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63 WINTER
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WELCOME TO ISSUE 63

Mountain Rescue is the membership magazine for mountain and cave rescue in England and Wales.

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NEXT ISSUE ISSUE 64

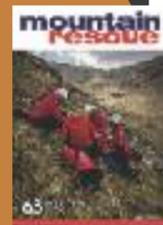
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Cover story

Keswick team members attend to a casualty at Hanging Rock in April 2017
© Rob Grange Photography.



PLEASE NOTE

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inthisissue



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A year in the life...
#MREWDISCOVERY

Following the MREW Land Rover on its journey around England and Wales **5**



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Keeping Track

A year in the life...

#MREWDISCOVERY



PETZL LIGHTS OUT, LANCASTER raising funds for BPMRT and Climbers Against Cancer
15 December 2017



Above: Left to right: Al Pewsey (Ashburton), Adrian Payne (PenMaCra), Ray Griffiths (MREW President), Andrew Luscombe (PenMaCRA), Howard Taylor (PDMRO), Paul Smethurst (NEWSAR), Chris Jones (LDSAMRA), Simon Thresher (MREW Vehicles Officer) Julian Earnshaw (MPSRO), Photographer Ro Furby.

Above, centre: MREW Patron, HRH The Duke of Cambridge, takes a turn behind the wheel © Jaguar Land Rover.

Other images courtesy of Bowland Pennine MRT.

EDITOR'S NOTE: Arrows and place markers are not necessarily geographically accurate (but you get the picture)!



JUST VISITING... Blackpool Tower to Newcastle to visit an injured MR colleague in hospital
16 December 2017



JUST A BIT OF ROUGH Lee Quarry, Lancashire
23 December 2017

RIGHT ROYAL SEND-OFF before heading north
22 November 2017



JAGUAR LAND ROVER SEALS PARTNERSHIP WITH MOUNTAIN RESCUE ENGLAND AND WALES

On 22 November, 2017, Mountain Rescue England and Wales (MREW) took delivery of a Land Rover Discovery, witnessed by two very special guests. The Duke of Cambridge, who is patron of the charity, was accompanied by The Duchess of Cambridge, visiting the Solihull manufacturing plant where the vehicle was built.

This is the latest vehicle to be donated to emergency and disaster preparedness partnerships, helping to save lives and support communities around the world. The liveried Discovery was received by nine volunteers from around England and Wales, who were at Jaguar Land Rover's flagship manufacturing plant to familiarise themselves with the vehicle's all-terrain technology and get some expert off-road tuition on the purpose built Land Rover Experience Adventure Zone off-road track.

Mark Cameron, Land Rover Experiential Marketing Director said: 'Land Rover has a long and rich heritage of supporting projects in the most challenging and remote environments around the world. So we are delighted that this

group of volunteers will be supported by Land Rover to continue their incredible work'.

'Land Rover is a great partner for us and we are delighted to have a new Discovery on our fleet', says Simon Thresher, MREW vehicles officer. 'The vehicle will be travelling from team to team, the length and breadth of England and Wales, so as many team members as possible have the opportunity to test out its capabilities.'

Those travels have already begun with Bowland Pennine and Calder Valley teams in Lancashire sharing custody of the vehicle during December — with a brief hop over to the North East to visit a Lakes team member in hospital there, following a serious climbing accident. So far the Land Rover has been put



WHO EWE LOOKIN AT? Lee Quarry, Lancashire
23 December 2017



OFF THE ROAD AND ON THE ROCKS Lee Quarry, Lancashire
23 December 2017



© Julian Earnshaw

through its paces on and off road, on hand for training, on call for incidents and drawing the crowds at fundraising. In January and February it's being tested out by Coniston, Patterdale, Keswick and Cockermouth team members, then it's back north east to Northumberland, Cleveland and North of Tyne, before heading south west to Dartmoor in April. We'll have more updates and photos of all these adventures in the next magazine.

'Finally,' adds Simon, 'a huge thank you to Lorraine Rogers (Director, Royal and Diplomatic Affairs), without whose help none of this would have happened.'

to be continued...

UPDATE MREW

MIKE FRANCE CHAIRMAN



There are times when we fail to get our messages into government. It's great that our local MPs know about our work, but sometimes we need more. The MCA reports to the Department of Transport and in the past we have tried talking with them. They refer us to the Home Office because we're called by the police, the Home Office refers us back to our chief constables, and round we go.

Over the years, the All-Party Parliamentary Group for Mountain Rescue has helped us get our issues heard. Following the last election, we lost the chairperson and with it the momentum of the group but now I have been tasked, by the UKSAR Volunteers Working Group (VWG), to find an MP prepared to get the APPG up and running again. Without doubt, it gives us a voice and raises the profile of mountain rescue volunteers with government ministers.

Another thing the VWG is looking at is opportunities to engage with employers. With better engagement, we can inform them that well-trained rescue team volunteers bring more value to the workplace. The group is aware that the number of volunteers may drop in the future and opportunities to work proactively with employers may help to enhance the employer/volunteer relationship, to enable the continual release of operational volunteers.

MREW officers are very aware that most teams had more calls in 2017 than 2016. Lake District and North Wales teams in particular are very concerned about this upward trend and using their contacts to get a message out: 'If you're going to use the mountains, be prepared'.

Mike Margeson (MREW vice chairman), met with the BMC recently to discuss mountain safety and I have met with what I am hoping may be a sponsor for a national campaign. With the help of our publications team, I hope we can promote a positive national safety message for 2018, and help reduce calls.

At the Operators Group meeting we were told DEFRA has now agreed a contracted two-year piece of work on flood response. Andy Lee, the previous MREW water officer, has been appointed to take this work forward. His main objectives are to:

1. Develop an agreed assurance process for existing assets
2. Review flood rescue concept of operations
3. Develop and enhance the coordination of flood rescue assets
4. Develop and enhance the coordination of flood rescue tactical advisers.

The recent fatality of an Irish mountain rescue volunteer in Snowdonia has highlighted the potential lack of a 'MR' policy for dealing with such an eventuality. Both the MCA and RNLI have sent us their relevant policies, which shows how far we have come — this would never have happened a few years ago. Thank you. Peter Dymond is to write something for MREW that will be shared for you to adopt.

We always knew taking on a trusts and grants fundraiser would give some of us a lot more work. Jody Dyer is asking the questions we have asked for a while, the things we should have done but didn't have the time or skills to do. I wrote a fundraising plan a few years ago to help our fundraising officers, Jody knows what the people out there want and is helping rewrite it. She is wanting us to confirm what our priorities are. We have so many and it's not just about listing them, it's about putting the detailed figures behind that list. Jody will write an update for the next magazine and she will also engage with you to ask what you think MREW funding priorities should be.

At the next management group meeting we need to finalise our actions around our fundraising group. It's clear there is little interest in this area, I understand that you fundraise for your team and taking on fundraising for MREW is just more work. Meanwhile, thank you to Nic Berry, of Derby MRT, for his short term offer of managing the fundraising email, and thanks too to all the people on that group who have helped over the years.

We want to keep the shop going but I think it will become outsourced. We also want to keep events and Basecamp, but will be dropping the national collection tins. Heather has done a great job with these over the years but what they bring in is not worth the effort, in future we will point people to the local team. Still some work to do here but we have made a start! ☺

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OPERATIONS: MIKE MARGESON

It is a mark of our mountain rescue community, the level of support and rallying around to help Central Beacons team, after their devastating fire. It is typical of MR resilience that money, equipment, a loan vehicle, radios and all manner of other items have been quickly



found and donated to the team, who are now temporarily based in a local fire station and have remained operational.

This terrible event no doubt raises the question for us all: could it happen to us? How would we cope? Penny assures us that a 'lessons learned' document is being produced.

A Silver command was set up in North Wales in the second of the early winter storms which fortunately only led to localised flooding. The Lakes held a second annual major incident table-top exercise involving all the teams and county strategies agencies, as well other MR regional resources including southern Scottish teams.

Early in January, the Operations group will meet regional operations reps and specialist groups and officers. High on my radar is SAR-H training. The UKSAR conference will be another opportunity to discuss this, with national officers and regional representatives all attending.

End of year figures are not complete but it has continued to be a busy year for many teams. Certainly the ever-growing budgetary pressure on statutory blue light services is having its effect downstream in more regular requests for our deployment in areas of non-core mountain rescue team responsibility. I wonder where this will go? Are we a victim of our own success and how far is this sustainable as volunteers?

Courses continue to be highly successful. I've had very positive feedback on the recent Party Leader weekend. In January, Glenmore Lodge will deliver BAA Level 2 Avalanche courses to us for the first time, with 50 team members receiving training.

There is also a regional round of the new Incident Management and Command course. I know that some in MR question external training. In my view, a balance of internally and externally-provided training is a very healthy indicator of a reflective and mature organisation.



BIG THANK YOU TO TRAIL MAGAZINE

At their Trail Magazine Weekend at the Blencathra Field Centre in October, a Gear Sale raised around £3,500 for MREW. So a BIG thank you TRAIL and the Blencathra Centre!

UPDATE MREW



INCORRECT STORAGE –
TURNBUCKLE NOT UNSCREWED



INCORRECT STORAGE – TURNBUCKLE
NOT UNSCREWED

LYON EQUIPMENT WARNS OF ACCIDENTAL DAMAGE TO BELL STRETCHER HEADGUARDS

We are noticing a rise in the number of requests for repairs to BELL stretcher head guards, specifically, the turnbuckles that tension the head guard and secure it in the raised position.

The damage presents itself as bent screws, torn threads, deformed wire thimbles on the stay wire and in extreme cases the ripping out of the small storage hooks that are attached mid-way down the head guard hoop. The cause of this damage in virtually all cases is user error.

It is essential that when returning the head guard to the storage position the turn buckle is fully wound to its maximum length before hooking it onto the storage hook.

Failure to do this when lowering the head guard will cause the turnbuckle and stay wire to become tensioned, preventing the head guard for lowering fully against the main frame. If the user then applies force to the head guard to enable the retaining plates or wires to locate, the turnbuckle, stay wire and storage hook will be damaged.

To prevent unnecessary damage and expensive repairs, please ensure that all users of the BELL Mountain Rescue Stretcher are aware of this requirement.

ICT & COMMS: MARK LEWIS

Mobile Phone Tracking usage continues to grow and some teams now have devices fitted to their vehicles to appear on MRMap, MRMap4web and SARCALL. You can now also automatically add log entries to SARCALL when you enter or exit geofence areas.

Vodapage will close down on 31 March 2018. They have agreed not to charge for lost pagers at the end of the contract, but please do try and return as many as you can. Page One has agreed to supply some refurbished pagers FOC but service charges will still apply.

The **new radios** have now been shipped and we will continue working with Simoco on enhancements and bug-fixing.

Moodle Online Learning continues to roll out with several team members now trained on how to create Moodle courses and, we hope, more to follow. Over the next six months, we are looking at moving the Members area away from the MREW website and onto the Moodle platform so watch this space and don't say you haven't been warned...



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Photograph: Central Section team members in training @ Deyll Collins



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Integro is a Latin word that translates 'make better, make well' and it embodies our purpose. Integro began in 2005, growing since through the acquisition of niche broking companies, each with great expertise in their own sector. The Integro team looking after Mountain Rescue was previously part of Doodson Broking Group, whose roots originate in 1964, and is based in Stockport.

Our collective reputation is built on the recommendation of clients who believe we offer something different. This approach has given us greater buying power and leverage in the insurance market, whilst allowing us to maintain a local and personalised service. We rank in the top 25 brokers in the world, with 1,200 colleagues and 40 offices in the UK, USA and Bermuda (eight in the UK).

In future, we will be writing in the magazine about specific insurance topics – starting here with a brief introduction to 'the Integro team' – as well as responding to your insurance questions. You will also find a dedicated area in the Members section of the MREW website, under Insurance. Please direct any insurance queries to us via insurance@mountain.rescue.org.uk.

MEET THE INTEGRO TEAM...



Chris Jones Dip NEBOSH Grad IOSH: An ex-police officer, Chris has managed large-scale searches for missing persons, evidence at major crime scenes and defensive searches to protect VIPs. As a member of the Police National Search Centres Consultative Committee he assisted in the development of search strategy and tactics and continues to work with Al Read (MREW Training Officer) in the delivery of Search Planning and Management and Field Skills training.



Barry Greenlees BSc (Hons) ACII, Chartered Insurance Broker: One of the first graduate intakes of Norwich Union (now Aviva) in the 1970s, Barry set up as a broker in the early-1980s, joining the Doodson Broking Group in 2008. He has managed clients large and small in all sectors including sports and leisure – sport being his passion – dealing with governing bodies, associations, management committees and clubs for a range of sports including rugby, football, hockey and cycling.



Colette Eustace Cert CII: Colette joined Integro in January 2014. She has a wealth of knowledge of all classes of insurance, having dealt with a variety of clients from small to larger corporate risks, sport and leisure risks. Her interest is more in sport watching than participating, but she enjoys the varied work and is developing her interests further dealing with new clients.



Ian Naven Cert CII: With seventeen years experience in the insurance industry, from admin through to senior claims roles at brokers, insurance companies and loss adjusting firms, Ian has dealt with all types of claims from low value to major loss. With his huge passion for sport (in particular football, boxing and World Superbikes) he is committed to providing a first class claims service for the Integro Sport team.

UPDATE MREW



Avoiding criticism and negativity and making the most of media opportunities

SALLY SEED MEDIA TRAINER & PR CONSULTANT

News type © Spacemaker. Dreamstime.com

It's been a busy past few months of press and broadcast media coverage for mountain rescue and there are a few points arising worth thinking about. In a couple of cases, it's also worth considering and agreeing your team's approach for the coming year. Nothing's ever simple and, as many of you will know, and it's all about balance on some of these.

Talking about 'avoidable' without it becoming criticism: High call-out rates in busy tourist areas have brought some teams to crazy incident levels, to concerns about members' safety when so tired (as well as casualty safety) and also to worries about employers' support when the demands on time are so high.

Taking an overview of stats and involving spokespeople from across the organisation has helped to avoid perceptions of criticism so far. And very clear and constructive messages about being prepared, keeping safe and enjoying a great day out, have emphasised the positives.

Responding to negative comments on social media: From the pros and cons of rescuing dogs to rapid reactions on team, fundraising pages, a couple of teams came in for some stick online towards the end of 2017. The usual 'good guys, rarely criticised' has slipped in the general online climate of criticism and there's no doubt other media are picking up on this too. Two simple rules apply:

Don't respond too quickly. Think, consider, consult and certainly don't 'do a Trump' of posting at 2.00am when you're shattered. And remember that not responding is an option – as long as you observe the trail online and step in if needed. It is sometimes better to let one of your more informed supporters or followers answer on your behalf.

Respond with factual information if you can and always with a human voice. You're allowed not to know all the answers and a combination of 'these were the facts and the context and this is why we did what we did' is fine.

Opportunities for features: It can seem great when a journalist or editor contacts you about writing a feature article. It might involve them meeting up and interviewing you and other team members or it might be an invitation to write something yourself.

It probably IS a good opportunity but it will also involve you (and possibly others) in time and effort and it pays to explore exactly what's needed before you agree. Think about word lengths for articles, deadlines and pictures and be aware that you need to supply what's needed – not a lot more and not a lot less – if it's going to be a straightforward process and one that gets repeated by the journalist concerned.

Planning for a story to be longer-term: One-off events, milestones and achievements are quite easy to manage in the media. Maybe a 'before', a 'during' and an 'after'

social media post and then a press release for a fundraising event or a couple of afters with an incident. Stretching a story over several months with fundraising throughout and lots of people involved is more of a challenge.

It's best to work out a plan, fix a few events or milestones and then see what you can do to create stories (or images) that fill gaps. This creates a more even spread of social media posts and keeps things ticking over.

Few and far between with plenty of facts is best for press releases but spread out, short and sweet works better for Facebook. If your planned post is more than about 25-30 words long, consider how you can divide it up into two or three posts instead.

As I said at the beginning, these aren't simple challenges and there probably aren't 'right' and 'wrong' answers but I hope some of the advice and ideas above will help if they apply to you or your team. And let me know if there's a topic you'd like me to cover in the magazines to come this year via sally@stoneleighcomms.co.uk. Thanks. ☺

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PDMRO/LOWLAND SEARCH AND RESCUE LIAISON MEETING

IAN BUNTING PDMRO
OPERATIONAL SUPPORT OFFICER

Like most regions, PDMRO has things that make it slightly unique from other regions. First is the number of calling authorities using the services of the region's seven teams: five police forces and four ambulance trusts, namely the Derbyshire, South Yorkshire, Greater Manchester, Cheshire and Staffordshire police authorities and East Midlands, Yorkshire, North West and West Midlands ambulance services. We also use the services of several different air ambulances, just to keep everyone guessing what type of helicopter is coming and what colour it is.

Until five or six years ago, the number of police forces was seven, with Leicestershire and Nottinghamshire both calling on the services of Derby team. However, a lowland rescue team has now been formed within both Nottinghamshire and Leicestershire and this brings us onto the second point that makes PDMRO different. We are bordered on nearly all sides by five Lowland teams.

In recent times, individual PDMRO teams have started a relationship with their neighbouring LSAR team, including joint training and operations. This has brought the benefit of additional resources to both organisations when the circumstances are right — generally based around lowland searches on the edge of the PDMRO patch.

In summer, at the regional operations meeting, we decided it would be a good idea to organise a liaison meeting between PDMRO and the LSAR teams. This took place on 26 November at Buxton's base. In addition to all of PDMRO teams there were representatives there from Cheshire, Staffordshire, Nottinghamshire and Yorkshire SAR. Mike France was in attendance with his MREW hat on, even though he is a fully paid-up member of Woodhead team and the PDMRO. We also had our Derbyshire Police POLSA liaison in attendance who was keen to hear how things were progressing in neighbouring counties and see whether he could help out in any areas. As far as I know this is the first time this sort of meeting has been

carried out on this scale.

The morning kicked off with all the organisations giving a summary of their resource and capabilities. PDMRO presented as a region rather than individual teams to save time. It was also a fair comparison given that the LSAR teams are county-based and the bulk of PDMRO work is in Derbyshire.

THEY ARE JUST AS COMMITTED, TURN OUT IN ALL WEATHERS AT ALL TIMES OF DAY AND DO THEIR BEST FOR THE MISSING PERSON...

Unsurprisingly, they do pretty much what we do, but in flatter areas. They are just as committed, turn out in all weathers at all times of day and do their best for the missing person. They are finding their workload increasing and spend a significant amount of time raising their profile and fundraising.

We then looked at interoperability, major incidents, communications, training — all the things we generally cover at our regional operations meeting. An MR meeting never seems to pass without some reference to SARCALL, with this one being no different. One of the actions was to see how we can communicate, if required, via SARCALL. Other actions included updating our resource and capability matrix for the LSAR to teams to complete, developing the PDMRO major incident plan to see where LSAR teams can fit in, and getting Buxton MRT to provide bacon sandwiches for the next meeting, which will probably prove the most problematic!

The overall consensus was that it was a very productive meeting which we plan to make into a six-monthly event. ☺



UPDATE MREW

WHAT IS GDPR?

The Data Protection Act (1998) regulates the use of personal data and is based on a number of principles on how personal data should be obtained, processed and stored for legitimate purposes and only for as long as it is required.

The European General Data Protection Regulation, known as GDPR comes into effect on 25 May 2018. It introduces improved rights for citizens and places new responsibilities on Data Controllers and Data Processors. The new regulation is designed to ensure that Data Protection Laws are fit for the digital or 'cyber' age where an ever increasing volume of personal information is collected online. It also extends beyond the EU as any service provided to EU citizens from outside the EU is bound by the same laws that apply within the EU.

