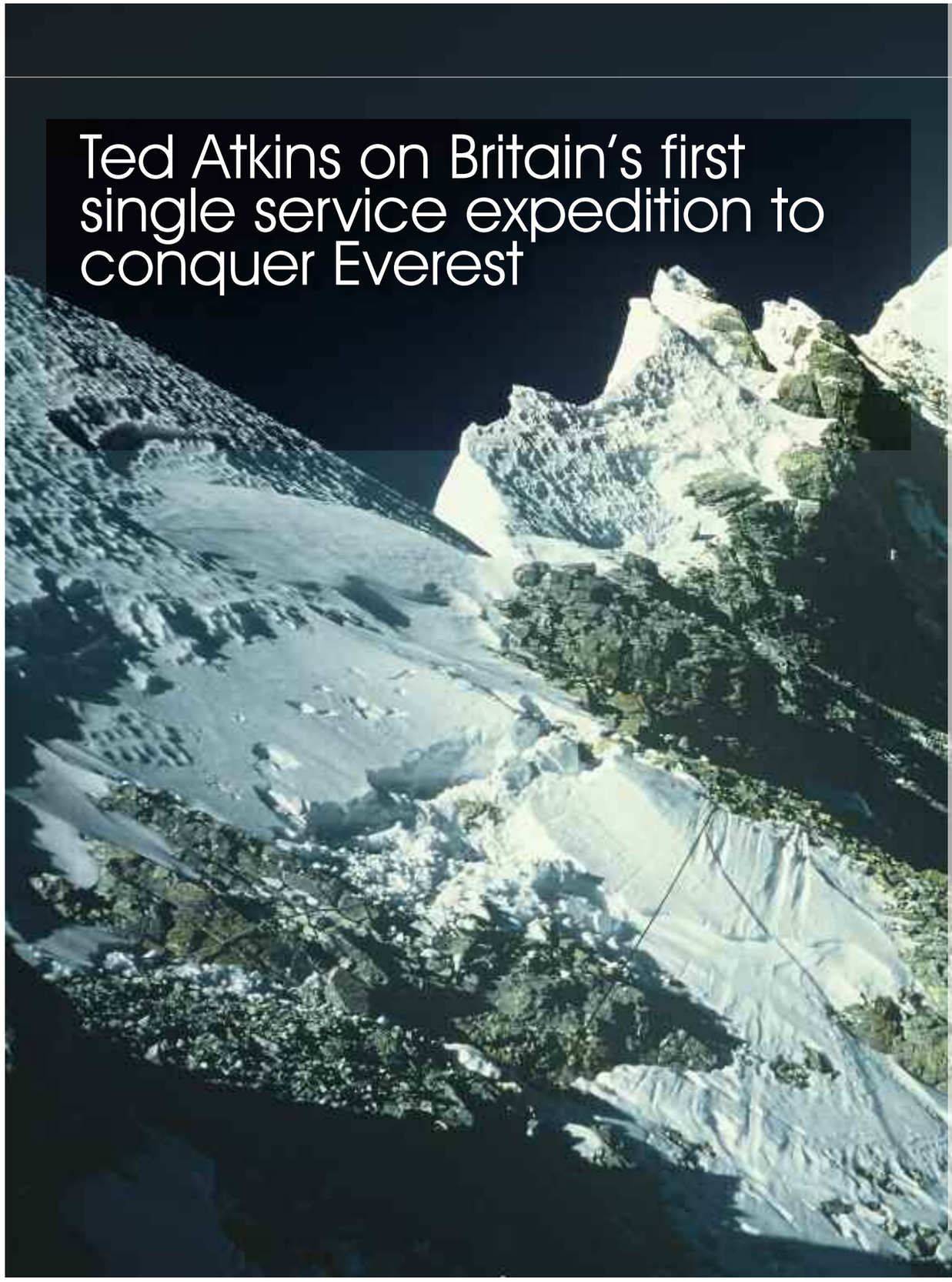
We're glad to report the system proved reliable, contributing to the success of Reeks Sunday 2018. Pat Murphy, the SARCALL coordinator on the day reported:

Number of hill parties: Three hill parties on three shifts (additional roles included logistics, operations, catering and medical tent)
Operation time: 03.00 hrs to 20.00 hrs (an additional base, hill and medical team also in place on Saturday night)
Number of casualties: 17
Number of carry-offs: 2
Number of heli evacs: 2
Number of inputs to Sarcall: 498 (186 on the task work flow option)

Overall, not too many sore people and SARCALL demonstrating its versatility. We were able to show full Gold, Silver and Bronze command functionality. The situational awareness this provides — at base and remotely — has to be seen to be appreciated.

Credit to all the team members who gave up another Reeks weekend, the Sarcall team and, last but not least, our hosts Mayo MRT who had the confidence to let us trial the system on such an operational scale. ✪

Above: Irish Air Corp providing assistance on the day © Pat Murphy.



Ted Atkins on Britain's first single service expedition to conquer Everest

In memory of a high flyer

On 22 May 2001, two members of the RAF Mountain Rescue single service expedition reached the summit of Mount Everest, as lead climbers Dan Carroll and Rusty Bale topped out at 06.25 BST. This is the story of that trip, written by the expedition leader, Flight Lieutenant Ted Atkins, who died in August.

In March 2001, thirteen of us [twelve RAF MRS troops and a doctor] left for Tibet via Nepal. We'd selected the North Ridge route as the line we would take to climb Everest. The North Ridge is a difficult and more technically demanding route than the normal route from Nepal. The great advantage of tackling the mountain from the north side, in Tibet, is that the team and equipment can easily be transported by truck to the base camp at an altitude of 5200 metres and, even better, equipment can then be transported by yaks to advance base camp at 6400 metres. Each one of these hairy bovines can carry a load of 40 kilos over the rough, moraine tracks, thus removing much of the personal drudgery of heavy load carrying.

Preparation to climb a mountain such as Everest must be meticulous and exacting. Proper acclimatisation to altitude is vital. For example, if you were suddenly transported from ground level to the summit of Mount Everest, you would die within thirty minutes without the use of supplementary oxygen. At such altitudes, two-thirds of the world's oxygen is beneath your feet! The weather can also be severe and unpredictable, and there are only a few days when an attempt on the summit is feasible. So, the problem is simple, all you have to do is guess when the weather is going to be right, make sure you have all the equipment in the right place, and then have a fit and acclimatised team ready to go! Oh, I didn't mention that your Chinese entry visa is only valid for fifty-six days, so obviously it all has to happen within this time frame.

Life at high altitudes is about as uncomfortable as it gets. At base camp it is freezing cold, hot, wet, windy and dry and a fine dust permeates everywhere. At first, we all suffered from the altitude — shortness of breath and dizzy spells when you bend over. It sometimes seems as if the world is against you as another bout of 'Kathmandu Quickstep' sends you rushing for the toilet tent in a blizzard, in the middle of the night. On a good night you make it to the tent before events overtake you! One night we were even 'called out' to rescue a climber from another expedition who had failed to return. We found him in the early hours of the morning, critically ill, and carried him back to base camp on a stretcher in a blizzard. There, we administered drugs and oxygen, and nursed him through the night until he was stable enough to be evacuated.

Time at base camp was well spent, however. We could recharge our batteries and relax in our unique shed while blizzards raged outside. Between acclimatisation sorties we were able to eat well, drink the occasional dram and, most of all, banter to our hearts content while we made up ridiculous words and cheated at Scrabble.

From base camp to the summit is about 26 kilometres, with a height gain of 3600 metres. Twenty-six kilometres is not a great distance for a mountain rescue day out in Scotland but on Everest, at altitudes over 5000 metres, it's not a case of packing a flask and a few sandwiches. The strategy is to take on the mountain in bite-sized chunks, to gradually acclimatise because, in essence, that's all you can manage. Every day spent above base camp caused us to be in physiological decline, yet this was where we had do the bulk of our work. By using a system of camps established up the mountain we were able to leapfrog up the mountain, gain fitness and acclimatisation, then back to base to rest.

ALL YOU HAVE TO DO IS GUESS WHEN THE WEATHER IS GOING TO BE RIGHT, MAKE SURE YOU HAVE ALL THE EQUIPMENT IN THE RIGHT PLACE, AND THEN HAVE A FIT AND ACCLIMATISED TEAM READY TO GO!