The financial penalties for non-compliance are high. However, the most powerful sanction that could face organisations is that system processing can be stopped by the Information Commissioner should they consider that organisations are not complying with the law to an extent that continued processing is not acceptable.

GDPR seeks to develop a 'privacy by design' ethos whereby we build privacy considerations into everything we do. So if we collect data about people we should be able to design it such that we can easily remove information relating to individuals should they exercise their rights under the law. In the same way, we can identify and correct information that is inaccurate.

WHAT DOES IT MEAN FOR MOUNTAIN RESCUE?

There is a simple principle that whoever collects information from members of the public and determines the purpose and means of processing it is a 'data controller', and the people or organisations that process it on behalf of 'data controllers' are 'data processors'. There are some exceptions to this, however, in the main that's the guiding principle.

Mountain rescue teams are data controllers for the information that they collect about their own members, their supporters and/or sponsors, and they are data processors for information passed to them by calling authorities when they are called on to assist in search and rescue operations.

The information passed to them can only be used for the purposes provided and agreed by the data controller. Information systems like SARCALL are data processors on behalf of calling authorities and mountain rescue teams. Using a system in this way places a collective responsibility on all parties

that use shared information systems to fulfil their legal obligations to ensure that service availability is not adversely affected or misused.

GDPR now requires evidence of compliance to be readily available if asked for. So we need to ensure we adhere to industry best practice and document how we manage and control the use of personal data, and be able to provide evidence of compliance when required.

WHAT ARE WE PLANNING TO DO?

To ensure that we are fully compliant with GDPR we are carrying out an exercise to develop a full understanding of how we collect, store and process information that is in our possession. This will include cataloguing all the bodies we interact with and how data and information is shared between them and how it is stored, handled and used. We will collate a list of all those who are registered under DPA and those who are not, highlighting any organisations that have a legal requirement to register but are not. For example, any organisation that collects information using CCTV has to be registered.

To ensure that we adhere to the law, MREW has recruited a suitably qualified external consultant with significant experience in data protection and GDPR in the public sector and has established a formal project within MREW, led by Finance Director Penny Brockman, to oversee the work.

We are intending to carry out a data gathering exercise across all MR teams in England and Wales. This exercise comprises a number of face-to-face sessions, telephone interviews and an online survey tool to draw together a consolidated view of how all teams operate and how they store and handle personal information. This will enable us to identify any gaps and recommend ways to improve the overall approach to information security based on internal standards and specific UK Government

guidance on adoption of Cyber Essentials and Cloud Security Principles.

Running alongside this exercise, we are reviewing the wording on existing privacy notices to ensure that we provide clarity about what we do with people's information and, in doing so, comply with GDPR.

Following both activities we are planning to develop guidance and supporting materials for the teams to provide outline procedures that can be adapted in parts to suit their own specific way of operating. This will enable us to develop a privacy compliance framework based on the following:



GDPR brings with it a need for all parties to work together to ensure we protect personal information to the same extent as we protect those we rescue. To provide evidence that we are doing so, we plan to introduce an assurance framework whereby all parties will be required to provide evidence, on an annual basis, that their organisation 'implements appropriate technical and organisational measures... to ensure the ongoing confidentiality, integrity and availability and resilience of processing systems and services' as required by GDPR.

Further reading and information about GDPR can be found on www.ico.org.uk. ☺



DEREK BROWN MBE IS A MEMBER OF NORTHUMBERLAND NATIONAL PARK MRT AND AN INDEPENDENT INFORMATION SECURITY CONSULTANT WORKING IN THE PUBLIC SECTOR. HE HAS A BSC COMPUTER SCIENCE AND MSC IN COMPUTER NETWORKING TECHNOLOGY AND IS A PROFESSIONAL MEMBER OF THE BRITISH COMPUTER SOCIETY (BCS). HE ALSO HOLDS A NUMBER OF PROFESSIONAL CERTIFICATIONS INCLUDING THE CERTIFIED INFORMATION SYSTEMS SECURITY PROFESSIONAL (CISSP) AND THE BCS PRACTITIONERS CERTIFICATE IN INFORMATION RISK MANAGEMENT.



Probably without exception, mountain rescue teams around the UK have tended to set out in life with nothing more than a hodgepodge of kit and a bucket-load of enthusiasm. Fifty-odd years on, they may well boast specialist clothing, sophisticated rescue equipment, a fleet of liveried vehicles and a dedicated communications centre as base – but how many would relish having all that taken away overnight, having to start again with a virtually blank sheet?

That was the possible scenario facing Central Beacons team members in the cold light of Sunday morning, 26 November. Fortunately for them, the bucket-load of enthusiasm remained unscathed.

Fire broke out in their rescue centre in Dowlais, Merthyr Tydfil on the evening of Saturday 25 November, destroying or severely damaging at least £250,000 worth of vehicles and emergency rescue and medical equipment. By mid-December, it had been confirmed that all three vehicles would be written off. It also left the team without a fully-functioning base.

'We anticipate it could be twelve months or more before we can fully recover and replace everything we've lost,' said team leader Penny Brockman. 'Of course, we had insurance in place but, initially, we had to wait for the assessors to do their bit and it will take time to fully consider what we need to build a solid foundation for future growth.'

'Vehicle technology, for example, has changed considerably over the last few years and the same applies to other items of vital kit. While we certainly wouldn't have chosen to be in this position, it's unusual to have an entirely blank sheet to start with, so in that respect we need to make the most of the opportunity.'

By that fateful evening, Central Beacons team members had already responded to 130 call-outs through 2017 and team members pledged to continue responding to calls for help, relying on their own cars and equipment, with the support of South Wales Police and their mountain rescue colleagues in neighbouring teams.

The run-up to Christmas proved as busy as

expected thanks, in part, to heavy snowfalls in South Wales in early December, with the team responding to three incidents in the week immediately following the fire.

As you might expect, offers to help poured in from across the mountain rescue 'family' and public response has been equally as generous. Teams from all over England and Wales have provided equipment and offered vehicles. The team kindly accepted the offer of a Rossendale and Pendle MRT vehicle and this was picked up late December.

'It has been truly overwhelming,' says Penny.

A full-scale fundraising effort swung into action within 24 hours, coordinated by team member and Fundraising Officer Gayle Sheppard, including a justgiving campaign.

The fire has inspired all manner of fundraising, from hamper raffles, coffee and cake mornings, pub quizzes and 'tin shakes', through legacy donations and even year-long personal challenges. Trainee team member Adrian Kent plans to run the seven continents through 2018 — a total of 39,118 miles — to raise funds for the team and Cancer Research UK. Like Adrian, many of the donations have a story behind them, such as Callum Walsh.

'My grandfather, Conny, recently passed away,' wrote Callum. 'He was an avid walker and lover of the Brecon Beacons, who spent a lot of his life walking the paths of Pen y Fan and the surrounding mountains. On at least one occasion, the mountain rescue team was called to assist him after he got into mischief on one of his walks.'

'He continued to walk two or three hours each day, up until ten days before he passed

away. We would like to make a legacy donation as we feel the team is a cause that represents everything Conny was and everything his life was about.'

'We also know that with the recent fire at your base, the legacy donation will be more worthwhile than ever.'

Without doubt, the year-long exposure through the now iconic BBC ident will have raised the team's profile and aided the fundraising effort. On Tuesday, 19 December, a slot on The One Show helped develop that public image with a suitably Christmassy film clip.

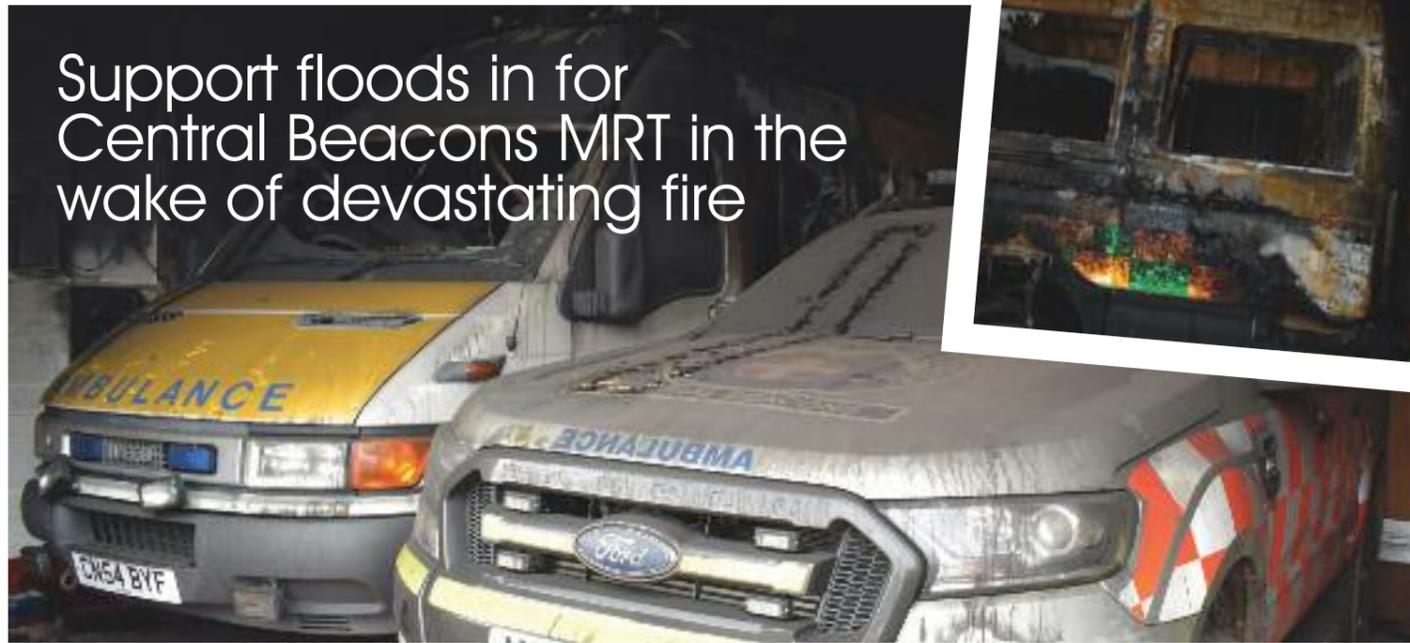
'It was a little exercise scenario with the team tasked to find a rogue Elf who'd stolen Santa's sleigh, complete with all the presents', explains Penny.

'They filmed it the week before and we're hugely grateful for the support. It's been an honour to spread the mountain rescue message, with thoseidents running throughout the year, but we never imagined we'd be on screen, twelve months on, with such a devastating story to tell.'

'The response from the public and across the mountain rescue community has been humbling. We want to say a big thank you to everyone who has shown their support to the team during such a difficult time. We are overwhelmed by the generosity of donations made and the kind offers of help and support.'

'We still have a long task ahead of us but we know we can't do it without the help of our friends and supporters, old and new, so thank you.' 🙌

Support floods in for Central Beacons MRT in the wake of devastating fire



Fire damage to vehicles and base.

AS TOLD TO JUDY WHITESIDE



SEVEN CONTINENTS, SEVEN HUNDRED KILOMETRES, ONE YEAR TO RUN THEM

Starting in January 2018, Adrian Kent will be running around the world for two of the charities closest to his heart: Cancer Research UK and Central Beacons MRT.

Adrian has first-hand experience of both cancer and mountain rescue. In 2003, whilst serving in the British Army in Northern Ireland, he found a lump on his testicle but, after getting an initial verdict he had to wait until he was home to have a biopsy. 'Unfortunately, they didn't catch it in time and it spread to my lungs and stomach,' says Adrian, 'so chemotherapy and surgery were needed before getting myself back on my feet. As for the team, I am currently nearing completion of my training to become an operational team member, so I know how much the team gives to help others.'

'The challenge I have set myself involves travelling 39,000 miles around the globe to each continent and then running for 100 kilometres through the most remote yet beautiful locations on the planet. It will be a self-supported trip, with all proceeds going to the two charities.'

His run will take him through the Great Rift Valley in Kenya, the Cascade Mountains in North America, along the Inca Trail in South America, into Antarctica, Europe, Nepal and the Greater Blue Mountains in Australia. Best of luck Adrian!



Above: Ultra runner extraordinaire © Adrian Kent. Facing page: Images of fire damage to vehicles and base © CBMRT; Dave Cross, Central Beacons deputy team leader, takes delivery of the Rossendale & Pendle vehicle from Andy Bradshaw © RPMRT.



women in mountain rescue

Penny Brockman Central Beacons MRT

Last year, 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.

Women Climb and Emily have kindly allowed us to republish the series here – and what better place to start than in South Wales, where the Central Beacons team boasts no fewer than twelve female members, including their team leader?



As Central Beacons team leader and MREW finance director, Penny Brockman has played a pivotal role in mountain rescue for many years. And, since November 2017, she's had to deal with the tragedy of the fire which damaged or destroyed £500,000 worth of equipment and vehicles (all three now written off), and the team's base, leaving them without a functioning building to operate from.

Emily initially interviewed Penny over the summer, but caught back up with her in December, to find out how the team is coping after the fire and the impact this has had on her as team leader.

How long have you been involved in MR and what made you join?

I joined Central Beacons in July 1986 whilst doing my Duke of Edinburgh award to complete the service section, which requires volunteering. Once I'd completed that, I carried on travelling from Kent to South Wales every fortnight to be part of the team, then moved to the area in 1992 after I'd qualified as a chartered accountant.

What roles have you had?

I've had a variety of roles within the team and region, including incident controller (a role I still hold alongside team leader) and treasurer. I've also been involved with capital fundraising.

There were very few women in the team when I joined. My late husband Peter Howells was team leader for thirteen years before me, and he was always very supportive of women being in mountain rescue. Over the years, the team has become very inclusive with twelve female members, a number in key roles in key areas — training, medical, fundraising, secretarial — all elected to those roles based on capability.

How long have you been leader and how do you find the dynamics of a predominantly male team?

I've been team leader for six years now and I'm passionate about supporting women in mountain rescue. I've often been called a 'lady-

like tom boy', because I have manners but I'm definitely a tom boy! I think it's important for women to not try to be 'one of the men' but be themselves and I've always encouraged a value system that allows women to feel comfortable.

That said, I think it's important to ensure that all team members have the same core values and behaviours. Like all teams, we have a rigorous recruitment process which ensures those core values are maintained.

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

The hours are long!! My team and national duties fit around my work, but it does take a lot of juggling.

The officers have a lot of responsibility for their own decision-making and they then seek approval from the deputies. This has built resilience within our leadership team and made the team leader role more about oversight to ensure team progress, rather than being the sole decision-maker.

I do end up working in the evening for MREW — I can put a film on a few times and find I've still not watched it as I haven't looked up from my laptop!

What's the best thing about being a member of mountain rescue?

Being part of a team! But the team members are the most important thing — if you have the right people,

motivated and trained, ultimately this improves the outcomes for the people we rescue.

With MREW, everyone in the management team has great pride in taking the organisation forward. It takes a team to make this happen.

What has been most difficult?

Keeping the balance in my life is challenging. I feel like I have four boxes — family, work, voluntary and self — and I admit I'm not very good with the 'self' bit. Prioritising things for me often goes on the back burner.

The support of my family and friends has been invaluable, especially since I lost Peter. I'm still close to his daughter Rachel and I travel back to London regularly to spend time with my twin sister and her family. They're very important to me — more important than mountain rescue — and they've kept me going through some tough times!

Making tough decisions is hard, but I try to be fair and consistent, making the right decisions for the right reasons. I use the 'friend rule' — if I can have the difficult conversation with a friend, it's a fair decision. I treat people how I'd want to be treated.

How often does the team get called out and what's a typical call-out?

We had 140 call-outs in 2017 — typically searches in the mountains or rural locations — but we also



provide ambulance assistance to 'known injuries' in isolated areas when we work alongside the helicopters to recover casualties.

How has the team responded to the aftermath of the fire?

We've just got on with things. There's been very little time for self-pity or reflection on the past. It's been more a case of 'it's happened, now we need to resolve this so let's make ourselves even better than we were before'.

Team members have put in hours and hours and hours at meetings and on the phone, talking to each other and responding to offers of help, dealing with the insurance companies and the press, and organising fundraising.

The response from the wider MR community has been amazing and we're very grateful for all the support we've been offered.

How has the fire affected your day to day operations?

It hasn't. Not at all. We've continued responding to call-outs in the usual way — three in the immediate aftermath of the fire. We already had strong support from our neighbouring teams as we operate an area call system in South Wales and we now have a temporary base at the local fire station and a response vehicle, kindly on loan from Rossendale and Pendle MRT in Lancashire.

Has this put extra pressure on the management of the team?

Of course, yes. We're all having to put in extra hours to make things happen, in 'work' time as well as 'spare'. Everyone is pulling together. Our employers and our families have been wonderful. It's shown just how resilient we are and there's a real drive to get things sorted. ☺

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

Facing page, top left: Emily Thompson © Emily Thompson. Bottom left: Penny Brockman. Left: CBMRT taking delivery of their now destroyed new vehicle last year © CBMRT.

TEAMTALK



DECEMBER: BILL AND HIS BILLERETTES DANCE IN SUPPORT OF CAVE RESCUE

After receiving a phone call regarding a small donation and words like 'it's nothing much', Anthony Matthews and Alan Walker, both members of the Derbyshire CRO, set off to the Buxton Pavilion to meet up with Bill and his Billerettes.

There they were each presented with a cheque for £700, a figure that represents nearly 20% of the DCRO's annual running costs. 'People say we are mad for going caving,' says Anthony, 'but on this day, Bill and his Billerettes (a mostly male dance troupe!) performed a 15-minute set in freezing conditions and an approaching snow storm! For that madness we are truly grateful'.

ADVENTURES UNDERGROUND' HELPS SUPPORT CAVE RESCUE

In 1952, writes **John Cordingley**, the caving book 'Underground Adventure', written by two well known Yorkshire Dales cavers, Arthur Gemmell and Jack Myers, captured all the excitement which goes with exploring new cave systems. It quickly became a 'classic' — still is, for many in the caving community. Each chapter described a major underground discovery, which one or both authors had been closely involved with.



Above: Heather Simpson receives a cheque for BCRC from author John Cordingley.

Some time ago Dave Haigh, a fellow northern caver, mentioned he was pondering writing a second edition, to bring the story of each discovery up to date. Having known the late Gemmell and Myers personally, I was very enthusiastic, so much so I found myself agreeing to produce a chapter for inclusion. Then another. Then, somehow, I seem to have drifted into becoming Dave's co-author! Both of us have spent the greater part of our lives as active cavers and between us we had so many tales of cave discoveries to tell.

At the start, we made two decisions. The first was to ask Wild Places Publishing (perhaps best known for producing 'Descent', the cavers' magazine), to take on the project. It proved an excellent choice because the specialist input from Chris Howes and Judith Calford, going far beyond what would normally be expected of a publisher, added incalculable value. We also enjoyed phenomenal support from many of our caving friends, to all of whom we owe a huge debt of gratitude. The result is 'Adventures Underground' published in April 2017. It's been

well received both by cavers and by those outside the caving community who enjoy a good outdoor-themed book. The second decision was that all authors' royalties would be paid directly to our two favourite charities: Macmillan and cave rescue. I served as an officer of the British Cave Rescue Council until recently, so the latter is close to my heart. Six months after publication, the first royalties were received and, in September, we had the great pleasure of handing over a cheque for £675 to BCRC treasurer, Heather Simpson. A second donation of £675 was given to Macmillan separately. There will, of course, be further contributions, to both of our chosen causes, when future royalties are received. A number of those who helped us in writing Adventures Underground are regular readers of Mountain Rescue magazine. I'd like to take this opportunity to thank you all for what has been, in many ways, very much a team effort.