Our first objective was to walk to the halfway transit camp and spend one night there before returning to base camp. After a rest at base camp, and when the weather permitted, we returned to the transit camp for another night before moving up to advance base camp, where we spent one night before returning to base camp in one journey. At this stage of the climb the team split into small groups climbing up and down to the various camps to acclimatise to the conditions, thus 'leapfrogging' up the mountain. It was on one of these acclimatisation trips I came across a party of Chinese scientists who were descending with a stretcher. This is always a serious event in these regions and it was immediately obvious that the casualty was dying. We had all been well trained to recognise the symptoms of high altitude pulmonary oedema, an extremely dangerous condition, which causes the lungs to fill with fluid. In our first aid kits we each carried one tablet of a drug called Nifedipine, for personal use. I gave my drug to buy extra time while we organised the stretcher party to carry him to a lower altitude to receive oxygen and expert medical help. Thankfully, the man lived and made a full recovery. It was a classic illustration of what can and does go wrong if you fail to acclimatise properly.

The climb above advance base camp, to Camp 1, on the North Col at 7000 metres, was the first serious climbing undertaken. Even with the use of fixed ropes (to aid climbing and security) this was not a place to dawdle. The chance of a fall was minimal due to the ropes, but we had to spend time under the ominous shadow of unstable hanging ice blocks called seracs. Whenever I thought I could go no further without resting

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Photo: Climbing towards the Second Step | RAF MRS Expedition team.

Above: An Australian climber, rescued by the team, suffering from respiratory tract infection. He made a full recovery. © Ted Atkins.

I would look up and find the energy for a few more steps to get clear of a potential serac fall line. It was a long steep haul to Camp 1 and, whilst the route to Camp 2 at 7700 metres was neither terribly steep nor technically demanding, it was the highest climbing that we planned to undertake without supplementary oxygen — and it hurt. Camp 2 was on the exposed North Ridge, constantly battered by high winds charged with ice crystals that would remove bare skin. In order to stop the tents blowing away, we covered them with cargo nets anchored to the rock. The climbing up to Camp 3, using oxygen, was up the steep ridge then the North Face, which offered little purchase for crampons or an ice axe (try to imagine climbing a steep slate roof in hobnail boots and you begin to get the idea), then out onto the exposed North Face at 8300 metres. The camp was established on a system of narrow ledges built from rock and snow — very uncomfortable. One slip and it would be the end!

But what a place, it seemed as if I could see half the world from here and the ambiance of the mountain was simply stunning. I looked across the North Face to the end of the West Ridge where as a twenty-something member of a Joint Service Team destined to fail, I had looked at the North Ridge and decided that if I was ever to lead a team on Everest, I would choose to climb the very line that I was standing on. Everest was personal for me.

I was at Camp 3 with Corporal Jim Groark and Wing Commander Brian Kirkpatrick to make an attempt on the summit. Because this is the longest stage of the route, normally taking up to sixteen hours, it meant leaving at midnight. This would enable us to tackle the greatest difficulties higher up the mountain in daylight, and be able to return in daylight when every advantage is needed to overcome the perils of mind-numbing fatigue. Some new snow fell during our preparations in the afternoon, prior to our planned assault and, as this was not forecast, it caused some concern but not enough to dampen our spirits.

It takes three hours to get 'booted, spurred' and ready to go, constantly brewing and drinking as much as possible. The massive boots make it seem as if your feet belong to someone else. Then the layers of clothing are put on before the down suit. I felt like a spaceman but the worst was yet to come. Fitting crampons can only be undertaken outside of the tent and the effort of bending over to do this made me feel dizzy.

AS I PULLED THE SLACK ROPE FROM THE SNOW IT JUST KEPT COMING FREE. EVENTUALLY, I WAS HORRIFIED TO DISCOVER IT WAS IN FACT THE OTHER END OF THE ROPE WE'D ALL CLIMBED THE NIGHT BEFORE, AND IT WASN'T FASTENED TO ANYTHING! ONLY THE WEIGHT OF SNOW ON TOP OF IT KEPT IT FASTENED TO THE SURFACE.

The last and worst part was lifting my rucksack containing two oxygen cylinders, while keeping the delivery tubes and regulator clear for use. And so, down mitts over gloves, hood up, oxygen mask fitted, goggles over my eyes — there must be no exposed skin anywhere for it would be frostbitten in minutes — headtorch on and into the snowy blackness. The snow had become worse, making each step more difficult as we climbed solo (it was dangerous to be roped together because if one of us slipped we would all be pulled off), towards the sections of buried anchor ropes that mark the route to the summit. The anchored ropes had all been fixed at various stages up the mountain by different teams in previous seasons, usually in daylight and in good weather conditions. We finally managed to find the buried fixed rope we'd seen in daylight the day before and the three of us began to climb up the mountain towards our dream.