FOR FURTHER INFORMATION, VISIT: WWW.WILDPLACES.CO.UK/BOOKS/630-ADVENTURES-UNDERGROUND.HTML



BBC'S 'ONE SHOW' FILMING HELPS HIGHLIGHT THE DRAMATIC INCREASE IN 'AVOIDABLE' CALL-OUTS IN THE LAKE DISTRICT

Like many of our colleagues across England and Wales, writes **Richard Warren**, the Lake District teams have experienced an extremely busy 2017 with over 600 calls for help coming into Cumbria from both Cumbria Police and the North West Ambulance Service. The Wasdale team received over 140 '999' calls, of which 39 were alerts – an alert being where the team leader accepts the call but does not necessarily put team members on the hill, either gathering information and waiting before doing so or indeed locating the person using local knowledge and/or using SARLOC and then talking them down the mountain.

Wasdale MRT, like many teams, has accident black spots and Piers Gill is no exception. The gully with 60-metre side walls, lurks in the mist to trap the ill prepared and unwary and a recent incident which ended with a tragic fatal outcome spurred the region and the team to take action. A meeting was convened high on the flanks of Scafell Pike with the Lake District National Park, the National Trust and Cumbria Police invited along. The purpose of the meeting was to see what could be done to prevent the many avoidable rescues caused by walkers deviating from the paths in poor weather. Signage has been discussed in the past, along with awareness campaigns and these suggestions were raised again, perhaps more strongly due to the recent fatality in Piers Gill.

The gathering on the mountain was also filmed by ITV which added a strong degree of focus to take action. A number of commitments were made including working more closely together, a major LDNPA safety awareness programme for 2018, a number of path improvements at strategic points plus improved signage at the foot of the mountain. Cumbria Police has made their communications team available for support. A second meeting has now been arranged by the National Trust in early March 2018 to progress the work being undertaken.

The media interest was strong and indeed was followed very quickly by BBC North West

carrying a feature which was then seen by the BBC One Show producers. This culminated in a weekend's filming in late December for a planned showing in early 2018. The theme being the urgent need for walkers to take greater heed of the advice available for hill goers, thereby avoiding those unnecessary and totally avoidable call-outs — 100 out of 600 in the Lakes alone, but even greater numbers elsewhere in the country.

The message taken away by the presenter and film crew was very clear: Be more prepared, check the weather forecast, take

THE MESSAGE WAS VERY CLEAR: BE MORE RESPONSIBLE IN THE KNOWLEDGE THAT ALL MOUNTAIN RESCUERS ARE UNPAID VOLUNTEERS, ON CALL 24/7/365, HAVING FAMILY AND WORK COMMITMENTS AND THAT THE CURRENT RATE OF CALL-OUTS, SOMETIME FOUR AT A TIME FOR A TEAM, IS UNSUSTAINABLE

the right gear (map, compass, torch) and learn how to navigate yourself out of a difficult but not life-threatening situation ie. be more responsible in the knowledge that all mountain rescuers are unpaid volunteers, on call 24/7/365, having family and work commitments and that the current rate of call-outs, sometime four at a time for a team, is unsustainable. 📌

NOVEMBER: BOWLAND TEAM BEQUEATHED £38,000 IN WILL OF WOMAN HELPED DURING WINTER

The bequest goes back to December 2010, when Bowland Pennine team members supported the North West Ambulance Service, using the team's Land Rovers, to reach farms and houses that paramedics were unable to access due to the snowy conditions.

'It was during one of these call-outs that team members attended a house in Walton-le-Dale, Preston,' says team leader Kev Camplin. 'A female aged 86 had taken a fall and needed to get to Preston Royal Hospital as soon as possible.'

'Little did we know then that this event, which was one of many, would be to the benefit of the rescue team years later with a very generous legacy of £38,689.'

'The late Joyce Dewhirst had died at the age of 93 and left generous bequests to several charities. She remembered that the team had taken her to hospital in one of our Land Rover ambulances during the wintry weather some years earlier.'

The lady's friends and executors Mike and Judy Beeston presented a cheque to the team's committee members and chairman Tim Cox thanked them for bringing in the cheque personally and explaining the full story.

'The bequest will have far-reaching and continuing benefits for the community the rescue team covers,' adds Kev. 'The money will go towards our vehicles, medical equipment and team training.'



Images © Chris Cripps/Wasdale MRT



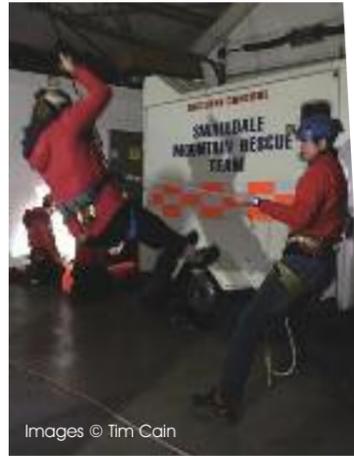
SCOTTISH TRAINING CONFERENCE SUCCESS

Scottish Mountain Rescue (SMR) held its training conference at Glenmore Lodge, in November. Over 80 mountain rescue team members from across Scotland attended and took part in workshops.

The weekend began with a presentation from the Met Office, looking at how they forecast and collect their data, with Saturday and Sunday workshops including Avalanche Management, MR Mountain Skills, Off road driving, Medical, Rigging and Social Media. It was a very positive weekend of learning, looking at new techniques and equipment, bringing together team members from across Scotland to share ideas and knowledge.

SMR offers special thanks to the UK Training Fund, Glenmore Lodge, Keela, Tiso, Mountain Equipment, Blizzard Survival, Bridge Systems, Paramo, Lyon Work & Rescue, The Outdoor Company and everyone who attended for their contributions and for making the weekend a success.

Images © Scottish Mountain Rescue



Images © Tim Cain



CROSSING SHARK-INFESTED CUSTARD

Swaledale team members have their own ways of keeping things fresh and interesting, as **Tim Cain** reports – not least negotiating shark-infested custard in the pursuit of excellence...

As the nights draw in, Wednesday evening training is often indoors at the team's base at Catterick Garrison North Yorkshire. One recent exercise aimed to develop team member ability to deal with complicated and complex problems. The pictures show team members problem-solving to treat and evacuate their casualty over a chasm of shark-infested custard. Due to the impact of El Nino, the exercise would, at times (usually inconvenient times), be plunged into sudden darkness. To make matters worse, when the local katabatic wind blew (simulated by a whistle blast) — which it did regularly and equally inconveniently — team members could only communicate with each other using hand signals.

The aim was to develop the key principles of teamworking: communication, coordination and cooperation — and have a bit of fun. At the same time, Casualty Care candidates for this year's exam were able to get some practical simulated experience of a pneumothorax and a fractured femur. Oh, and the sharks went hungry.



Thirty rescuers and one lifeless dummy ©Buxton MRT

OCTOBER: WORKING TOGETHER

In October, Buxton team welcomed Staffordshire and Cheshire lowland rescue team members to their Dove Holes base for a training session, aimed at developing leadership skills and sharing ideas.

The aims of mountain and lowland rescue are the same, but due to the different terrain, there are some obvious variations in operational techniques. Whilst the mountain rescue teams are kept busy with accidents at known locations, lowland teams are more frequently involved in assisting the police in a missing person search. Each organisation can learn from the other and seek the best practice for its own requirements. Thirty rescuers and one lifeless dummy attended the event, hosted by Buxton deputy leader, Rob Stordy. Following a morning of classroom lectures, the afternoon gave an opportunity to put theory into practice with a number of short exercises around the base.

'It's all about helping people in distress,' says Roger Bennett, Buxton media secretary, 'whether on a Peak District hillside, the Cheshire Plain or the Staffordshire Moorlands'.



NOVEMBER: TRAINING TOGETHER

Over two weekends in autumn, team members from DSRT Ashburton, Tavistock and Plymouth, alongside Exmoor and Cornwall teams, attended a training course funded by the LIBOR fines* which have been made available to Mountain Rescue England and Wales for 'train the trainer' activities.

The Rope Rescue Operator Instructor courses, delivered by Lyon Equipment, focused on being able to execute safe and effective rope rescues on difficult steep ground or cliff faces, then cascade that training to teams.

'Lyon has a long history of involvement with mountain and cave rescue in the UK,' says Bill Batson from Lyon Equipment, 'and we very much enjoyed delivering rope rescue instructor training to the PenMacra teams. We are delighted that the team members attending the course found it both useful and enjoyable.'

*The LIBOR funding came about after several banks and financial institutions were fined for fraudulent rigging of the London Inter-Bank Offered Rate, which was widely used to set other interest rates throughout the world. The Government announced proceeds from the fines in the UK would go to support armed forces and emergency services charities and other related good causes.

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OBITUARY



DICK TOUGH

Former Lomond team member, Dick Tough passed away in September. **Bob Sharp**, his former team leader, looks back over his long involvement and dedication to mountain rescue in Scotland.

Dick joined the team in the late 1970s, at the same time as his Royal Navy colleague Al Reay. Both had high-level positions at the Faslane base (Dick was a Lieutenant Commander and Al a Commander). We were led to believe it was Al who had his finger on the nuclear button, although his kind, affable nature seemed to contradict this enormous responsibility. I don't think there was much truth in this, but it didn't stop team members from holding Al in high regard, and always keeping on his right side. Both Dick and Al brought a new level of authority and discipline to the team.

Almost immediately, Dick and I struck up a good working relationship, especially in regard to the technical side of the team's work. By today's standards we were both 'old school' and great believers in improvisation and simplicity when setting up technical systems for lowering, hoisting, etc. I think it was Dick's naval training that revealed the need for quick decision-making, firmness and simplicity at times of stress. He brought this philosophy to bear within many aspects of the team's work.

We also shared a great enthusiasm for skiing, he with ski-mountaineering and me Nordic skiing. At one time in the early years, he seemed to be engaged in ski courses abroad for weeks at a time, and would often return with a healthy tan and a trim fit figure. He argued that all this ski activity was undertaken in the interest of 'work' but we thought otherwise, and always took the opportunity to rib him on returning from his latest 'holiday'!

During the 1980s, myself and another member reasoned that we should have an official training officer in the team. Prior to this, training was somewhat ad hoc and topics were chosen for practice on the night. Our proposal to the team's committee was met with approval and Dick became the team's first ever holder of this position. I recall he occupied the role for some six years, during which time he transformed the nature of our work giving it a structure we'd not experienced before.

He believed training should be evidence based, mirroring the rescues undertaken, the injuries encountered and the location of incidents and so organised a training schedule based on a summary of our incident statistics.

When I became team leader, he was the number one deputy for fifteen years. We worked together very effectively. Whenever help was wanted, Dick was

always there, reliable and supportive. He had the same kind of mindset when it came to working out how to deal with an incident. It was a great boost to my confidence when making important decisions, knowing a fellow member with such gravitas was on my side. Indeed, I often felt we should be doing each other's job! But I felt that Dick didn't want to be the team leader and was happy to support and advise as deputy. Sometimes, the role of deputy is more important than leader, and that was certainly the case with numerous incidents we led together.

Prior to becoming leader, I had been elected as secretary to the Mountain Rescue Committee of Scotland. Dick had been treasurer for a year (and continued so for ten years) and was therefore in a good position to 'put me right' on various matters. He was a steadfast rock on which I could lean. To have such a reliable, resolute and knowledgeable person by my side inspired confidence. It was a steep

He was also extremely helpful when we travelled to England together to argue a case to be recipients of a very large bequest. He spoke about the finances and I described our rescue work. Our bid was successful and we came away with almost a quarter of a million pounds!

Dick represented Scottish MR on the Terrestrial Commission of the International Commission for Alpine Rescue (IKAR) and served on the organising committee for the UK Mountain Rescue Conference in Scotland in 2000. He was also instrumental in bringing the prestigious IKAR conference to Scotland in 2003.

He had a clear view about right and wrong, always knew what to do in difficult circumstances and never wavered — a master at delegation and highly skilled at persuading others to lift, carry and fetch! But it was a gentle touch that endeared everyone to him.

Dick will be remembered as a professional, disciplined, effective and



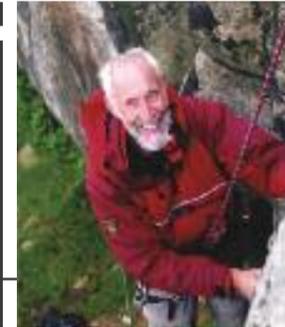
Top: Dick and other team members being briefed prior to an exercise © Ian Dawson. Above: Team members about to start a Tragsitz lower at Aberfoyle quarry. Dick Tough on the back of John Coll with John Shaw arranging the lower © Bob Sharp.

learning curve for me but over the next few years we worked together on many projects. I felt proud that Lomond should have two key officers on the national body.

Dick joined Mick Tighe, the then training officer and vice chair, deliberating which teams should be awarded training grants, a serious role, not without its challenges.

committed team member. And I will never forget the superb mulled wine he made each year at the Christmas fundraising day at the David Marshall Lodge. Wine that was intended for visitors, but most of which was probably consumed by team members! ☺

OBITUARY



PAUL REINSCH

Seventy-five-year-old Upper Wharfedale stalwart Paul Reinsch died in October, peacefully at home. **Peter Huff** looks back over his inspirational, enthusiastic contribution to mountain rescue.

Paul had an outdoor life in his childhood. He lived in Skirethorns, Kilnsey and then Grassington with his mother, Jean and dad, Kurt, travelled the dales and the Lake District in a motorbike and sidecar with Adrian, Loraine and Gregory.

Kurt was a member of the team in the early years and Paul was eager to join. Junior membership then started at fifteen years of age, but he'd already made an impression on the leaders, aged fourteen, when they asked him to go on a call-out to assist CRO in the rescue of a boy who'd fallen 90 feet in Bar Pot. Shortly afterwards, in 1957, Paul joined the team officially.

Schoolboys do get taken out of school for various reasons but this was a rare request for Paul to go to Peak Cavern, Derbyshire with UWFRA to assist other teams to free a caver who had been trapped for over 24 hours. Paul was one of a handful of rescuers who managed to get close to the victim.

In his teens, he acquired a trials bike and it was useful to do some quick checks up lanes and tracks before organising search areas and a comms link when the 'walkie-talkie' wirelesses refused to work!

A keen and confident caver, rock climber and mountaineer, he went on many long rescues — Dowber Ghyll, the Mossdale tragedy, the

search for two potholers in North Wales, the search for a fourteen-year-old boy for three days in winter, to mention a few, with many more incidents. In 1971, two goats were rescued from a ledge on Kilnsey Crag. The first went according to plan, but the second decided to make the jump. Paul made a leap of faith and caught the animal in mid-air!

Annual winter training weekend in the Lake District was always well attended. Paul had that easy manner to give people the confidence needed for snow and ice climbing, new to some members.

Newer members associate Paul with the Outdoor Club. He and Mark Rowley had the vision to provide youngsters with outdoor adventure. Despite the sceptics, it has gone from strength to strength, a legacy that Paul was proud of. No other organisations or any team in mountain rescue in England and Wales have so far provided this facility.

Outside the team, Paul had many other interests, especially sailing. He was also interested in local history, geology, archaeology and Land Rovers and had many big adventures both in this country and abroad.

He was inspirational, enthusiastic instructor and leader with a big smile and relaxed manner.

He cared deeply about the team and will always be remembered. ☺

TEAM TALK



OCTOBER: MACCLESFIELD MAN RAISES £3,000 FOR BUXTON TEAM

Buxton team members welcomed Hassan Pillai to its base to say thank you for raising over £3,000 for team funds.

Team chairman, Richard Doran, presented Hassan with a framed Certificate of Appreciation in recognition of his hard work and determination in completing a 650-mile cycle ride from Mizzen Head, the tip of Southern Ireland, to Malin Head at the top of Northern Ireland. Following the presentation Hassan went on to relate the some of the stories surrounding his trip to team members.

Hassan's interest in the team followed a misadventure on Kinder Scout, one foggy night in March 2014. Since then, he'd wanted to do something to repay them for calling them out. The team said thank you to Hassan on the night but also wants to say a huge 'Thanks' to all those who have supported his efforts.

Above: Hassan Pillai (left) with Richard Doran © Buxton MRT



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Crowden: The probationer's perspective

MATT FIELD KINDER MRT

'Ow do'.
'Good to meet you. Glossop or Buxton?'
'Kinder. Anyone else here?'
'Hiya, yes, good to see you again. I see you joined a different team in the end. How's it going?'
And with a few more introductions, so began the probationer training and consolidation weekend we'd all been looking forward to.

Crowden Weekend, or officially, the



Images supplied by PDMRO

PDMRO Foundation Course, is the culmination of probationer training for many aspirant hill team members in the region. A full training programme of lectures, table top exercises, visiting speakers mixed in with outdoor training including introductions to water rescue, field searches and a 'round robin' series of group tasks followed by the culmination of the weekend's training, a full search and rescue exercise. And yes, quite a bit of socialising too!

This weekend had been hinted at right at

the start of the process I now find myself in. During the initial interview, the word 'Crowden' was mentioned, something to look forward to, 'a chance to meet other team probationers and instructors' and every training session since there it was again — almost a right of passage. Once you'd done Crowden, you'd feel more a part of the team, rather than the person struggling to understand how to join the two halves of a stretcher together.

My particular probationer intake had gone out of step with the norm for the team in as much as the four of us who signed in that Friday night had only joined in the March, just seven months before. The team normally runs recruitment in September, allowing probationers to gain a full years' worth of training and call-out experience prior to the Foundation Course. The fifth member of our team on the course was already a full team member, but was unable to make the 2016 course. So along with not really knowing what to expect, there's also the feeling of being somewhat behind the rest in terms of knowledge gained to date.

This though is where Crowden, the instructors and the rest of the course all pull together. As with life in the team, whilst as a probationer you do question as to whether you are more hindrance than help at times, you are never made to feel that. It was exactly the same here. Split into groups to minimise the chance of working with a fellow teammate, it soon became clear that no one would be left behind. After the introductions to the instructors and the programme, we had the pleasure of listening to the first of the guest speakers, Mike France, MREW chairman, who reinforced that message of support that comes from working together. Suitably inspired, it was on to the main activity of the evening, the table top exercise.

Being one of half a dozen people relatively new to MR, it was interesting to see how the group dynamics developed as the exercise wore on. After the initial brief — a message in from the duty controller that we had the barest of information on a couple of overdue walkers — those half dozen group members all began throwing ideas into the pot as to

what had happened, and what we should do. And here is where some of the more subtle aspects of the weekends training began to take place. After the initial flurry of activity, the lets deploy everyone and send them here there and everywhere, we stepped back. We hadn't much information to go on, we'd no real idea of what route they were on — or even if they were remotely where we thought they could be. What we had was indeed just the bare minimum of facts.

Slowly, as information updates trickled in, the aspects we had picked up from call-outs and the training to date began to make sense. The snippets of training and experience from members of different teams, alongside the ability to analyse the information as it came in, began to form the initial plan: who to deploy, where to deploy, type of searches, who to hold in reserve, the possible physical and emotional health of the missing people. As the exercise wore on, you could see that from the initial chaos of multiple ideas and solutions, this group had begun to work together. Listening to the other groups during the debrief, it was not just us going through that process.

Did we find the lost people? Now that would be telling!

The rest of the training phase of the weekend flowed along very similar lines. We listened to visiting specialists from the Air Ambulance and police, as well as MR instructors. An outdoor session introduced us to the abilities of search dogs and their handlers. More outdoor exercises in the forms of search methods and scenes of crime handling mixed in with a chance to practise basic water rescue techniques and how to search waterways without getting wet.