All too soon the rope ended, leaving us to go back to free climbing around the face to locate the next section and the next anchor rope. This was the most difficult and dangerous climbing I have ever undertaken. There were no second chances; the first slip meant a one-way trip to the bottom of the North Face! But, we could not find the rope and we were wasting vital oxygen and sapping our strength climbing unprotected on steep and lethal ground. So, after a heartbreaking search of three hours, I had to pull the plug. I drew my hand across my throat and pointed back to camp. There was still tomorrow.

After stripping off my ice-encrusted equipment I discovered that my feet, despite the best equipment available, were frozen and I prayed they would be okay for our next attempt.

Daybreak came. It was still snowing, but anxious to carry on with our attempt, we tried to find the missing section of rope, this time in daylight. We quickly found our original route again and, as we neared the top, I found a second section of rope hanging down and decided to use this, as it is inadvisable to have everyone on one section, just in case it should become overloaded. As I pulled the slack rope from the snow it just kept coming free. Eventually, I was horrified to discover it was in fact the other end of the rope we'd all climbed the night before, and it wasn't fastened to anything! Only the weight of snow on top of it kept it fastened to the surface. Brian and Jim were now only connected to me and not the mountain as I held the loose end! I shouted down not to rely on the rope and to free climb once again until I could find a secure anchor rope.

'I managed to find another rope and we climbed on for 200 metres until the route seemed clear ahead and above for our next section. The weather began to get much worse; now snowing harder than ever. It became too dangerous to continue, even simple things like taking a drink of water became difficult. At such high altitudes, because you are breathing so quickly, you lose a lot of body fluid through your breath and it is imperative to remain properly hydrated. If hydration levels drop, the blood thickens and doesn't circulate so well — a prime cause of frostbite at altitude.

However, the ambient temperature is so low that water bottles will freeze even when placed next to the body inside a down suit! I think I realised that Everest was not to be for us this time and I made the decision to turn back. Again!

Back at Camp 3, we watched our tracks being quickly buried in new snow and I finally had to say the cruellest words I have ever to had to say, 'It's time to go back down'. Both the other members of my team were with me. It was the only way. To go up might not be a return trip.

Normally, an expedition leader has to face the dilemma of whom to choose to make the attempts on the summit, but in our case the prospective 'summiteers' were self-selected in that they would be the ones, who were fully acclimatised, fit and in the right place, with the right weather conditions, when the opportunity arose. It takes five days to get from base camp up to Camp 3 in order to make a summit bid. My group had got the timing wrong and we realised there wasn't enough time left for us to go down to rest and make another attempt. It was this element that the very experienced team of Dan and Richard got so right.

The route from Camp 3 to the summit is the steepest and most technically demanding part of the climb. Therefore, the condition of the mountain and the weather needs to be at least fair or better, as you can expect to climb for between twelve and sixteen hours to reach the summit and return to camp. Back at advance base camp we watched Dan and Richard anxiously through binoculars. The team goal is far more important than personal ambition and the whole team was right behind them. We were glued to our radios and every crackle caused our blood to race.

BEFORE WE LEFT THE MOUNTAIN, TWO CLIMBERS FROM OTHER EXPEDITIONS DIED AROUND US, WHILE OTHERS WERE SERIOUSLY INJURED. CLIMBING EVEREST IS AN OUTSTANDING FEAT THAT ONLY THE FITTEST AND THE MOST DETERMINED SURVIVE.

Dan called me on the morning of 22 May to tell me they had reached the base of the summit pyramid. While this was a tantalisingly close point, metres are measured in minutes at these altitudes and it was several fraught hours before we got the final fantastic message to say that they were on the top. It was an incredibly emotional moment for me. After nine years dreaming and four years of planning we had accomplished the mountaineer's ultimate challenge. Come what may now, we had succeeded. But what would success have been worth if Dan and Richard had not come safely home?

Before we left the mountain, two climbers from other expeditions died around us, while others were severely injured. Climbing Everest is an outstanding feat that only the fittest and most determined survive. We defied the terrible accident statistics of Everest to return home, fit, healthy, and as a happy, cohesive team of friends.