But all this training needs some down time too. Part of the background to Crowden is to introduce each team's current intake to members of other teams who we are quite likely to meet as part of working within the Kinder area and beyond. And what better way to do so than over a beer or two and a spot of karaoke? Or even better, a few more beers and a karaoke night where the music is supplied by members of the instructor team and one of our very own probationers.

Loud it was, and for some, the singing was even in tune too... Saturday evening, not to wishing to be outdone by the Friday night shenanigans, led us to the local pub, where yet another musical treat awaited in the form of The Bell Stretchers, Kinder MRT's very own rock sensations!

Sunday morning, made all the wiser for knowing when to call time on the partying, we are of up into the quarry site above Crowden. This is where we would be tested. Not against our peers, not against any rigid criteria, just against ourselves. Have we really taken in what we've been taught? Can we really adjust quickly to changing scenarios? Are we going to make a complete hash of our task? Or will the training fall into place?

Round Robin is the order for the morning. First aid, a difficult extraction, the search for a missing child. A team leader for each exercise nominated along with cascade, scribe and runner where appropriate. All went well. Then my turn to lead. Unlucky me, I get the multiple casualty site scenario. Dealing with one casualty can be challenging. Finding first one, then two, then more really does stretch the brain, but it also brings in the training, especially that we are a team. Stop trying to do everything, and let the team do their jobs. Whilst it doesn't lessen the number of inputs, it does allow you the space to think.

And then we're here: The Big One. The culmination exercise. Team leader selected, party leaders assigned, party members given roles, Command and Control established.

Once briefed, we're off. Spread out over a concave hillside, steep ground above, sheep below, we search. The team leader, a hugely likable chap from Derby MRT with a voice that requires no radio to be heard, directs the search, ensuring the party remains safe and the line is held. From my point, high up on the slope, I can see this is almost textbook stuff. Occasionally the line wriggles, which is

then quickly controlled by the team leaders boom, and we're back on track.

Then I spot something under a rock, 50 metres up-slope. Shouting to hold off, I am sent clambering up through the bracken to find two casualties. I've already been tasked as party cascade, so in I go. Fortunately for me (and the casualty!) I now have three other party members with me that know more about casualty care than I do, so with the guidance of one of the instructors we begin to tend to the injury.

Being under the casualty tent, we're not aware of the concurrent activity. By now the entire team has moved up to arrange the evacuation. A long stretcher carry out, initially

up steep ground, then across the usual Peak District bog before a final steep descent. After some discussion on how to get the casualty onto the stretcher, we head off. Employing techniques

many of us have not had the opportunity to practise before, we are moving up that grassy slope, along the top and then the final steep hand to hand lower before making it back for the debrief.

And that was it. Crowden 2017 is over. New skills to hone, more to learn and friendships made that will last a very long time. It was fun, it was hard work at times, and it tested all we had been taught or picked up over the last few months. A very worthy 48 hours indeed.

With thanks to the instructors, the visiting speakers and my fellow PDMRO course members (and a few from further afield).

Postscript: As the exercise was winding down, we were made aware of a potentially serious traffic accident on the trunk road below. One of our fellow probationers, an A&E doctor deployed along with senior team members and were on scene to provide first responder care until the paramedics arrived, demonstrating that you never know when your skills will be required! 🚑

ONCE YOU'VE DONE CROWDEN, YOU FEEL MORE PART OF THE TEAM – RATHER THAN THE PERSON STRUGGLING TO UNDERSTAND HOW TO JOIN THE TWO HALVES OF A STRETCHER TOGETHER

NOVEMBER: PARTY LEADERS COURSE NORTH WALES

After 30 years in mountain rescue, many working out on the fells in small group responses to call-outs and practice situations, I'd been tempted by the Party Leaders Course a number of times over the years, writes John Barstow. Other commitments usually won the argument but, this year, I thought it was time to give it a go – before advancing years beat me to it!

So off I set to North Wales with my colleague Will, both of us with Duddon & Furness MRT, on a foul wet Friday evening, filled with a certain amount of trepidation. Would this be a challenge too far? Was I up to it – on grounds of capability, age, fitness or any one of a number of factors?

We arrived just in time for a sandwich and were launched into the first lecture with the sweetener of a free pair of gloves. It was chilly in the lecture room and perhaps this was an example of the instructors looking after our welfare rather than an example of flagrant commercialism to some out-there mountaineers. Either way: nice gloves!

Our first task was to consider what we felt the ten main qualities of a good leader. Split into our working groups (seven groups of five), we came up with some good ideas and interestingly there was a lot of commonality between the groups. Typical answers included 'confidence', 'resilience', 'knowledge', 'good communication' and 'organisational skills'.

Working with our groups, we were supported by a mentor who was an experienced leader and previous attendee on the course. The mentor stayed with us for the weekend and was able to share some learning, and a deal of good humour. A lecture on the police expectation of mountain rescue followed and, given a number of police officers amongst the instructors, the debates and insights continued throughout the weekend.

After this, a foray was made to the local hostelry, the Colomendy Arms. Next off, on the Saturday, was a series of



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TEAMTALK



NOVEMBER: NEW OFF ROAD CAPABILITY FOR HEBRIDES SAR

Hebrides SAR took delivery of two chunky new vehicles in November thanks to MacGregor ATV in Inverness. They might be slightly more compact than the norm, but they're still 'a pair of beasts' and perfect for the Highland terrain.

The team had been considering purchasing an ATV for a while. 'We shopped around for the best deal,' says the team's Robert Sinclair. 'MacGregors are based in the Highlands. They came back with the best deal and delivered them to us for free, which was a bonus. They're covered by Honda's two-year warranty and MacGregors are based about 200 metres from our base, so we're happy with that.'

A spokesman for MacGregor ATV said they were happy to supply the team with two new Honda TRX500FM6 quads, to 'enable them to keep providing their high quality service'.

Above: Team members with their new ATVs © HEB SAR.



five short sharp talks with a 5-minute break to move onto the next. Although I'm not good at sitting on plastic chairs too long these talks gave the context for the afternoon practical sessions that followed.

I'm sure we all felt the rush for the afternoon session, putting the morning into practice. First off was the allocation of tasks into the five-person groups – leader, cas carer, navigator, radio operator and second in command. We were able to rotate and practise all the roles – not that new to us but better defined than we'd been used to. First session for my group was an attempted suicide, following the trail of debris (simulated vomit!) through the woods. We were able to work as a team, find, assess and treat the casualty and then work out an evacuation plan.

Feedback followed and the first lesson was the ability to stand back as the leader, evaluate what's going on, communicate with the team and others involved and allocate the resources effectively.

A series of incidents continued through the afternoon and into the early evening. Communication skills, delegation, the ability to give a comprehensive briefing were all illustrated. We were encouraged to view the sites as incidents with the possibility of a crime, which demanded a different set of skills from pure life-saving to an emphasis on preserving the site for evidence purposes. We considered a suicide site and a more chilling one which was a potential murder scene.

Perhaps the most challenging scenario was the triage session. This puts pressure on the leader and the cas carer who have to continually assess and reassess priorities. Also in the incident was a distressed but unharmed individual who needed to be removed forcibly from the scene in order to prevent disruption to the care of the more needy.

The final two sessions were in the dark, adding a new dimension with one, the search for a missing child, made somewhat distressing by the plaintive cries from the mother.

After dinner, a final lecture dealt with fatalities and the forensics of the scene before a further adjournment to the cosy Colomendy Arms, a short walk away. This gave an opportunity to review the day's learning, reflect on personal performance and investigate some fine ales and, in my case, the entire row of malt whiskies on the top shelf. Aply assisted by Barry from Avon and Somerset and Mark from CRO, we were able to do justice to the challenge, and still remain upright.

Morning dawned rather more slowly but, after a hearty breakfast, we had a lively insight by Sally Seed into social media and dealing with the press, followed by a further seven practical exercises outdoors – a shade more pressurised than the previous day with some testing scenarios, made all the more difficult by distressed or extremely aggressive bystanders.

One prominent learning point was safety – first of self, second of your team and finally of the casualty.

A more challenging triage exercise followed with significant need to evaluate and re-evaluate as the condition of the casualties changed. We also carried out two searches, one for a live casualty and the other a search at a micro level looking for items and clues.

At the final wash-up we re-examined our initial look at the leadership qualities we'd identified on the Friday evening. Some of the order changed and a couple of new ones came in. Perhaps the best comment came from one group who believed that what was most important was to have all the skills in the repertoire and apply the appropriate skill at the appropriate time.

All of the practical exercises were challenging but, given the opportunity to practise the skills and pick up on the learning points, I certainly felt much more confident of handling both the unexpected and the mundane in future. The opportunity to meet MR colleagues doing the same stuff as you in different areas of the country is also invaluable. All in all a great weekend and well worth doing if you get the chance. ☺



OCTOBER: VEHICLE UPGRADES FOR AVON AND SOMERSET

The Avon and Somerset team has upgraded two of their rescue vehicles with the £8,547.50 raised by local law firm TLT.

A series of fundraising events included the Welsh Three Peaks challenge which a team from TLT and ASSAR took on together. 'The team is very grateful for the efforts of TLT and to team members who helped them complete the Welsh Three Peaks,' says Chris Thring, team chairman. 'We were very impressed at their determination on a difficult challenge.'

'It's fantastic to see what our fundraising efforts have helped deliver,' says TLT's Andrew Glynn. 'We're proud to help keep the team on the road.'

Left to right: Jim Hardcastle (ASSAR); Tanya Williams, Amy Barker and Andrew Glynn (TLT); Hugh Price (ASSAR); Anna Zhivova-Zaksheska and Samantha Hacker (TLT) © ASSAR.



NOVEMBER: EIGHT YEARS ON, NORTH DARTMOOR TEAM MEMBERS OPEN THEIR NEW RESCUE CENTRE



Photos © North Dartmoor MRT

Team members and invited guests celebrated the official opening of the tailor-made centre in Okehampton in November, with long-serving team member Les Agar cutting the ribbon. A keen fundraiser, Les had raised over £6,000 in the last year alone.

'It was a fantastic day,' said team leader David Stoneman. 'Over a hundred people visited the new centre, including invited sponsors and donors, past members, families, friends and members from other search and rescue teams. It was a really good atmosphere, children particularly enjoyed our rescue boat, young and old tried their skills at resuscitation and there was real intrigue and interest in the technology we use to manage searches.'

'It's been a long journey. We started talking about finding new premises in 2009 and, after a lengthy search and some hard

fundraising, managed to buy the building in 2013 for £100,000. With a further four years of fundraising, project planning and construction, we created this tailor-made rescue centre. We've built washing, drying and storage rooms, installed a mezzanine floor and created a training room with kitchen facilities.

'It's already making a real difference to our operation. Our response times to call-outs are much faster because the vehicles are already loaded, ready to go, and we can also access the main roads much faster. We're better able to clean and dry

equipment and have it packed up ready for the next emergency and the spacious and bright training room is a great asset. We train every week and, whilst we are often on the moors, we do need indoor facilities for more traditional teaching sessions and some of the casualty care exams.

'It's been a huge project, a bit daunting at times, and it's only been possible because of the time and efforts of many volunteers, both team members and others, and the support and generosity of our donors and sponsors, to whom I'd like to say a big thank you from all the team.'

Glossop team members strayed into Soapland on Christmas Day as Peter Barlow played out his mad, misguided revenge plot against Billy Mayhew, for the death of twin sister, Susan in 2001. (Do keep up...). Filming took place at Eldon Hill quarry near Sparrowpit.

Photo © Glossop MRT



ITV Coronation Street Christmas Day Special

SEPTEMBER: LAKES DOG HANDLERS SAY THANK YOU AS FOLK FESTIVAL ENDS

Since 1990, this popular folk festival has attracted musicians from all over the UK, Ireland and even Norway and raised over £55k for its chosen charities: Lake District Mountain Rescue Search Dogs, the Great North Air Ambulance and Fix the Fells. Sadly for fans, last year the festival came to an end. Lakes handlers Chris Francis and Andy Peacock went along to say thank you.

Retiring organisers Dave and Maureen Reid paid tribute to Mick Mead, who set up the first event, and to Neil and Jane Walmsley, landlord and lady of the Old Dungeon Ghyll, the festival venue since 2007. 'Over the years, Neil and Jane and their staff have worked so hard for us. They and the musicians, soundmen and festival crew who came at their own expense have given their time and talents so generously, but we should also thank the breweries and all those who supported our raffles and auctions.'

Dave and Maureen Reid with Andy Peacock (centre left) Chris Francis (centre right) with search dogs Beck and Corrie.



OCTOBER: NEW RESPONSE VEHICLE IN THE HOLME VALLEY

The new £58,000 response vehicle is now in the hands of the Holme Valley team, following a six-week conversion programme carried out by Burnley-based Pickup Systems. The new vehicle joins the team's Land Rover Defender 110 and the Movano van, used to control incidents.

Originally purchased for £30,000 from R N Golden Ltd, the Isuzu D-Max Yukon 2.5 underwent an extensive fit-out to make it suitable for the mountain rescue environment. Improvements included fitting emergency warning sirens, lights and equipment and a 2.5t winch, upgrading to 3.5t payload with an adjustable air suspension system, installing digital radios and 4G Internet access and wifi, and adding a compartmentalised custom-designed rear payload to carry equipment and a stretcher.

The conversion programme cost a total of £28,000. Full under-chassis protection work was provided by R N Golden, prior to the vehicle being sent to Pickup Systems. Funding was totally from donations, for which the team is extremely grateful. The largest donor was R N Golden, with £10,000 donated towards the initial purchase. The Isuzu and Hyundai dealer is situated in Lepton, Huddersfield.

Stats: Number of teams who have conducted their own review:

Eleven (Bowland Pennine, Wasdale, Kendal, Dartmoor Plymouth, Woodhead, Rossendale and Pendle, North East Wales, Northumberland National Park, Bolton, Scarborough, Cleveland).

Number of teams who have dates to conduct a review in 2018:

Five (Brecon, Central Beacons, Calder Valley, Holme Valley, Ogwen). Note: *Since the terrible events of November, the Central Beacons review is on hold.*

Opportunities in 2018:

Three possibly four. Contact me if you're thinking about getting involved. Also, are you interested in being a reviewer? If so get in touch.

Peer review

TIM CAIN



Peer Review continues to develop, providing a vehicle for teams to gain greater self-awareness and identify and share good practice. Feedback from the teams that have conducted reviews has been overwhelmingly positive. Mountain Rescue Ireland has been watching our development and hoping to incorporate many of our ideas when they review their own system in early 2018. I will be briefing at their AGM in February.

Since the process started in 2015, a key observation made by teams is the difficulty in effectively recording individual training, ie. who has done what in terms of individual skills. Teams have commented that they would find this information useful, in order that the team leadership has greater awareness of levels of currency and competency across the wide range of skills required in the contemporary mountain rescue setting.

Many teams are already buying in the management information system D4H to very good effect, particularly in the management of equipment and in recording how much training is being achieved. Several reviews have demonstrated the utility of the D4H system — worth a look. However, a team's ability to capture exactly what an individual has done during a training event remains a challenge.

During the Cleveland peer review, a bespoke training management system was demonstrated and appeared to represent an opportunity to capture individual training currency and competency. One of the reviewers at that review, John Bamforth from Wasdale MRT, has suggested that a working group be set up to examine the potential for wider use of the Cleveland system. John is taking this forward and looking for people to get involved. (See right for update from John).

Going forward: Peer review in its current form is funded up to the end of 2018. Where do we want the process to go beyond 2018? Mike Margeson is looking for team views and opinions. The question set has proved to be an effective tool and there is no reason why regions and teams cannot use it to set up organic reviews. Remember, there are still opportunities to run your own review in 2018 utilising the current system. Again, give me a call if you are thinking about it. ☺

Update on MR Project Proposal **John Bamforth**

During the peer reviews I've been involved with, it's become more evident (to me anyway) that the vast majority of what we do in each team review is the same. How we do it is another matter and one of the benefits of peer review is to look critically at how we do it and ultimately shine the light on and share best practice, something I know Tim is really keen on.

In July, during the peer review of Cleveland MRT, we saw such an example of best practice in the software system used to capture and monitor their training. In particular, members could interact easily by mobile device or PC to record their individual training at more detailed levels. The software also held all of the levels of the competences of the team and when they were about to expire, and was secured on the Microsoft 365 platform.

Our proposal is that we support the development of a software management tool to manage training, competences, vehicles and equipment on an in-house basis, so it is available for all teams to use free of charge in the same manner as SARCALL and the Moodle VLE.

In November, I put this forward to Tim, Mark Lewis (MREW ICT officer), Mike Margeson (MREW vice chairman), Al Read (MREW training officer) and Richard Warren (LDSAMRA chairman). The plan now is that Rob's application will be placed on one of the MREW servers for teams to review and feed back.

I am happy to act as postbox and forward any interested parties on to Mark Lewis so, if your team would like to be part of the process, please email me via chairman@wmrt.org.uk.

TEAMTALK



150 YEARS OF LONG SERVICE

Five Buxton team stalwarts received their Long Service Awards in October, presented by Mike France, MREW chairman and David Coleman, PDMRO president, at the team's Dove Holes base.

First up was Andy Ashton (22 years, retired), followed by Mark Williams and Adrian Walker (25 years) and, finally, Dave Hannan and Roger Bennett — still responding to call-outs after 40 years.

Roger Bennett said, 'The team has a high turnover of new members in the first year or two as people realise just what a commitment joining a team really is. However, if you are in it for ten years then you are probably in for life. Being a team member is not just like joining a club or group with regular meeting times. Call-outs can come at any time day or night and that state of anticipation and always being prepared gets into the blood like a drug. Most of us probably need therapy!'

'The team also expresses its sincere thanks for the countless hours of support given by our family and friends. It takes a special spouse or partner to put up with regularly and suddenly being left alone every time the call-out system is activated.'

Left to right: Mike France, Mark Williams, Dave Hannan, David Coleman, Adrian Walker, Roger Bennett and Andy Ashton © Buxton MRT.



Air and ground assets worked together to find randomly distributed targets over a two kilometre search area. In the air were fixed and rotary wing aircrafts and the unmanned aerial vehicles (drones). On the ground were NNPMRT team members with their air scenting dogs, searching on foot.

Dave Perkins and Pete Roberts, team members since the early 1970s, founded the Centre for Search Research as a charity to develop and teach incident management and search field skills. Their data analysis for the UK missing persons behaviour study has significantly contributed to the development of search management. This study into the feasibility of drones in the search process seems a natural extension to their work.

'Advances in technology mean that unmanned aerial vehicles are readily available,' says Pete, 'but very little research exists on their effectiveness in multi-asset search situations.'

'A research-led understanding



of the capabilities and performance of search assets is fundamental to the use and development of search theory in managing searches, especially in areas where changing terrain and weather conditions present their own unique challenges.

'When someone goes missing, the likelihood of finding them is determined by where and how people search. This research is looking at the effectiveness of a variety of search assets, on the ground and in the air.'

'We're looking at new technologies and how, through

a better understanding of their operational application, they can be used to help in the search for a missing person.

'The research is groundbreaking in terms of its scope and originality and the collaboration of the various agencies is unique. We are indebted to the team and the Newcastle University Business School for their support.'

Steven Hughes is a professor of international organisations at the university. 'Drones are attracting a lot of interest. Significant investment is going into their development yet is surprising how little we know

about their use in complex search situations.

'This research will provide the start of what we hope will be a thorough evaluation of drone capabilities and performance in multi-agency situations. It will also establish closer links between the university and a voluntary sector of growing importance to search and rescue responses.'

Tony Gates, chief executive at Northumberland National Park Authority, said 'We are pleased to have been involved with this very important project which will ultimately help keep people safe in the national park. We hope the results will help in all search and rescue operations nationally and internationally.'

In December, an international workshop took place, organised in conjunction with Newcastle University Business School. The hope is that an international working group will be formed to pioneer and coordinate research into the use of emerging technology to help in the search for missing persons. ☺



Facing page: Map shows the RV12 tracks.

Above: The drone was being operated from inside the vehicle with someone viewing the images – driver; drone pilot and observer – and a search group of three © Centre for Search Research.

A COPY OF THE REPORT 'EXERCISE NORTHUMBERLAND' IS AVAILABLE AT SEARCHRESEARCH.ORG.UK

SELF CATERING HOLIDAY ACCOMMODATION IN THE LAKE DISTRICT



Bush Green is owned by Coniston MRT member Dick Palmer and consists of three double bedrooms, shower room and downstairs bathroom, living room, dining room, large driveway and double garage.

Located in Broughton-in-Furness on the edge of the Duddon Estuary, the Lake-District playground and Coniston fells are just 15 minutes away, Wasdale is 40 minutes and the northern Lakes one hour. Walking, mountain biking from the doorstep. Route assistance available. All amenities are close to hand in Broughton, 1/2 mile away.

Bush Green is fully equipped with gas central heating, woodburner in the living room, wi-fi, and has lockable bike/vehicle storage.

- Weekends available.
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Avalanche avoidance



Below are two case studies based on real avalanche experiences. Read each case study and see if you can spot examples where a human factor (heuristic) trap may have had an influence on decision making? If so, which human factor is at work? Do you think anything could have been done to avoid the traps? Can you think of examples in everyday life where your conscious behaviour has been affected by human factors?

BY DAVE HOLLINGER GLENMORE LODGE SENIOR INSTRUCTOR

CASE STUDY 1:

Finally, the big snows have arrived. After a lean start to the season two days of constant snowfall have produced over half a metre of fresh snow. Keen to take advantage of a shared day off, three friends (all off-piste instructors or guides) decide to go on a short day tour to get away from the ski resort and into the backcountry. The route plan takes them steeply through some wooded hillside before reaching an open valley at the top of which a final steeper climb (30 degrees max) leads to the top of a nearby peak — about four hours of effort. It's slow going with the fresh snow and already one of the party is having second thoughts about the avalanche hazard — they've never been in this area before, it feels remote and they think they've heard a tell-tale 'whummp' sound (a clear sign of snowpack instability although the tightly packed trees do not cause them to be particularly alarmed).

In any case, the group is spreading out so there is no-one to share their thoughts with at that point. One of the fitter, more experienced members of the team is ahead, breaking trail. They are enjoying a bit of a work-out. By the time the group gather together for a short snack/drink above the treeline in a low angle, picturesque valley everyone is relaxed again. They discuss being glad to be on easier terrain and looking forward to the next

straightforward section and set off again. Some members of the group begin to assume that their ascent will now end below the final climb as conditions are uncertain and time is already marching on.

Below the final climb they stop for another break and, while each person in the group has thought about turning around at this point, they want to wait to see what the others think. The more experienced group member asks what the thoughts of the others are in terms of taking a safe line of ascent up the final slope. It turns out they all agree on a very similar line so, with just enough time to complete the ascent, they continue.

Half way up the slope and close to a previously identified 'island of safety' there is a loud bang and the traversing skinning track forms a crown wall. A shallow but large area of snow starts to accelerate downhill taking two of the group members with it. One of the avalanched pair manages to roll beneath a boulder and out of the flow but the other continues over a convexity and disappears from view. They are not buried but are carried almost half a kilometre back to the valley floor.

CASE STUDY 2:

A group of friends decide to return to a favourite area for an annual winter get-together. Near the time, a magazine article fuels their enthusiasm for a particular

'Classic' route, described as 'one of the best routes' in the area. For this group it is an ambitious objective so they plan a simple walk nearby on the first day to familiarise themselves with the conditions and hopefully get a good view of the route.

Day 1, although quite windy, indicates that the conditions are generally good with firm snow underfoot and the group enjoy good views of the planned objective for the next day. A forecasted cold front has not arrived by the time the team return off the hill.

Day 2 gets the team off to a slow start. They are surprised to find that overnight there has been snow in the valley and their

car needs clearing. By the time they arrive at the large car park, it is almost full. Their planned route follows a summer path into a large valley before branching off steeply towards a col. There, a simple but exposed ridge leads in a spectacular position to easier terrain and a simple descent back to the car park. The team follow a good path (firm from the passage of many boots through ankle-deep fresh snow). Winds are moderate but visibility is generally good. It is obvious many people have headed into the mountains in the same initial direction so the group are encouraged it is a good day to be out. At a key point they make a decision about their intended



Main image: Back country skiing. Source: Pixabay. Inset: right: Winter climbing © Nadir Khan





route. Other walkers can be seen heading most likely to the same ridge but via a longer route over another small peak. Since they are later than expected, the group decide to continue with the lower approach and one of them states their view that the steep approach to the col will be more sheltered from the wind anyway.

As they approach the steeper climb to the col, they stop to put crampons on and notice another team already close to the base of a long, straightforward snow slope leading to the col. They continue to follow the now small path (made, they assume, by the team in front) climbing more steeply towards the col. The ascent spreads the group out into smaller groups.

Two of the group, a few minutes in front, pass the other team spotted earlier (who are actually starting a technical climb that leads through steep rocks on the right) and continue breaking trail themselves directly towards the col. About 30 metres below the col the slope fractures immediately above the group. Both members are swept into rocks about 100 metres below, on lower-angled terrain. One group member is unharmed but the other is seriously injured and a rescue takes place.

AVALANCHE AVOIDANCE

'Prevention is better than cure'. Heard that before? 'Yeah, yeah,' I hear you say but if ever a cliché applied to decision-making in the mountains it would be with regard to avalanche avoidance.

You'd be forgiven for thinking otherwise. We now have easy, immediate access to a media culture of extreme sports littered with spectacular survivals and folk who've 'got away with it'. You'd almost be excused for thinking it had all been carefully planned and all coming at the expense of numerous other (many untold) examples where, in an instant, lives are changed forever: far from glamorous, far from any 'high-5's' and far from ideal.

With the consequences so uncertain, only the reckless, naive or insane would choose to take their chances. Even armed with the full plethora of modern technology, a better outcome cannot be guaranteed. For that reason it's worth reminding

ourselves of the difference between 'technology' which should prevent us getting caught in an avalanche in the first place (eg. access to reliable weather forecasts, avalanche forecasts, good mapping, information sharing resources, basic avalanche knowledge) versus that which might mitigate against uncertain consequences (airbag rucksacks, transceiver/shovel/probe, avalung, Recco; avalanche ribbons etc). Unsurprisingly, the queue for those who've survived one avalanche incident but are happy to experience a second is tellingly short!

The very simple and successful 'Be Avalanche Aware' (BAA) resource developed by the Snow and Avalanche Foundation of Scotland (SAFOS) is now, for most winter hill users (recreational and professional alike), the go-to framework to help make sound and informed decisions when embarking on winter adventures in potentially avalanche-prone terrain. The model works equally well in both UK and alpine terrain/snowpacks.

Here we remind ourselves of the basic BAA concept and how it applies to avalanche avoidance as well as a more detailed look at some human factors, or heuristics, which have been shown to play a significant role in associated decision-making.

One thing that can often be off-putting for those new to the winter environment is a concern that lack of knowledge prevents good decision-making. One of the strengths of the BAA model is that it guides users through a series of relatively simple questions that require fundamental but basic levels of skill and should be achievable for anyone with basic hill and mountain skills.

The UK mountains tend to offer such a wide variety of options in terms of routes and journeys that a relatively safe option can usually be found even on days with higher levels of avalanche risk in certain places. This luxury is not always available to those following itineraries in alpine terrain where often the path of least resistance has already been identified and short sections of critical terrain cannot be easily avoided. For this reason, 'commitment heuristics' can play a much greater role in decision-

making (more of which later).

Almost all avalanche avoidance begins with thorough planning and preparation and the BAA model directs us to three simple components: Weather and Conditions; You and Your Party; the Mountain Landscape.

Planning might begin several days before a trip when you begin to study the relevant forecasts (both weather and avalanche) as well as gathering information about the intended area you wish to visit via maps, guidebooks, articles or online resources and consider the skills and experience of you and any group you may be part of. Two or three days beforehand, you hopefully have a general idea of what current conditions are like, how they relate to you and/or your group as well as any anticipated changes going into your own trip.

With a general overview of conditions, weather and aspirations it's time to look in more detail at formulating a Plan A (and B?). Maps can be studied in more detail and additional general observations should be made once you have arrived in the chosen area — it's very useful to be able to form a picture of your intended environment.

The detail of the plan should now include identification of any key places or times during the day. Easily remembered as '3 A's' (Angle, Aspect, Altitude), this includes any particularly steep areas of ground (avalanches release most commonly in zones between 30-45 degrees) along with aspects (relating to prevailing wind or sun) or altitudes that may have been identified as presenting heightened avalanche risk. Other key points can be times of day when significant weather events begin to change conditions or, particularly in alpine climates, when temperatures may start to play a critical part in snow stability.

At the planning stage, you will have a better chance to consider reasonable alternatives or plans of action and thus create reminders for use on the route itself. There would be an assumption here that the planning team will have the skills to interpret maps and guidebooks successfully so don't ignore the importance of basic mountain skills that underpin the



The snowpack in the UK often differs markedly from that in alpine regions and therefore the scale and type of avalanches that commonly occur can be different. At the planning stage it can be useful to consider the type of avalanche hazard that is presented. Many forecasts will use recognisable terms and phrases such as slab, loose snow, propagation over larger areas, terrain traps, remote triggers. You should understand what these terms mean and try to picture the shape and scale of possible avalanche activity.

entire process. A final point worth noting is that it can be useful to rate any plan in terms of its sureness. Some plans will, by their nature, have a large degree of tolerance in terms of being executed without hiccup and can therefore cope with larger variations should expectations not be met. Other plans may be more ambitious, so will need earlier intervention should conditions change.

So the big day arrives and the planning can start to be applied! In an ideal world everything (from the mood of the party to the conditions that are encountered) will more or less be as anticipated — that's the first good sign. Simple observations: 'It's not as windy as expected'; 'It feels warm'; 'There's a lot of fresh snow blowing around'; 'There's not much snow on that side'; 'It's really busy', should all be noted.

Try to consider what, if any, effect this may have on your plans (particularly with respect to the key places already identified). Uncertainty can always lead to a feeling of anxiousness and, for those with less confidence, this early point in the day can seem a bit daunting but have some faith in the planning that has been done before. Don't confuse being open-minded with being uncertain (or vice versa)! Having said that, some days present clues from an early stage that all is not as the weather/avalanche forecasts have predicted and plans, especially the ambitious ones, may need to be tweaked from the outset.



Skating fresh tracks. Source: Glenmore Lodge

So, usually with a few tweaks here and there, the journey goes as expected — well done! Again, having done a thorough planning exercise there should be plenty of observations to cross-reference as a check — with the BAA model again prompting you along the right lines: Weather and Conditions; You and Your Party; Mountain Landscape.

Make sure you make these observations and share them throughout the group. Is everyone picking up on the same things? If out on your own, try talking to yourself. It's much harder to ignore or fail to pick up on your thoughts if they are verbalised either internally or out loud and this can help avoid some human-factor (heuristic) influences.

Key points that have been identified at the planning stage then become the focus of further decision-making and review. For example, the early onset of bad weather (eg. wind; snowfall; rising temps) identified in the planning phase may not be an immediate issue but, in only a short time, conditions can change markedly.

Conversely, a time-critical plan dependant on negotiating certain slopes before the sun arrives, can suddenly become more relaxed when a cloudier than expected day might delay the onset of warming. Key points also give an opportunity to reflect on the possible impact of human (heuristic) factors.

As you approach key points during the day, it's worth being

proactive in trying to anticipate what you will find. Are snow quantities as expected, is it likely to be windier, less windy, in the shade or the sun. The onset of darkness might be the key point. Are you a confident navigator? Have you got time to reach the summit and return before navigation becomes more challenging? Can you cope in white-out conditions?

HUMAN FACTORS

Alongside a decision-making framework such as BAA, it is well known that even high levels of avalanche education/awareness can be overruled or ignored by simple primal human tendencies. These human factors (or heuristics) can significantly influence the decision-making process and are very hard to mitigate against as many feature a subconscious component that can be hard to spot let alone quantify. An awareness of how they can impact our decisions offers some protection particularly if we force ourselves to reflect during our later planning stages or at any key points phase during the journey.

SOME OF THE MAIN HUMAN FACTORS (HEURISTICS) CAN BE SUMMARISED AS FOLLOWS — EACH WITH EXAMPLES OF HOW THEY MIGHT PRESENT THEMSELVES AS CONSCIOUS THOUGHTS OR WORDS:

COMMITMENT:
'We're so nearly there... if we can just...'
'If we turn around now it'll be disappointing for everyone not just me...'
'So far so good, well done us!'

Ironically, a thorough planning phase will already stack a certain amount of commitment to undertaking a particular journey. This could be both the time, energy and effort of planning as well as the physical execution. Nobody likes to call into question their own judgement — especially when so well thought out(?) instead preferring to believe that a behaviour is correct because decisions that brought you to that point prove it. As a journey continues the commitment heuristic is therefore enhanced. A key defence against this trap are the key points identified earlier in the BAA process. Each key point should trigger a comprehensive and open-minded re-evaluation of the plan including conscious or deliberate consideration of how much has been invested in the trip thus far and whether that is likely to have an effect on the desire to continue. It should also be an honest reflection on how much of the decision making has gone to plan and how much has been in reaction to unexpected events.

SCARCITY:
'Half-term will be my only chance to go winter walking this season.'
'I want some fresh tracks today.'
'It'll be safer to get to the route first'...

Unlike our planning phase which sets out to channel our options towards good or preferred outcomes (or to identify specific areas on the mountain to avoid), the scarcity heuristic could be described as behaviour arrived at due to the imposition of barriers or restrictions to our enjoyment. Our decision-making becomes skewed to the extent we overvalue our motivations or even actively rebel against what we know to be sound decisions.

FAMILIARITY:
'I've never seen an avalanche there.'
'That run has been great all week.'
'(location) is a good choice in bad conditions.'

Repetition of the same or similar decisions at the same or similar venues often puts us at risk of shortcutting the decision-making process (and potentially missing critical bits of unique information). Ironically, this may be a greater factor for those most regularly making avalanche avoidance decisions. We should try and ensure that our decisions come from the full evaluation of each set of circumstances — even though this can at times seem a bit tedious. Again, the use of key points can offer pre-determined opportunities to re-look at the environment and group from a fresher perspective.

SOCIAL PROOF:
'No-one else seems uncertain so it's probably just me.'
'Other folk have the same idea so it can't be bad?'
'I'm not going to be the one who says I'm nervous.'

Sometimes it can be advantageous to refer (defer?) to the actions of others in an effort to arrive at a sound decision but always ask yourself what may be influencing their decisions. It always tends to feel better when other people have chosen a similar option but it can be very hard to determine whether actively conforming or deliberately avoiding an existing behaviour has advantages or not. Even within a group, some members can be swayed by complicated dynamics within the group and create a skewed consensus. The subtle difference between peer encouragement and peer pressure would be one example of this. ☺



An angel on the slopes

I still get quite a lot of different items of kit sent to me by manufacturers, probably a legacy from when I was the equipment officer in my MRT, having written a book about navigation and because of the small specialist outdoors business I run with Scottish Mountain Rescue responder, Scott Amos.

Aptly timed for the beginning of winter, a small electronic tool for avalanche prediction arrived and, in keeping with our philosophy of 'Test for real and never recommend anything you don't use on the hill yourself', I put the item into my freezer, alongside my greenhouse's max/min thermometer and promptly forgot about them both for two weeks: a product of age! The reason I placed it in there is that both battery life and output progressively decline with falling temperatures.

The last Arctic winter we had in Scotland was five years ago, in 2013, when mild air which usually approaches us from across the Atlantic, was instead pushed aside by the exceptionally cold winds — normally confined to swirling around the North Pole — split up in January and created much colder seasonal conditions for the months to come. It was in that year that a party of six climbers were avalanched, four losing their lives and one being seriously injured, in the Church Door Buttress on Bidean Nam Bian, in Glencoe.

Yet, only three years before, when weather conditions were much milder, two climbers had died in February 2010 when they were swept away by an avalanche in Glencoe and this is

because most winters in Scotland are subject to the vagaries of the famous 'British Weather', and thereby the rest of Britain.

We are a relatively small island, at most 271 miles from the far western coastline of Wales, directly east to Ipswich, and in Scotland the maximum is 100 miles less from Applecross to Buchan Ness, so weather systems from the Western Atlantic expanse to the North Pole can sweep quickly across our island, creating ideal conditions for avalanches. In the same day, we have all experienced all four seasons, anything from rapid rises in daily temperatures followed by long periods of cold temperatures

There, I realised that the science of avalanche is ever expanding and that for most mountaineers, myself included, the subject is just too big to completely understand.

This is why I rely on the absolutely brilliant service provided by the Scottish Avalanche Information Service (SAIS) and the tireless work by people like Mark Diggins, their senior forecaster, who ventures out daily, and in all weathers, to measure the snow stability and snow accumulation, and to make an assessment of the current avalanche hazard.

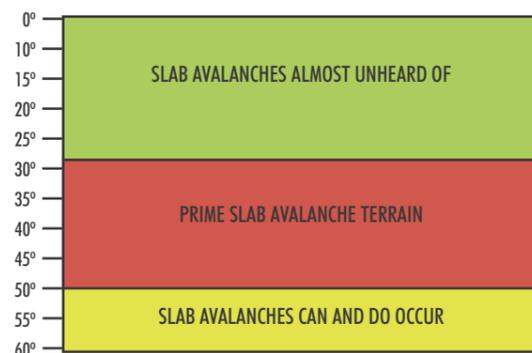
I can't praise this organisation enough for their outstanding contribution to mountain safety. It

1. Avalanche Hazard, weather and mountain conditions available at www.sais.gov.uk
2. My party's personal skills and, of course, my own
3. The terrain we intend to visit.

Lastly, as a matter of routine in winter, I always now carry the 'Holy Trinity': my transceiver (with fresh batteries), my snow shovel and my search probe. Even when there is no snow at the start of my journey, it can always begin to snow, and I'm always conscious that over 90% of avalanches occur during or within 24 hours of heavy rain or snowfall.

Nonetheless, that infamous British Weather can catch us all

SLOPE ANGEL IS AN EXCELLENT SMALL NEW TOOL IN THE ARMOURY TO HELP PROTECT YOU AND YOUR PARTY AGAINST THE RISK OF AVALANCHE. IT'S EASY TO USE AND QUICK TO GET TO WORK AND SAVES FAFFING ABOUT WHEN MEASURING SLOPE ANGLES, ESPECIALLY WHEN ON A CALL-OUT.



creating weaker snow. So, when the next dump of snow comes, it has nothing to adhere to. With rain, the heavier it is, the more the increase in avalanche risk.

I was lucky enough to spend some time at the WSL Institute for Snow and Avalanche Research in Davos, some years ago, after working with one of the Swiss mountain rescue teams much further west in the Bernese Alps.

publishes daily reports of observed and forecast, avalanche, snow and mountain conditions at the six most popular areas of Scotland during the season. It's sad the rest of Britain's mountainous regions have not been able to follow this example.