In terms of Service expeditions, this is the only military team to have placed non-Special Forces personnel on the summit. The success is a great credit to both the RAF and its Mountain Rescue Service, in that it was able to produce the calibre of person to undertake and successfully complete this great challenge. Eleven individual summit bids were made and eight members climbed above an altitude of 8000 metres. We would have placed more people on the top but for one of our team becoming ill on a summit attempt. That illness cost the summit ambitions of four hopefuls, who selflessly sacrificed their personal ambitions to ensure the safe recovery of a colleague.

Looking back on our Everest adventure, it is wonderful to have been a part of the effort that created this first for the RAF. If I were to say that I would not go back to the Himalaya again without a team as good as this one, then I would be condemning myself never to return there again.

POSTSCRIPT: IN MAY 2004, TED ATKINS FINALLY ACHIEVED HIS LIFETIME AMBITION AND CLIMBED TO THE SUMMIT OF MOUNT EVEREST FROM THE SOUTH RIDGE.

Above: The 'Lucky Thirteen' RAF MRS expedition team © Dave 'Heavy' Whalley; Ted climbing on the North col © Brian Kirkpatrick.

ARTICLE REPUBLISHED FROM TED'S OWN ACCOUNT IN **MOUNTAIN RESCUE** BY BOB SHARP & JUDY WHITESIDE, AVAILABLE FROM SHOP.MOUNTAIN.RESCUE.ORG.UK. FOR MORE STORIES OF THE RAF MRS, CHECK OUT HEAVY'S BLOG AT HEAVYWHALLEY.WORDPRESS.COM

Rope Rescue Guidelines Review

CHRIS COOKSON COCKERMOUTH MRT

The rope rescue guidelines where originally published following their acceptance at the May 2011 MREW meeting. Time passes quickly and that's already over seven years ago! A lot has happened in that time in the world of rope rescue.

New specialist rope rescue kit has arrived on the market, further testing has been done on systems and the principles on which they are based, and new thinking has come to light. ICAR's Terrestrial Rescue Committee recommendation to use 'two-tensioned rope systems for, high consequence terrain, when lowering or raising with fibre ropes that provide a mutual backup in the event of a failure of one of the rope systems' has been accepted and, for me most significant of all, is the shift in emphasis when managing the human factors involved. I would say reviewing the guidelines is long overdue. I'm sure you'll have your own recollection of what's changed in the last seven years.

The focus of the review is on keeping the guidelines themselves short and succinct, so they are useable. The explanatory notes will provide the context and further details.

WE WANT TO OFFER ALL TEAM MEMBERS, TEAMS AND REGIONS THE OPPORTUNITY TO ENGAGE WITH THE PROCESS

The original process/plan (Figure 1) was posted on the MREW Training Subcommittee (TSC) Moodle site prior to the MREW TSC meeting on Saturday 19 May where it was accepted. All regions were represented. Regional training officers were asked to pass this process on to teams and teams, in turn, were asked to pass it to their team members. So by now you should already have heard about the review. We really want to offer all team members, teams and regions the opportunity to engage with the process so if you haven't received details of the review, please check with your team's training officer, in the first instance, and if they haven't heard either, ask them to speak to your regional training officer.

At the Training group meeting in May, a template for providing feedback was requested. After several attempts and a lot of work from Al Read, a Google form was developed to enable a simple and common approach for feedback that should also satisfy the request for a template. This was sent out on 21 August to regional training officers, again via the TSC Moodle site.

There is still a lot of work to do, and having something ready to be put forward for approval at the November 2018 MREW meeting is, perhaps, a little ambitious. So, in order to allow more time for people to review draft 2.2, following the meeting on Saturday 6 October, Al and I have decided to put the target date back to the May 2019 MREW meeting, for having a version ready to put forward for approval. Details of the revised plan will be sent out via the TSC Moodle site, shortly after 6 October.

But why are the rope rescue guidelines important? What purposes do the serve?

On a real job, technical rope rescue is usually a last resort. Other ways for getting to and/or evacuating the casualty having been considered and for whatever reasons, rejected. It's natural that such operations are a last resort as they are often complex, hard work, higher risk and time consuming. All things that, on a rescue, we want to avoid if at all possible. Far more technical rope rescue operations are carried out during training than for real.

So when a technical rope rescue is deemed necessary, what then?