Personally, before I decide to venture out into the snow I follow the SAIS guidelines and take into consideration:

out when on the hill so, a few years ago, I designed a waterproof Credit Card sized aide memoire to determine slope angle, using contour spacing, which is the single most critical factor to consider when crossing snow covered slopes. My M3 compass also has a clinometer that is used for this purpose and, whilst both of these tools work, they can be clumsy on the hill.

But back to my garage and the freezer.

I set up a test-rig of various slope angles, each exactly measured using a protractor, to test the accuracy of this new piece of kit in measuring slope angle. Retrieving the Slope Angel from the freezer, I discovered that the digital temperature display on the freezer agreed with my greenhouse thermometer reading of -18°C (yet another fact I can bore my friends with) and, most importantly, the Slope Angel's digital temperature display.

It instantly came to life when switched on and its accuracy in measuring slopes from just 5° to 60° — it will measure to 90° — was never more than 2° out. Next stage was out onto the hill with it.

It works best if you place it on an ice axe, walking/ski pole or ski laid facing down the slope and the slope angle displayed. The lanyard supplied was too short and with it being so small it would be easy to lose so I connected a longer piece of paracord, itself attached to my person. Statistically, three quarters of avalanches occur on mountain slopes with a steepness between 30°-45°. Allowing for error, this danger zone is usually defined between 27°-50°. Avalanches only occur on slopes of less than 27° if the snowpack is very unstable, and those steeper than 50° usually shed snow regularly as it accumulates through sluffing or shallow-depth slab avalanches, which prevents larger avalanches from occurring (see chart).

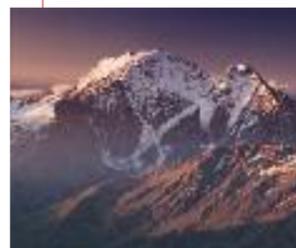
Air temperature is a massive determinant in the stability of the snow pack, with avalanche

forecast organisations gathering temperature information for the previous 24-hour period, recording maximum and minimum temperatures, at different elevations and near avalanche starting zones, and from this build longer-term temperature trends — not usually practical for the average mountaineer/hill-walker or skier. The most straightforward, reliable way to use temperature as an indicator of avalanche risk is temperature change because rapid rises in temperature can destabilise a pack, while slow rises stabilise it, especially if a cooling trend follows.

If air temperatures rapidly rises $\geq 8^{\circ}\text{C}$ in >12 hrs, the rate of creep increases, which can lead to avalanching: this is most critical when temperatures are $\geq 2^{\circ}\text{C}$, as the rate of creep increases exponentially with increasing temperature. Using the Slope Angel you can measure the air temperature at the beginning of the day and monitor it during your journey for any changes.

The Slope Angel is an excellent small new tool in the armoury to help protect you and your party against the risk of avalanche. It does not replace good training, planning and experience. It's easy to use and quick to get to work and saves faffing about when measuring slope angles, especially when on a call-out. ☘

LYLE BROTHERTON IS FOUNDER OF THE ULTIMATENAVIGATION SCHOOL.CO.UK CHARITY AND AUTHOR OF THE ULTIMATE NAVIGATION MANUAL



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Slope Angel is a durable, lightweight and compact device that helps assess the safety of the terrain when skiers, mountaineers, hikers and rescue teams venture into the mountains. Two of the vital factors in identifying avalanche

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Images © Lyle Brotherton

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How strong are snow anchors?



This article is based on a report that originally appeared in the Association of Mountaineering Instructors magazine in March 2012. It describes a series of load tests carried out by Glenmore Lodge instructional staff on a variety of commonly used snow anchors. At the time, I was a Senior Instructor and Head of Mountaineering at the Lodge. The genesis of organising and carrying out these tests arose from the fact that in the previous winters we Glenmore Lodge instructors consistently found ourselves fielding two questions concerning the use of snow anchors. They were:

- Were there any significant strength differences as to how bent shafted technical tools were placed compared with straighter shafted axes?
- Were placed Dead Men anchors significantly stronger than those that were hastily pushed or hammered into the snowpack?

BY GEORGE MCEWAN GEORGEMC@COLDCLIMBS.COM

As part of the Glenmore Lodge staff winter training, in December 2011, we took the opportunity to informally explore these questions by doing some testing using a recently acquired load cell. These were our findings.

NOTE: Given that snow and ice axe design has not changed in the intervening six years I think we can safely assume our findings will still hold true.

SNOWPACK AND SPATIAL VARIABILITY

Snow anchors depend a great deal on the integral strength of the snowpack they are placed in. The snow pack in these tests was in most cases the worst case scenario for a real climbing situation ie. it was a new snowpack which was poorly consolidated. In better snow conditions you would expect the snow anchors to perform with higher fail loads. However, the 'weak' snowpack did allow us to test the anchors to failure and thus identify possible failure modes and explore the effect of different axe configurations on anchor strength.

Snowpacks are very variable. Even when test sites are adjacent to each other, results — as shown by studies into using rutschblocks — can vary dramatically. This effect is known as spatial variability'. Hence subtle differences in the snowpack can have a profound effect on the inherent strength of

a snow anchor when it is loaded — even with anchors that are created a few metres adjacent to each other. Hence this variability should be taken into account when examining these test results.

TESTING PROTOCOL

Date: 14/12/11

Venue: West Wall in Coire Na Ciste, Cairngorm

Snowpack: New shallow snow pack with poor consolidation throughout. Air temperature below freezing.

All the staff split into teams to create a variety of snow anchors on the same aspect (easterly), and angle (approx 25–27°) of slope.

Measuring how hard the snowpack was: The snow layer the anchor was buried in was then tested for hardness using the scale commonly used to assess the 'hardness' of layers in snowpits:

- If you can push your whole fist, it is 'very soft'
- If you can push four fingers, it is 'soft'
- If you can push one finger, it is 'medium'
- If you can push a pencil, it is 'hard'
- If you can push a knife, it is 'very hard'.

The same person did the hardness test for all anchors to ensure consistency. As the snow pack was very new and had not

undergone much in the way of melt/freeze, most of the hardness tests had the snow as one finger or four fingers hardness ie. soft to medium hardness.

Measuring the load: Each anchor then had a load cell attached (eg. if a buried axe, we attached the load cell to the sling that was clove hitched to the axe). A 20m length of dynamic 10.5mm — was then attached to the load cell using a tied off Italian Hitch leaving a long tail. This long tail was then belayed (hand over hand or NZ boot axe belay) to prevent any anchor failing from hitting the team doing the load pull.

Fail loads: The testing of the snow anchors we created involved applying a load by having individuals pull on the test rope. We would then increase the number of people pulling until the anchor failed. The average force or load exerted by one individual pulling on the load rope = 0.8kN. The majority of buried axe anchors failed with one or two people pulling.

For those who need a physics/mechanics refresher, a Newton is a unit of force. It is defined as the force required to accelerate a mass of 1kg at a constant one metre per second per second. 1kg of matter weighs 9.81 Newtons or, to make the arithmetic easier, you can round it up to 10 Newtons. Therefore, 1 KiloNewton or kN = 1000 Newtons = 100Kg.

All the loads we generated could be on the high side as our testing involved directly applying a load to the anchor. The images (facing page) show our test rig in action.

TESTING

To ensure the diagrams are easier to use to compare results, I have only plotted results for the same hardness of snowpack except where it is stated there was a difference.

TEST 1: BURIED HORIZONTAL MOUNTAINEERING AXE vs REINFORCED BURIED HORIZONTAL MOUNTAINEERING AXE

The first set of tests involved testing and comparing horizontal axe belays and reinforced horizontal axe belays using 60cm straight shafted mountaineering axes. The snow hardness for these first two tests is 1-FINGER.

As expected the reinforced horizontal ice axes were stronger than the horizontal axe belays, having an average fail load of 1.48kN compared to 0.9kN of the horizontal axe i.e. reinforced buried axe belays were approximately 64% stronger.

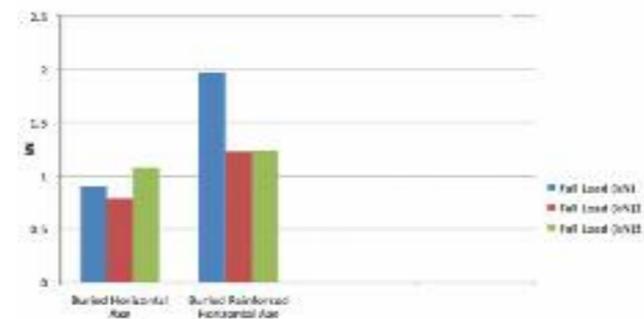
TEST 2: BURIED BENT SHAFT TECHNICAL AXE SNOW ANCHORS

The second set of tests involved testing horizontal axe belays and reinforced horizontal



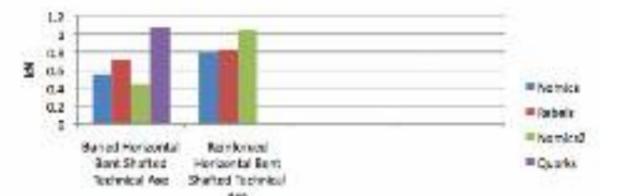


BURIED HORIZONTAL MOUNTAINEERING AXE vs REINFORCED BURIED HORIZONTAL MOUNTAINEERING AXE



anchors buried in snowpack hardness of 1-FINGER

HORIZONTAL BURIED BENT SHAFT TECHNICAL AXE vs REINFORCED HORIZONTAL BURIED BENT SHAFTED TECHNICAL AXE



anchors buried in snowpack hardness of 1-FINGER

axe belays using bent shafted technical axes. Generally speaking based on our small sample, technical tools gave average fail loads that were around 38% and 40% less than the corresponding snow anchor created with a mountaineering axe.

BENT SHAFTED TECHNICAL TOOLS – A NEW APPROACH TO BURIED AXE ANCHORS?

Through our own experience the radical curve of bent shafted technical axes makes them harder to bury so that they lay flush against the front wall and bottom of a snow anchor pit.

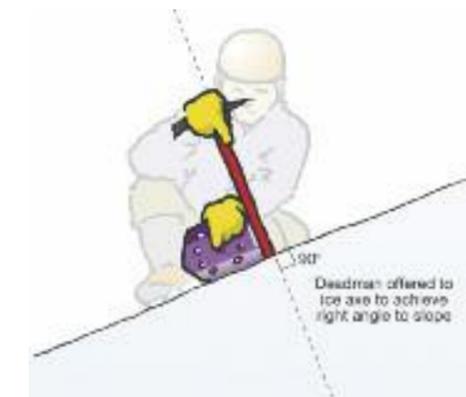
Our results show that horizontal and reinforced bent shafted axe belays are 38% and 40% weaker respectively than the equivalent anchors constructed using straight shafted mountaineering axes. This may partly be explained that bent shafted technical tools are less symmetrical and thus it is harder to ensure the load is spread more evenly over the surface area of the ice tool and thus the snowpack.

This series of tests set out to explore whether we could

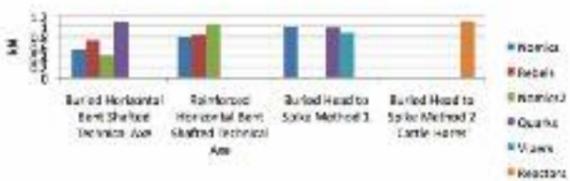
improve on this. So we experimented with two main tool orientations.

METHOD ONE: HEAD TO SPIKE

A Sling was clove hitched around both shafts at the 'balance of surface area'. As can



HORIZONTAL BURIED BENT SHAFT TECHNICAL AXE vs REINFORCED HORIZONTAL BURIED BENT SHAFTED TECHNICAL AXE vs TECH AXES BURIED HEAD TO HEAD



anchors buried in snowpack hardness of 1-FINGER
NOTE: 'Cattle Horns' test was done in softer snow of 4-FINGER hardness

be seen there is no appreciable increase in actual surface area although there is better symmetry.

METHOD 2: HEAD TO SPIKE BUT SHAFTS EXTENDED TO EITHER SIDE.

This method was conceived by Nancy Chambers and was descriptively nicknamed the 'cattle horns'. This is a variation of the method described in 'Winter Skills' on page 130 and



on page 201 of 'The Handbook of Climbing'. This configuration addresses the asymmetry and increases the surface area. In the case of the reactors, this increase in surface area is approximately 27%.

In both cases the axes were buried in a pit following the standard approach of flush against the front wall and bottom of a dug trench/pit.

The head to spike horizontal

configuration increased strength by 66% compared to 'traditional' horizontal buried bent shafted technical axes and gave similar averages to the traditional reinforced horizontal buried bent shafted technical axes.

As you can see from the diagram (top right) the 'Cattle Horn' arrangement gave the stronger anchor despite being buried in a softer snowpack (4-Finger hardness). This is 93% stronger than a single horizontal technical axe and 24% stronger than a reinforced horizontal axe. This arrangement significantly increases the surface area and improves the symmetry of the tools which may account for the increased strength.

DEAD MEN AND SNOW STAKES

We then tested Dead Men, to determine if there was any difference in anchor strength when the Dead Man was pushed/hammered into the snow at 40° (often done as a quick way of setting a Dead Man) compared to taking the time to measure the angle, prepare the slot and place the Dead Man as shown in Images 1 to 5. The snow in this case was 4-Finger hardness.

In the tests involving placing the Dead Man anchor the first test pull held a 3-person pull to 2.04kN then failed on a four person pull at 1.85kN. The second test, although we got the Dead Man moving at 1.31kN, was a not a complete fail as the anchor although it moved buried itself deeper. The fails for the Dead Man pushed into the snowpack were catastrophic as the anchor came out of the snowpack.

We did not do many tests but our limited testing would suggest that taking the time to measure the angle, prepare the slot and place the Dead Man created a more reliable and, overall, stronger snow anchor. Those that were hammered or pushed into the snow failed at lower loads.

We then tested snow stakes in a similar snow pack — hardness equivalent to 4 Finger. We placed them in different configurations as described below.

TESTING AND RESULTS CONCLUSIONS AND SUMMARY

The tests were not intended to give definitive results regarding the strength of snow anchors. Rather they were performed in an attempt to determine if our perceptions of anchor strength versus anchor type were correct or not. Given that only 33 tests were performed and that most types of anchors were only tested two or three times, our results are not statistically that relevant.

What the tests may do is suggest possible trends regarding the effectiveness of commonly used snow anchors. In that regard they may be of

interest for others in pursuing further testing.

All observed failures were classified as compression failures: 'In compression failure the anchor pulls forward through the snow. Under a steady load this can be a fairly slow movement. The compression strength of a snow anchor is dependent on the compression strength of the snow, the size of the buried object and whether the load is evenly spread over the buried object.'

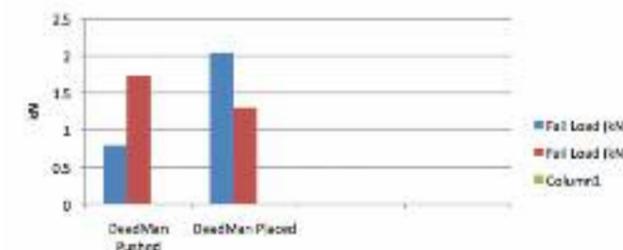
• How snow anchors work

A fundamental principle behind all snow anchors is they rely on their surface area to spread the load evenly across the surface area of the snowpack the anchor is buried in (that is the area it pulls against). As long as the 'strength' of the snow pack is greater than the applied load, then the anchor will not fail. However if the load is greater than the resistance/strength of the snowpack then failure occurs.

• Ice axe balance point vs symmetry

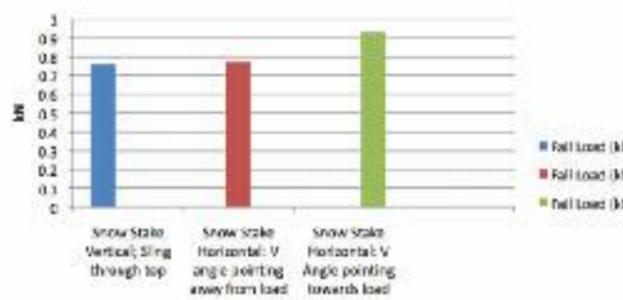
Traditionally people talk about the 'balance point' of the axe when using it in a snow anchor as the point at which the sling is connected. This 'balance point' was where the weight of the tool was balanced and in older axes also tended to equate where the surface area of the axe was symmetrical. However, with many modern ice tools and axes having weighted or balanced heads the balance point of the axe or ice tool may not be equivalent to a point where the surface area of the axe/tool is symmetrical. This makes identifying the point at which to attach the sling to the axe/tool

DEAD MAN ANCHOR PLACEMENT: PUSHED vs PLACED



Dead Man anchors placed in 4-FINGER hardness snowpack

SNOW STAKE ANCHORS



Snow stakes placed in 4-FINGER hardness snowpack

such that it's surface area is symmetrical more challenging in modern tools.

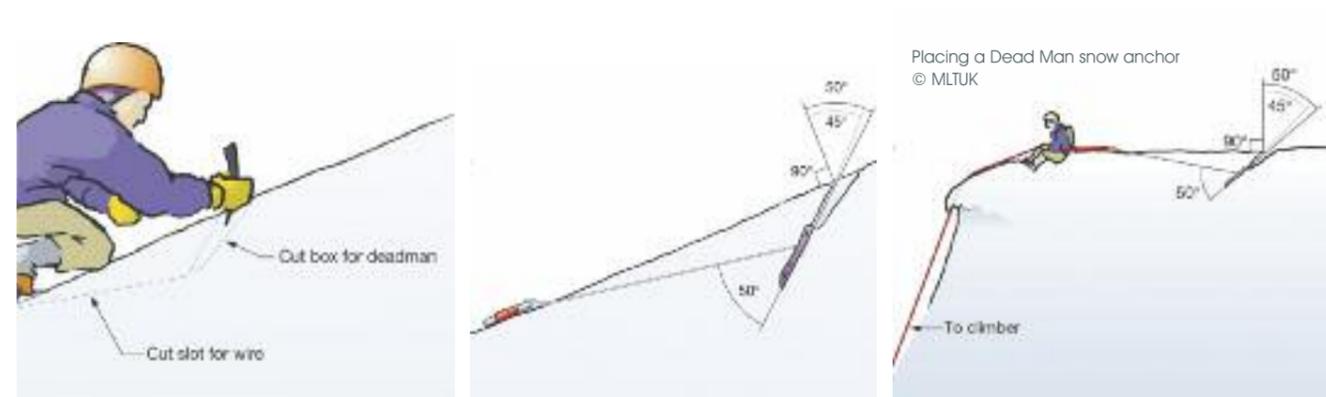
Given that finding this point on the axe/ice tool is key to how the tool will behave in the snowpack when it is loaded, then great care must be taken to visually identify where this symmetrical point is to attach the sling.

• Climbing forces and loads

To put the failure loads of our snow anchors into context we would need to know what sort of load a typical climbing fall would generate eg. climber falls off on

50° snow slope and takes a sliding fall.

However, it should be borne in mind that snow anchors, in a climbing context, are very rarely used in isolation and typically are used as part of an indirect belay eg. bucket seat with seated belayer tied into snow anchor and using a dynamic waist belay. The key element here is the belayer in their bucket seat acts as the first line of defence and limits the direct load on the snow anchor in the event of a climbing fall by absorbing some of the load through their own body (via





BODY TYPE	PEAK COMFORT (KN)	MAXIMUM (KN)
SLIGHT	0.43	0.57
MEDIUM	0.69	1.22
LARGE	0.5	1.64

the bucket seat and waist belay) and reduces the load by dynamically arresting the fall using a waist belay.

From Don Bogie's testing he theorised that a fall by a climbing leader on 45° slopes may generate a fall load of 4 kN to 8 kN². Shaun Roberts, an instructor from Glenmore Lodge, did some tests on snow anchors on a Mountain Rescue Committee of Scotland (as Scottish Mountain Rescue was then known) winter anchor development day. As part of their testing they allowed a fully laden stretcher (128Kg) to slide a measured distance. A slide distance of 5m produced a peak force of 2.79kN, whilst a slide distance of 20m produced a peak force of 4.2kN.

Another aspect of Shaun and his team's testing was finding what load an individual sitting in the snow (no bucket seat just a sitting braced stance) could sustain. Their findings are reproduced in the table above.

Snow anchors depend a great deal on the integral strength of the snowpack they are placed in. Snowpacks are very variable. Even when test sites are adjacent to each other, results, as shown by studies into using rutschblocks, can dramatically vary. This effect is known as spatial variability. Hence subtle differences in the snowpack can have a profound effect on the inherent strength of a snow anchor when it is loaded, even with anchors that are created a few metres adjacent to each other.¹

Snow anchors, in a climbing context, are very rarely used in isolation and typically are used as part of an indirect belay eg. bucket seat with seated belayer tied into snow anchor and using a dynamic waist belay. The key element is the belayer in their bucket seat acts as the first line of defence, limiting the direct load on the snow anchor in the event of a climbing fall by absorbing some of the load through their own body (via the bucket seat and waist belay) and

reducing the load by dynamically arresting the fall using a waist belay.

In our testing of snow anchors we applied a load by having individuals pull on the test rope. We would increase the number of people pulling until the anchor failed. The average force or load exerted by one individual pulling was found to be around 0.8kN.

• Buried reinforced horizontal mountaineering axe vs Horizontal mountaineering axe

As expected the reinforced horizontal ice axe belays were stronger than the horizontal axe belays having an average fail load of 1.48kN compared to the 0.9kN of the horizontal axe ie. reinforced horizontal mountaineering axe belays were approximately 64% stronger.

• Buried horizontal mountaineering axe vs Buried horizontal bent shaft axe

In our testing a traditional buried horizontal straight shafted mountaineering axe in a snow pack of hardness equivalent to 1-Finger penetration gave an average fail load of 0.9kN whilst in the equivalent snowpack a buried horizontal bent shaft axe gave an average fail load of 0.57kN ie. the horizontal mountaineering belay was approximately 38% stronger.

• Buried reinforced horizontal mountaineering axe vs Buried reinforced horizontal bent shaft axe

In our testing, a traditional buried reinforced horizontal straight shafted mountaineering axe in a snow pack of hardness equivalent to 1-Finger penetration gave an average fail load of 1.48kN whilst in the equivalent snowpack a buried reinforced horizontal bent shaft axe gave an average fail load of 0.89kN ie. the buried reinforced horizontal mountaineering axe was 40% stronger than the equivalent belay created using bent shaft tools. However, reinforcing the

technical axe in the traditional way increases its strength by 56% — an improvement similar to reinforcing the buried mountaineering axe.

This would suggest that in a reinforced horizontal axe configuration the straight shafted mountaineering axes gave stronger snow anchors. An explanation for this could be that the longer symmetrical length of the mountaineering axes (60cm compared with the shorter 50cm technical tools) gave more surface area and evenly distributed the load against the snowpack more evenly, whilst the unsymmetrical shape of the bent shafted tools meant that they distributed the load against the snow pack more unevenly.

• Alternative configurations for burying bent shafted technical tools

As symmetry appears, in addition to surface area, to be a key component in the strength of a buried axe anchor we experimented with two different configurations of buried horizontal bent shafted technical tools.

Our aim was to see if we could devise a method of making the surface area symmetrical. The first method we tested was burying bent shafted technical tools 'head to tail' and attaching the sling at the mid-way point. This configuration increased strength by 66% compared to 'traditional' horizontal buried bent shafted technical axes and gave similar averages to the traditional reinforced horizontal buried bent shafted technical axes.

Another method we tested, devised by Nancy Brookes used a 'Cattle Horn' arrangement ie. axes head to tail but extend out. We only did one test with this arrangement and that in a softer snowpack (4-Finger hardness). This one test suggested this arrangement is 93% stronger than a single horizontal technical axe and 24% stronger than a reinforced horizontal axe, and significantly increases the surface area and improves the symmetry of the tools which may account for the increased strength. More testing is required but this does suggest this is potentially a significantly stronger arrangement when using bent shafted axes.

• Dead men snow anchors and snow stakes

When comparing a Dead Man snow anchor pushed into the snowpack at 40° with one placed into a measured and cut slot, we found that the Dead Men placed into the slots gave more reliable results. On our testing this gave one result in a 4-Finger snow pack of 2.04kN compared with the best result of the ones pushed into the snowpack of 1.73kN. So taking the time to correctly place a Dead Man would appear to give a more reliable snow anchor even in a poor snowpack.

Snow stakes, in the soft snowpack we had for our testing, gave generally mediocre results. However in a 4-Finger hard snowpack they would appear to be stronger than the one test we did with a horizontal mountaineering axe in an equivalent snowpack. More testing in varying hardness of snowpacks is required.

SUMMARY

As stated, these tests are not conclusive. What they do give some indication as to how a variety of snow anchors may perform in the snowpack. We found that:

- Reinforced horizontal straight-shafted mountaineering ice axes were 64% stronger than horizontal straight shafted mountaineering axe belays, having an average fail load of 1.48kN compared to 0.9kN of the horizontal axe.
- Bent-shafted technical axes gave average fail loads that were around 38% and 40% less than the corresponding snow anchor created with a straight-shafted mountaineering axe.
- Burying bent-shafted technical axes horizontally 'head to tail' increased strength by 66% compared to 'traditional' horizontal buried bent-shafted technical axes and gave similar averages to the traditional reinforced horizontal buried bent-shafted technical axes.
- Burying the bent-shafted technical axes using a 'Cattle Horn' arrangement gave a 93% stronger than a single horizontal technical axe and 24% stronger than a reinforced horizontal axe — despite the 'Cattle Horns' being

buried in a softer snowpack. This arrangement significantly increases the surface area and improves the symmetry of the tools which may account for the increased strength.

• Dead Man snow anchors placed into a measured and cut slot in the snowpack at 40° give a more reliable snow anchor than those simply pushed or hammered into the snowpack. In our testing 2.04kN with 1.73kN.

• Snow stakes gave generally mediocre results.

With snow being such a variable medium, if you are faced with the prospect of holding a significant load (ie. falling climber), then creating a bucket seat, attaching yourself to the snow anchor via the rope, plonking down in the bucket seat and taking a waist belay will all serve to reduce the potential impact force on the belay. With snow anchors, as has been the case for many years, this is still good practice.

ACKNOWLEDGMENTS

Many thanks to Derek Bain for proofreading this article and suggestions as to how to improve the presentation and interpretation of these results. Thanks also to the Glenmore Lodge instructional team — full time, part time and associate staff — who helped do all the hard work to create anchors we could test. Any errors, omissions and inaccuracies are entirely my fault.

A big thank you to Mountain Training UK for their kind permission to use the Dead Man placement images from their book 'Winter Skills: Essential Walking and Climbing Techniques' by Allen Fyffe and Andy Cunningham (ISBN-10: 0-9541511-3-5).

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Penthrox

DR RICHARD WALKER DARTMOOR SAR

The Penthrox (or 'Green') Whistle™ is an effective way of providing rapid pain relief. It delivers the drug methoxyflurane (MF) as a vapour from a small hand-held device. The MREW Medical Subcommittee conducted a detailed appraisal of Penthrox in 2016/17 to understand the risks and benefits of adding Penthrox to our drug formulary for use by Casualty Care trained members. The conclusion of this work was to recommend that MREW does not adopt Penthrox at present. This document summarises the background information leading to that decision. References to Mountain Rescue (MR) include Cave Rescue.

THE IDEAL ANALGESIC

There is currently no 'ideal' analgesic agent, particularly for use in austere environments such as MR. Consequently, it is important to weigh the balance of risks and benefits each option presents. This assessment must include the properties of the drug, the environment in which we anticipate using it and the skills of our Casualty Care trained members, most of whom are not healthcare professionals.

From this standpoint, our fundamental requirements for analgesic drugs must be:

- Potent and effective
- Safe
- Have no, or minimal, impact on the casualty's physiology (breathing, heart rate, blood pressure, conscious level)
- Applicable to the majority of groups of people we treat
- Easy to train a non-healthcare professional to use safely (very low chance of user error/patient harm).

Thus we need analgesic drugs that work, are easy to use, and do not make the situation worse. We already have several drugs that have been used successfully for many years to treat acute pain (eg. diamorphine, fentanyl, and Entonox™). All are an imperfect fit for the 'ideal' drug. However, the specific benefits of each are well known to us and drawbacks are short term and easily managed by non-healthcare professionals. As an organisation, our success in using these drugs without untoward events is because the safety considerations are simple to teach. These drugs set the benchmark against which new contender drugs are measured.

SUMMARY OF HOW MF MEASURES UP TO THESE REQUIREMENTS

IS IT POTENT AND EFFECTIVE AS A PAINKILLER?: YES

- MF is an effective analgesic and has the advantage of being self-administered by the casualty.

• Although the onset is rapid, the offset is slow because MF is very soluble in body tissues so remains there for several days after administration. High tissue solubility slows the rate at which the drug leaves the brain and is responsible for the slower recovery. This may be a good feature for an analgesic if the source of pain is ongoing, but means that if unintended adverse effects occur, such as over-sedation or cardiovascular instability, they are likely to persist for some time after administration ceases. Importantly, unlike morphine-induced drowsiness, MF 'hangover' is not reversible. Drowsiness is particularly common in small children and is at least part of the reason why Penthrox is currently contraindicated in patients <18 years.

IS IT AS SAFE AS POSSIBLE?: NO

Toxicity

MF was used as an anaesthetic agent during the 1960s and 1970s. It fell out of use because it compromised kidney function in patients who received more than a certain dose of the drug. Kidney toxicity (nephrotoxicity) remains one of the concerns for MF use. The argument is not whether MF is or isn't nephrotoxic, because there is good evidence that it is. Rather, we need to know if the nephrotoxic effects are an issue that is clinically important to our patients and in our circumstances of use. In order to decide this, it is important to understand how MF is toxic, and what conditions would need to be met for it to be used safely.

MF is toxic in three ways:

1. It impairs kidney function in a predictable, dose-dependent way ie. the more that is inhaled, the more damage there is. The damage is caused by breakdown products of the drug rather than MF itself. MF is highly metabolised (50-70% is broken down in the body compared to 2-5% for modern anaesthetic drugs) so a substantial amount of breakdown products will be produced when MF is breathed. Importantly, breakdown will

continue after administration ceases because of the large body reservoir of MF. This is completely contrary to the philosophy for modern anaesthetic drugs which is to 'resist breakdown in the body and be devoid of organ-specific toxicity'¹.

2. MF can damage the liver in a less predictable way that is partly related to the duration of exposure. Therefore, the manufacturer advises that cautious clinical judgement be exercised when Penthrox is to be used more frequently than once every three months.

3. If used in a remote environment (such as MR) well away from a hospital, it is effectively lethal (mortality >80%) to individuals carrying the gene for a rare condition called malignant hyperthermia which affects ≈1:5000 of the population.

From point 1, it is clear that using MF always results in the production of some nephrotoxic compounds so it can never be regarded as wholly safe. It can be considered acceptable if all three of the following situations are met:

- **The recipient must have a sufficient reserve of kidney function to tolerate losing some in the short term.** This is the case for most healthy people who will have a significant amount of 'spare' function, and is the basis on which people argue that MF is safe. By contrast, people with diseases that directly or indirectly damage the kidneys (eg. diabetes) may have little or no reserve so remaining kidney function must be protected to avoid them developing renal failure.

- **There is no significant or evolving threat to kidney function when we choose to use it** eg. shock from any cause, crush injury, etc.

- **There isn't a better option available** when all the risks and benefits are taken into account.

It is important to recognise that the worldwide experience of using the Penthrox device has resulted in no clear reports of renal impairment. This is because the whistle only delivers ≈25% of the dose that would be needed

to cause overt kidney failure in a healthy person. However, kidney injury is not an all or nothing event and so even though a full dose of Penthrox only contributes a quarter of a 'renal hit', this should be considered in the context of the casualty's circumstances and injuries, which when taken together, may be sufficient to cause overt renal injury. It follows then that we need to know how much of a risk traumatic injury in a remote environment presents to kidney function. Unfortunately, this is currently unknown as sufficiently detailed outcome data is not collected about the patients we treat. In the absence of MR-specific data, the next best thing is to look at traumatic injury in the general population and combine this with an understanding of the kind of things that are known to be risk factors for kidney damage. Although this will not be precise, it will allow us to better understand if our casualties' risk is greater or lower than the general trauma population.

Abnormal kidney function or kidney failure is uncommon after trauma, occurring in ≈17% of severe trauma cases. However, when it does occur, it significantly reduces survival rate. In patients with the combination of severe infection and renal failure, the outcome is particularly bad. Long injury-to-hospital times mean that there is more likely to be an increased period during which casualties are under-resuscitated, have untreated wound contamination and become hypothermic. The practical limitations imposed by our environment limit our ability to treat fully at the scene, and patient handling constraints (eg. to minimise body movement) can increase evacuation times. With this in mind, it is reasonable to assume that our casualties are at higher than average risk for both reduced kidney function and severe infection. Until specific MR or remote medicine data is available to directly address this concern, it seems prudent to choose options for all aspects of care that don't inadvertently add to the risk of renal injury, especially where alternatives exist.

Risks to the rescuer

MF presents a theoretical risk to the rescuer and there is no research in the MR environment to refute this. Because the drug is a vapour, MR personnel are likely to get some exposure when caring for a casualty breathing MF in a confined space such as a shelter or vehicle. The amount inhaled will be small, but during busy periods, there is a possibility of repeated exposure. The manufacturer acknowledges the need to reduce occupational exposure by

advising that Penthrox should always be used with an attached scavenging cell containing activated charcoal to reduce the amount of vapour that escapes into the environment. This is an incomplete solution to the problem because it relies on casualty co-operation to be effective. It will only work if the patient exhales through it, which is not guaranteed, as it is physically more difficult than breathing out around the device. Even if the device is used correctly, there will be ongoing slow release of MF from the casualty because drug that has accumulated in the body tissues will continue to be exhaled in small amounts for some time afterwards. Although a weekly maximum exposure has been defined, this is of little help because the level of exposure at each use will vary. Thus, MR would need a way of managing this, possibly by logging team members' exposure to casualties who received the drug.

However this is done, MF would present an on-going administrative requirement that no current drugs need. The rare, but very serious risk of malignant hyperthermia would also need to be considered for rescuers. It would be sensible to screen all of our

and by causing blood vessels to dilate. It also reduces heart rate, the rate and depth of breathing and causes sedation. However, in the amounts a Penthrox Whistle delivers, these effects will usually be small, except in the elderly, where the manufacturer advises caution. Because the drug is self-administered, the chance of over-sedation is reduced. However, if these predictable effects of MF are superimposed on someone who is already intoxicated, or is just managing to compensate for a physiological insult that we haven't fully appreciated (eg. internal bleeding from abdominal trauma), the effects are likely to be more dramatic.

IS IT APPLICABLE TO OUR CASUALTY POPULATION AND ENVIRONMENT?: PROBLEMATIC

There are several groups of casualties treated by MR for whom using MF isn't advised. Therefore it must be seen as an addition to the drug formulary. It cannot completely replace any of our current drugs.

Below is a short comparison of Penthrox with some currently available MR drugs:

	PENTHROX	ENTONOX	FENTANYL	IM MORPHINE	IN DIAMORPH
RAPID ONSET	+++	+++	+++	-	+++
TITRATABLE	+	+	++	+++	+++
INTENSITY OF ANALGESIA EG. FOR MOVEMENT OF A FRACTURE	+++	+++	++	+	+++
TIME LIMITED USAGE	+++	--	-	-	-
HANGOVER	+	-	++	++	+
EFFECT ON BP	+	-	+	+	-
REVERSIBLE SIDE EFFECTS	--	++	+++	+++	+++
LIST OF CAUTIONS AND CONTRAINDICATIONS	+++	+	+	+	+

+ INDICATES 'YES' (THE MORE PLUS SIGNS, THE MORE THIS IS SO)

- INDICATES 'NO' (THE MORE NEGATIVE SIGNS, THE MORE THIS IS SO)

membership for this trait since quite a small exposure is sufficient to trigger a reaction. In practice this would only require careful questioning, but it is more extra work and also isn't something we need to do for our current drugs. It follows from these points that MF would not be an ideal choice to use in confined space situations, particularly caves with limited air flow (MF is heavier than air and takes over a year to breakdown).

DOES IT HAVE 'NO' OR 'MINIMAL' IMPACT ON PHYSIOLOGY?: NO

MF lowers blood pressure by reducing the force of heart contraction

• Titratable means the ability to administer a drug at different doses to obtain the optimal effect. The Penthrox inhaler has a hole that can be covered to slightly increase the inhaled concentration. Entonox is a fixed concentration. Both drugs have a ceiling effect and once that level is reached, continued breathing does not increase analgesia. A second dose of fentanyl can be given. Morphine and diamorphine have more flexibility since three 5 mg doses can be given.

• There have been few comparisons of analgesia between MF and Entonox but all indicate little difference. The example of movement of a fracture

¹ Heijke S, Smith G. Quest for the ideal inhalational anaesthetic agent. *Brit J Anaes* 1990;64:3-6

(eg. for splinting) was chosen because intense analgesia is needed quickly for this procedure to be undertaken.

- Fentanyl and diamorphine onset are quick because they are rapidly absorbed through the linings of the mouth/nose. Fentanyl onset is 5-10 minutes. Peak levels are achieved at 20 minutes.

- Any side effects of Entonox are rapidly reversed by stopping breathing the agent. Fentanyl, diamorphine and morphine can be completely reversed with naloxone.

Pentrox only produces short-term pain relief because the maximum dose restricts continuous use beyond about 40 minutes. This time limit introduces a new difficulty for casualty carers to understand, which is how to transition safely from one strong painkiller to another, not just in terms of dosage but also the potential additive effects of both drugs on eg. conscious level. This can be taught, but it isn't something we currently need to worry about. The only situation where drug transition currently occurs is when Entonox is used prior to an opioid. Entonox wears off completely so it causes no problems.

Theoretical considerations indicate that the Pentrox Whistle may not be effective in cold environments. MF is supplied as a liquid which has to be vaporised to be inhaled. The amount of vapour produced is related to ambient temperature, so little vapour will be produced when the liquid is at 0°C. It has been incorrectly stated that exhaling through the device will warm it sufficiently to overcome this. The device has a one-way flow system and draws fresh air at the ambient temperature over its vaporising chamber. Taking this, together with the cooling effect that occurs when any liquid changes into a vapour, makes it likely that the performance of the Pentrox whistle will be at least unpredictable, and probably reduced, when cold.

Prehospital use of MF has implications for the casualty's treatment in hospital. There is concern that a commonly-used anaesthetic agent (sevoflurane) might interact with the breakdown products of MF. If this combination was given by mistake, the risk of kidney injury may be increased. This danger is not a problem with our current agents. To avoid this potential danger will require faultless communication at every stage from hill to operating theatre.