I'd like to think most people sign up to the two main considerations at this point being safety, closely followed by efficiency. Efficiency may well be pressing, if the casualty is seriously injured or the environment or situation dictates, but as in the other areas of mountain rescue and types of rescue (for example, casualty care and swift water rescue), safety is paramount.

...GUIDELINES INCORPORATE A SUMMARY OF PAST LEARNING POINTS. WITHOUT GUIDELINES, THOSE LEARNING POINTS CAN EASILY BE FORGOTTEN, IGNORED OR FADE OVER TIME.

Minimising risks as far as is practical is necessary as the vast majority of casualties and a significant number of team members won't be in a position to be able to consent to the rope rescue operation being undertaken with its associated risks. And when something's already gone wrong and someone's hurt or their wellbeing is on the line, the last thing we want is for the rescue to 'go wrong'! Therefore, the risks taken and decisions made during rope rescue operations need to be justifiable and defensible.

Evidence-based (where possible) guidelines can help with both the safety and efficiency aspects by helping define good practice and so also assist with justification and defensibility.

So, let's consider what guidelines are. The Online Oxford Dictionary defines a guideline as, 'A general rule, principle, or piece of advice', whilst the Online Collins Dictionary says, 'A guideline is something that can be used to help you plan your actions or to form an opinion about something. If an organisation issues guidelines on something, it issues official advice about how to do it.'

So guidelines aren't rules that are set in stone, they offer some flexibility that can be required on occasion in the real world. It would seem sensible, if deviating from a guideline, to only do so after consulting with relevant people at the time to ensure the decision is justified.

The following could be considered some of the advantages and disadvantages of having guidelines.

Advantages

+ Setting a standard.
+ Simplification through standardisation of the systems, processes and procedures.
+ Communication and common understanding.
+ Platform from which to continually improve.
+ Provide a starting point for your decision-making ie. you don't need to start from scratch again. This would be particularly useful if you're asked to justify why you do what you do. How do you justify what you do now? If it's 'because we've always done it that way', then you could be in trouble!
+ Allows justifiable flexibility or deviation based on judgement as every situation is unique and things don't always go to plan!
+ They are not set in stone and can be reviewed corrected/updated. In fact, they should be reviewed and updated on a regular basis to make sure they are up-to-date, accurate, appropriate and easy to use, so people have the confidence and desire to use them.
+ Helps team members make safer decisions and operate at a higher level of safety, particularly when the individual or team doesn't have the in-depth knowledge and experience of the systems analysis, testing and operation of rope rescue systems that underpin the guidelines. In effect, guidelines incorporate a summary of past learning points. Without guidelines, those learning points can easily be forgotten, ignored or fade over time.

Disadvantages

– Considerable work needs to be invested to produce evidence based, useable guidelines.
– Considerable work is needed to communicate the guidelines and educate people about their use.

The above plan and process may well evolve still further with time, as plans and processes often do. We'd really like your feedback on the guidelines and process to help with that evolution and make all the time invested worthwhile, by making the guidelines something we use and value. ✪

FIGURE 1: THE PROPOSED PLAN AS IT WAS ORIGINALLY POSTED TO THE TRAINING SUBCOMMITTEE MOODLE SITE, PRIOR TO THE MAY 2018 MEETING

As you may be aware, we're looking to review the MREW Rope Rescue Guidelines to bring them up-to-date with recent developments and thinking.

The main focus of the review is to make the guidelines usable by:

• Keeping the guidelines short and succinct; so they are easy to remember and use. The explanatory notes will provide further details and explain the context.
• Involving as many people as possible (regions, teams, team members and selected experts) in the review process; without causing undue delay or workload.

To this end, the proposed process for the review will be:

1. Send out the existing guidelines and a starting point for the revised guidelines. The starting point for the revised guidelines (version 2.0 draft) will include an introduction and a list of suggested short and succinct guidelines.
   We'd like team members, teams and regions to feedback by suggesting amendments they'd like to see to the introduction and guidelines, along with suggestions for the explanatory notes, via their regional training officer or via email to the MREW Training Officer (trainingofficer@mountain.rescue.org.uk) by the end of July.
   To this end, regional training officers, please distribute this to teams and teams, please distribute this to team members. Regional training officers, please post any feedback you receive on the MREW TSC Moodle site.
2. The feedback received before the end of July will be collated and prepared for the review meeting (step 3).
3. A review meeting on 6th October (date and venue to be finalised). The review meeting will consist of one representative from each region and a few selected technical experts and will aim to use the feedback received to refine the guidelines; the introduction, guidelines themselves and add in the explanatory notes.
4. Send out the product of the review meeting (version 2.1 draft) to those at the meeting for corrections. Corrections to be submitted by 13 October.
5. Send out version 2.2 draft (2.1 draft with corrections) to regions to distribute to teams, and teams to distribute to team members for final comments/corrections. Final comments/corrections to be received by 27 October.
6. Version 2.3 draft (version 2.3 draft with team member, team and region corrections/comments) to be sent out ahead of November MREW meeting
7. Version 2.3 draft to be approved at the November MREW meeting.

Below: Cockermouth team members in training on Pillar Rock © Steve Brailey.

Chris Cookson is a deputy team leader and training officer of Cockermouth MRT and LDSAMRA training officer. He is currently working with MREW training officer Al Read and the MREW Training Subcommittee to develop the updated MREW Rope Rescue Guidelines.

Doing it for real: at the sharp end of a technical rope rescue

WILL CLOSE-ASH
NORTHUMBERLAND NATIONAL PARK MRT

The team leader turned to me and said, 'Will, I want you to take care of the technical rope rescue aspect'. Up until that point, I'd just been another 'body' attending the call-out, but suddenly I was now in a position of responsibility! Now, I was responsible for looking after, building and overseeing the management of the rope and anchor system that was going to get our casualty off the hill and down to the waiting ambulance! It couldn't get any more 'real' than this!

Rewind three months and if anyone had said I'd be in that position, I don't think I'd have had the confidence to get on and do it. But that was before I'd completed the Rope Rescue Operator Course with Lyon Equipment.

Like all things in the 'MR world', I'd signed up for the course because I wanted to be of more use to the team and I had an interest in 'rope stuff'. I'd attended the team-run crag rescue training sessions and built up a reasonable degree of knowledge. The problem was, I still didn't feel like I had all the skills I needed to run or support a technical rope rescue. So, a group of us travelled down to Lyon Equipment in Penrith, near Tebay for the four-day course.

We'd already met our instructors on a few occasions before. Bill Batson and Mark Davies deliver technical rope rescue training to team members on an annual basis. We knew our way around the 'hangar' at Lyon Equipment and were comfortable with Bill and Mark's training style.

They'd created an almost bespoke training package, running over two consecutive weekends, and had also spent time discussing any requests with the team leadership.

It was very clear from the first weekend that whilst we were there to learn from two experts in the field of technical rope rescue work, we could also bring our own specific practices and skills to the table and that these could be incorporated into what we were learning. We would also get the chance to use the equipment Lyon had as well as our own, evaluating the usefulness of both along the way.

The first two days were a whirlwind of activities, practising a variety of techniques to solve several different 'problems.' Everyone got the chance to lead and there was no shame in stopping and asking for support or help when working through a scenario. What was particularly useful was the constant discourse about how that would work back in our operating area.

The second weekend was split between a short review of the first followed by some more difficult techniques including setting up and running a sloping cableway, something most of us hadn't completed before. Finally, we had the 'dreaded' practical assessment. We'd completed the written paper and it was time to demonstrate our competencies to the Lyon staff and our colleagues. In the end, it was no more difficult than the scenarios we'd practised earlier and allowed us to demonstrate the skills we'd worked hard to hone.

Fast forward three months and as we carried our casualty off the hill and loaded him into the back of the ambulance, I felt a sense of relief that I'd been able to complete the task in hand, under the watchful eyes of my teammates and pleased that the rescue had gone so smoothly. I don't think I would have had the confidence to 'get on and do the job had I not attended the training and I would certainly encourage anyone who gets the chance to complete the Rope Rescue Operator Course with Lyon to do so!

Northumberland National Park would like to thank Bill Batson MBE for delivering the course and for his support over the years with all things rope-related. Bill has now retired from Lyon Equipment after eleven years in the job and over 40 years mountain, cave and rope rescue instruction. ✪

Above: Bill Batson with NNPMRT team leader Iain Nixon. **All photos:** NNPMRT.

TEAMTALK

AUGUST: HYTERA DAY

PDMRO recently organised a demo of Hytera DMR equipment hosted by Edale MRT at their base near Castleton in Derbyshire. **John Halstead**, chair of the PDMRO Comms group, reports.

The meeting was attended by Mark Lewis, MREW ICT officer, reps from all the Peak District teams, and team members from Scotland and North Wales. The purpose of the meeting was to:

1. Ensure everyone had a basic understanding of the benefits of DMR.
2. Ensure everyone understood the direction PDMRO is heading with DMR and what we need to do to achieve those goals.
3. Explore how HYTERA technology together with ZYCOMM's implementation expertise could help PDMRO achieve its objective to implement and maintain a robust and reliable DMR Network.
4. Provide a forum for discussion to explore how each team's operational needs could be addressed.

Sessions kicked off with discussions about DMR basics and features followed by a presentation by Mick Blood our DMR Project Manager on the PDMRO strategy. He explained how we have built up a network of seven interconnected repeaters around the Peak District (with more planned) that will give us much improved coverage of our operational areas using local team networks and a 'PDMRO Net' channel for inter-team communication and operations that span a wider area.

The major part of the day featured a detailed look at the HYTERA solution involving a variety of portable and mobile sets including not only the proven 700 series (similar to the Simoco offering) but also the latest generation of portables (900 series) that offers improved weather protection (to IP68), improved battery life, improved reception sensitivity, Bluetooth and advanced noise cancelling technology to reduce wind noise. The PD985 portable (with the right licences) can also act as a temporary repeater using a single frequency and record conversations to an SD card.

The next session was GPS tracking and MRMap. Until now this has always been a problem with anything other than Simoco hardware due to the proprietary way in which some manufactures generate GPS data. This is being solved in a couple of ways, firstly by connecting a radio directly to a computer in the same way as we already do with Simoco and, secondly, by using a device called an SMC Gateway that sits on the repeater network, intercepts the GPS data from the radios and then populates a database feeding directly into MRMap.

The final session of the day was a brief introduction to the Smart Dispatch Software, a comprehensive piece of software that allows a desk-based user direct access into the network for all the stuff you'd expect such as voice messages and text but it has added advantages such as knowing which sets are switched on and on the network, geo-fencing, remote updating of a radio's programming, deactivating and wiping sets that have been lost or stolen, full logging capabilities etc. This does come at a cost but there are a number of advantages for MR operations and it's certainly something worth considering for the future.

All in all it was a very interesting day which gave those present plenty to think about before they commit to buying their next DMR kit.

JULY: FANTASTIC FEEDBACK FOR MENTAL HEALTH TRAINING FOR EXMOOR TEAM MEMBERS

Chris Portues, Senior Community Mental Health Practitioner with the Exeter Crisis team, received high praise for the mental health awareness training he provided recently for his Exmoor team colleagues.

Teams are frequently called upon to search for people with mental health problems, who may well be suicidal, but they have no formal training in interventions with people with mental health diagnoses.

Following two sessions of classroom-based training in mental health, Chris and fellow Exmoor SRT member James Brameld organised a practical session involving role-play. The event took place in the woods of a National Trust estate near Tiverton on Wednesday 20 June. Staff from the Urban Search and Rescue branch of the Fire and Rescue Service USAR also attended.

Four scenarios were role-played by practitioners from DPT, with support from colleagues. Members of Exmoor SRT and the USAR, were presented, and had to intervene, with a person with depression and acute suicidal thoughts, a person experiencing psychotic symptoms, someone in an episode of mania, and an Alzheimer's sufferer.

Forty search and rescue personnel were split into four teams with members rotating their roles between scenarios so as many as possible could experience what it might be like dealing with a person with serious mental health symptoms.

'The event went very well with feedback on the night exceptionally positive', says Chris. 'We hope to repeat the training after an appropriate time period, in order to assess whether the skills learned have been embedded. I am very much indebted to the following people for the success of the event:

'Beverly Navarro played someone with psychosis, supported by Chris Portues. Ellen Lewis played a person experiencing a manic episode, supported by Eleanor O'Brien. Jan Jewell along with Matt Richardson played a depressed and suicidal person and Jo Portues played a person with Alzheimer's, supported by Pete Freestone'.

'The best training I've ever been to and well worth all the effort that it must have taken. Not one I'll forget easily,' said one Exmoor team member. 'I was really impressed by the evening's activities, so a massive well done to all of you., said Jim Whatley, Exmoor team leader.

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