There are five steps involved in the set up and administration of MF through a Pentrox Whistle™. Although little more complex than preparing and administering intranasal diamorphine,

it is more complicated than using buccal fentanyl. In particular, pouring a small volume of liquid into a plastic tube in adverse weather could present difficulties.

IS IT EASY TO TRAIN A NON-HEALTHCARE PROFESSIONAL GROUP TO USE SAFELY?: NO

This was the main area of unresolved concern for the MREW Medical Subcommittee and is why the committee declined to endorse Pentrox at the moment. These are the groups for whom MF is contraindicated or must be used with caution:

Contraindications

- Renal disease or renal transplant
- Cardiovascular instability
- Heart disease
- Liver disease (manufacturer warns that exposure to a similar type of anaesthetic within the previous three months could increase the likelihood of liver damage)
- Diabetes with concurrent kidney disease
- Any loss of consciousness (head injury; drugs; alcohol)
- Patient or family history of malignant hyperthermia
- Breathing difficulties or respiratory depression
- Children under 18 years
- Women in the first three months of pregnancy or are breast feeding.

Caution

- The elderly (risk of fall in blood pressure and heart rate)
- Presence of any condition that predisposes to kidney damage
- If the drug needs to be used more often than once in three months
- Patient taking drugs that can increase the speed of MF-breakdown by the liver
- If used with other drugs that can cause drowsiness.

All of the above must be considered in every casualty before administering the drug. MR is unusual because complex care is frequently delivered by non-healthcare professionals. This is a huge operational strength, but is also a source of risk to casualties, team members and the reputation of MR. From the above considerations, it should be clear that safely introducing MF to our practice requires far more than just saying ok and showing people how to use the device.

The MREW Medical Subcommittee has the responsibility to ensure that a patient in one of the exclusion groups cannot inadvertently receive MF. An MR-specific training package for Pentrox has been developed as part

of the assessment of the drug's suitability. Through this exercise, it became very clear that the safe introduction of Pentrox to MR would entail a far greater training burden than it does for healthcare professionals. Existing Pentrox training materials were not designed for use by non-healthcare professionals and required translation and supplementing. The result was a substantial and relatively complicated training package. Whilst it would be possible to deliver this, it would significantly add to the amount of material we expect Cas Carers to absorb and retain. There were also concerns that the complexity of what people need to remember to use the drug safely will make an error more likely and that, with MF, the chance of an error turning into harm is significant. Thus, the question isn't really so much, 'Is it possible to introduce Pentrox to MR?' but more, 'Is it required and proportionate to our needs?'

CONCLUSION

The Pentrox Whistle™ can provide MR with another effective portable painkilling option that could supplement those drugs already in use. But it is an imperfect solution to analgesia for our specific needs or our operating environment and it will not completely replace any of the current drugs. Implementing it into our practice will add a significant training and management burden, could increase our clinical risk because of the implications of inadvertently administering it to an excluded group, and will be more complex to employ on-site because of the mandatory checklist that must be used before deciding to use the drug. As an organisation, our success in using drugs without untoward events is because the safety considerations are very simple to teach. Whilst it is undoubtedly a very appealing option because of its weight and portability, we already have similar options in use nationally. When all of the information is taken together, the MREW Medical Subcommittee feel that although individual doctors can choose to use Pentrox, it is not a drug that we wish to introduce to the formulary at this time for use by Casualty Carers. We intend to monitor its use in the UK and Europe by groups operating in similar settings to our own. If the experience of these groups is favourable, we will review this decision.

ACKNOWLEDGEMENT

I would like to thank Dr Les Gordon and Mr Mike Greene for helping to write this review. ☺

Anaphylaxis

DR LES GORDON MEDICAL OFFICER, LANGDALE AMBLESIDE

Anaphylaxis is a severe, potentially life-threatening, systemic allergic reaction. The incidence is rising and there are ≈20 deaths each year in the UK

CLASSIC FEATURES OF ANAPHYLAXIS

- Sudden and rapid onset
- Life-threatening airway, breathing and circulatory problems
- Usually affects skin and mucous membranes (lining of the mouth and throat).

In 20% cases, the trigger is unknown. Food is a common trigger in children whereas in adults, drugs and stings are more common. Airborne allergens can trigger anaphylaxis eg. latex, nuts, etc.

Diagnosis is by the clinical picture of rapid onset of symptoms and signs affecting two or more body systems:

- Skin and mucous membranes (>80% cases)
- Respiratory (70% cases)
- Cardiovascular (45-70% cases)
- Gastrointestinal (45% cases).

The principal organ affected varies between cases and may even differ in the same patient on different occasions.

The *Sampson criteria* were agreed internationally in 2005 and correctly identify >95% cases (see box, below). This is important because other conditions can be mistaken for anaphylaxis eg. asthma. The key is that anaphylaxis affects the whole body whereas asthma just affects the lungs. The first body system affected varies and this is reflected in the Sampson criteria. It could be skin first and then something else (criterion 1), several things could happen

more-or-less simultaneously (criterion 2) or the first indication could be a dramatic fall in BP (criterion 3).

Anaphylaxis is likely to be more severe in poorly-controlled asthmatics and patients taking certain drugs eg. beta-blockers (such as atenolol) because these block the effects of adrenaline, or drugs with a name ending in 'pril'.

ONSET AND PROGRESS

Note that although onset is usually minutes after exposure to the trigger, it may be delayed for hours. Cardiac arrest can occur soon after onset (typically 35 minutes after food; 15 minutes after insect sting; 5 minutes after IV drugs). Respiratory symptoms are more common in children whereas cardiovascular symptoms are more common in adults.

ASSESSMENT AND MANAGEMENT

Immediate assessment using ABCDE approach. Problems should be treated as *they are found*. IM adrenaline is life-saving

but the longer the delay before administration, the worse the outcome. Therefore, it should be given as soon as the *likely diagnosis is clear*. It should also be given to a patient who may not yet have all the criteria if they have a history of near-fatal anaphylaxis, have been exposed to a known allergen for them and are experiencing hives or flushing within minutes. Adrenaline works at many levels to improve breathing and circulation. Reviews of anaphylaxis fatalities have shown that adrenaline was often not given for spurious reasons eg. symptoms appeared mild, people were worried that it might not be safe or they were unsure of the diagnosis.

'THERE ARE NO ABSOLUTE CONTRAINDICATIONS TO ADRENALINE IN ANAPHYLAXIS'
EUROPEAN ACADEMY OF ALLERGY & CLINICAL IMMUNOLOGY

'THE BENEFITS OUTWEIGH ANY RISKS IN THE ELDERLY AND PATIENTS WITH PRE-EXISTING CARDIOVASCULAR DISEASE'
WORLD ALLERGY ORGANISATION

'IF IN DOUBT, GIVE ADRENALINE'
AMERICAN COLLEGE OF PEDIATRICS

ANAPHYLAXIS IS HIGHLY LIKELY WHEN ANY ONE OF THE FOLLOWING 3 CRITERIA ARE FULFILLED:

1. Acute onset of illness (minutes to several hours) with involvement of the skin, mucous tissue, or both (eg. generalised hives, itching, flushing, swollen lips/tongue/lvula)

AND AT LEAST ONE OF THE FOLLOWING

- Respiratory compromise (e.g. breathlessness, wheeze, stridor, low blood oxygen levels)
 - Reduced BP or symptoms that indicate low BP eg. collapse, faint, incontinence.
2. Two or more of the following that occur rapidly after exposure to a *likely allergen for that patient* (minutes to several hours)
- Involvement of the skin-mucosal tissue (eg. generalised hives, itching, flushing, swollen lips/tongue/lvula)
 - Respiratory compromise (eg. breathlessness, wheeze, stridor, low blood oxygen levels)
 - Reduced BP or symptoms that indicate low BP eg. collapse, faint, incontinence
 - Persistent gastrointestinal symptoms (eg. crampy abdominal pain, vomiting).

3. Reduce BP after exposure to a *known allergen for that patient* (minutes to several hours)

- Low systolic BP (adults: <90 or 30% decrease from the person's normal).

ADRENALINE AUTO-INJECTOR PENS

The adult dose of adrenaline is 0.5 mg from an ampoule or (usually) 0.3 mg from an auto-injector pen. This can be repeated every five minutes. It has been shown that the best place to inject is the anterolateral thigh because the drug is taken up more quickly from there than from an arm muscle. There are three makes of adrenaline auto-injector available in the UK: EpiPen; Jext; Emerade. Know the device that your team carries. These devices are safe and no overdoses have been reported. Although rare, the mechanism of the pen can fail to actuate so if there is no response, give a second dose. Importantly, the needle length in a pen is only short (15 mm, although a 25 mm needle is now available). If the needle is

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Ambleside Medical Conference: November 2017

The bleeding patient

DR STEVE ROWE
MEDICAL OFFICER, EDALE MRT

Steve pointed out that as a consultant anaesthetist who deals with bleeding trauma patients, whilst not an authority, he has plenty of experience in managing critically bleeding patients. The key for the management of these patients is sticking to the simple principles – time and time again it is the thorough application of simple measures that saves lives.

Bleeding can present in many ways. We can classify as external bleeding that is compressible or noncompressible, and internal bleeding. Internal bleeding may be caused by a penetrating or blunt injury.

In UK practice and MR, blunt internal haemorrhage is by far the most common life threatening bleeding encountered. If life threatening external bleeding is encountered, the <C> ABC system of primary survey is used, and catastrophic external bleeding arrested first. The video shown during the talk demonstrated that simple direct pressure can be lifesaving.

One thing that is often overlooked but that we, as MR members can really make a difference with, is careful handling. The body has enough clotting factors to make one decent, lifesaving clot. If this clot is disrupted by careless handling when packaging or carrying a patient off, this can provoke further bleeding and reduce chances of survival. It is here though that the conundrum is faced – slow and smooth or fast and rough – these patients need a rapid evacuation. This is where training and drilling for time critical patients can add benefit when one is encountered on a real incident.

Treatment strategies for managing external bleeding include the use of ambulance dressings, trauma dressings, haemostat dressings, and tourniquets. Practising and drilling for such an event is useful for the rare occasions when severe haemorrhage is encountered. Pelvic binders and femoral traction splints add to the haemostatic management of a polytrauma patient, and again, being slick and quick putting them on with minimal movement is vital.

For civil emergencies such as terrorism related events, the CitizenAID app and materials are useful in giving a simple and practical management strategy. Download them yourself, get your family and loved ones to download them and familiarise themselves with the treatments. Sadly, dealing with such an emergency has been a reality in recent months – bystander first aid saved lives.

As for things that can be given to a patient who is bleeding, tranexamic acid has proven evidence based efficacy in reducing mortality from life threatening bleeding. The earlier it is given, the better it works. A recent meta-analysis in *The Lancet* has further confirmed this. Several air ambulances are now carrying blood products. This can be just red cells or plasma products as well. The volumes carried allow temporisation of the critically bleeding patient only, allowing delivery to hospital and the means to stop the bleeding.

The summary points are that having a robust and methodical approach to managing the bleeding patient does save lives. The <C> ABC approach to primary survey allows the rapid control of catastrophic haemorrhage. Drilling and practising for managing these patients is vital, and is time well spent. ☺

too short, it won't reach the thigh muscle. This is a problem in obese adults and some normal women because of female fat distribution. Pressing firmly and maintaining pressure reduces the distance between skin and muscle. Also, the spring-loaded propulsion of the injector helps to deliver the adrenaline into the muscle. Alternatively in these people, inject into the anterior thigh (shorter skin-muscle distance) or nearer the knee. After the actuation click, keep the device in place with firm pressure according to the manufacturer's instructions (certainly 5 seconds). Most auto-injector manufacturers recommend massaging the injection site after injection to improve drug absorption. There is no clear research on this in anaphylaxis but weak evidence from other areas that massage increases local blood flow and speeds up drug absorption after IM injection.

ADDITIONAL TREATMENTS AFTER ADRENALINE

- Remove trigger if possible
- Oxygen
- Nebulised salbutamol if severe wheeze
- Circulatory support. If no breathing difficulties, lie the patient down and raise the legs. Deaths have occurred within seconds of a change to a more upright posture. IV fluids are helpful.
- Frequently monitor heart rate, BP, SpO2.
- If cardiac arrest occurs, manage in the normal way.

All patients who have had an anaphylactic reaction must go to hospital. ☺



STOP BLEEDING FAST

Stopping life-threatening bleeding in remote and exposed environments is a serious challenge, and the challenge is set with the clock running.

Casualties with traumatic injuries can develop hypothermia through severe blood loss and develop coagulopathies and acidosis that then exacerbate hypothermia beginning a vicious cycle. These inhibit the blood's own clotting ability and makes stopping a life-threatening bleed all the more difficult. Collectively coagulopathy, acidosis, and hypothermia are known as the Trauma Triad of Death. To break the Triad requires identifying the symptoms of hypothermia and severe blood loss swiftly followed by rapid treatment. CeloxTM Rapid is proven to stop hypothermic bleeding. It works independent of the blood's intrinsic clotting mechanism which may be compromised in a hypothermic casualty. Celox Rapid has also demonstrated successfully in independent coagulopathic tests.

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CELOX RAPID

The management of possible spinal injury

MR MIKE GREENE MREW MEDICAL OFFICER

Mike asked some important and challenging questions:

- Why is this still a 'Hot Topic'?
- What has changed since 2015 when he gave a presentation at the conference on this subject?
- How should this change our practice?

In all medical treatment, it must be clear that the benefits outweigh any side effects. In all situations we have to balance the likelihood of a problem arising with the consequences if it does arise. At one extreme, there might be a rare chance of untoward event with a devastating consequence. At the other extreme, there might be a high chance of an event but with minimum consequence. We call this analysis 'Risk Management'. The presentation considered how this relates to spinal immobilisation.

It is now understood that deterioration after spinal cord injury can occur for several reasons, of which movement is only one. Traditional extrication techniques to have evolved through fear of causing further mechanical injury and were not evidence-based. There is no direct evidence that 'Triple Immobilisation' (collar, head blocks and spinal board) is effective in preventing all secondary cord injury due to movement.

More importantly, many studies have confirmed that there are significant side effects and harm from this approach. Consequently, it is now recognised that there are good reasons for 'selective motion control' ie. the use of motion control in those patients who are likely to benefit rather than the use of 'immobilisation' to all trauma patients irrespective of their risk. We also have a better understanding of the techniques that will reduce or eliminate potentially harmful movements without being excessively restrictive and with fewer side effects.

Primary Spinal Cord Injury is caused by the original force of injury. Secondary Cord Injury can be caused by:

- Swelling
- Hypoxia
- Ischemia — poor blood supply
- Blood clot around and pressing on the cord
- Mechanical injury.

Spinal cord treatment should aim to address all these insults and not only mechanical movement.

SPINAL CORD INJURY

Spinal cord injury can occur if something presses on the cord or it becomes stretched or misshapen.

From study of many cases, it is clear that there is actually a spectrum of situations in spinal injury:

- Uninjured spine (ie. spinal bony pain but no damage)
- Stable bony injury with no potential for neurological compromise (ie. some of the vertebrae are damaged but that will never affect the cord)
- Unstable bony injury or potentially unstable but there is (currently) no neurological compromise (ie. some of the vertebrae are damaged in such a way that cord damage is possible, but it hasn't occurred yet)
- Unstable bony injury with neurological compromise evident
- Severely injured casualty with unknown spinal status.

Ideally we would like to recognise these groups and treat them each appropriately. This requires the identification of 'at risk' groups. Triage tools such as NEXUS and the Canadian C Spine Rule were originally used to identify patients who require radiological investigation but they have been successfully applied as field triage tools and both can select at risk populations. The NEXUS rule is more appropriate in mountain rescue.

The different methods of the 'control of motion' were reviewed.

KEY MESSAGE 1

- Manual inline stabilisation is as effective as a collar
- Trapezius squeeze is more effective than head squeeze during transfer
- Lift-and-slide causes less spinal movement than a log roll
- A vacuum mattress with well formed 'head blocks' by moulding the head is as effective as a spine board or scoop with head blocks and a collar in restricting movement.

FOUR IMPORTANT STUDIES IN PUBLISHED 2016/2017

Although there are several methods for immobilising the spine (collars, hard board etc), a landmark study published in 2016, which reviewed all the published case reports of spinal injury, clearly showed that there were no instances of neurological deterioration among spine-injured patients not immobilised in the prehospital environment.

Another study published earlier this year compared the vacuum mattress with the spine board for immobilisation in a cervical spine-injured patient. The researchers looked at spinal movement during patient transfer on and off the devices, which was achieved by log roll for the spine board and lift-and-slide for the vacuum mattress. They showed that there was less movement of the spine when immobilised in a vacuum mattress apart from in one direction, where there was slightly more movement in the vacuum mattress group. Importantly, spinal movement occurred with both methods of 'immobilisation'. The lift produced less movement than the log roll. They concluded that there may be benefit of use of the vacuum mattress versus the spine board alone in

preventing motion at an unstable, cervical spine injury.

An interesting review from the USA entitled 'The definite risks and questionable benefits of liberal prehospital spinal immobilisation' highlighted the absence of good evidence supporting the use of traditional immobilisation coupled with a lot of case reports of complications arising from its use.

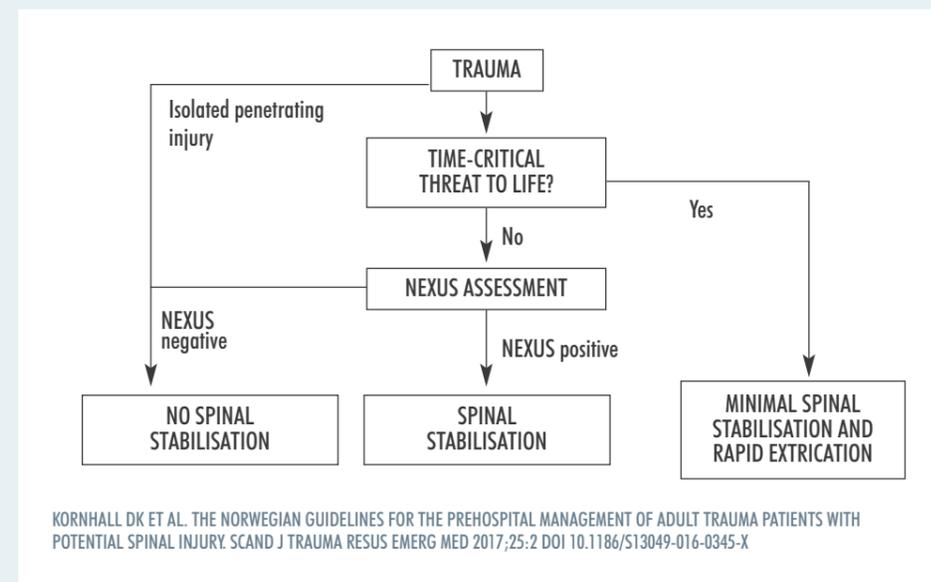
An important publication from Norway has defined guidelines for the prehospital management of adult trauma patients with potential spinal injury. Their key recommendations are to use selective approach to spinal stabilisation, implement triaging tools based on clinical findings (ie. NEXUS), and adopt a strategy of minimal handling:

1. Victims with potential spinal injury should have spinal stabilisation.
2. Use a **minimal handling** strategy
3. Spinal stabilisation should **not delay or preclude life-saving interventions**.
4. Victims with penetrating trauma should not be immobilised.
5. Use **tripling tools** based on clinical (NEXUS).
6. Cervical stabilisation should be informed and selective, observing the pros and cons, using MILS, head blocks, a collar or combination thereof.
7. Patients should be transported on a vacuum mattress or ambulance stretcher.
8. Under some circumstances, patients can be **invited to self-extricate** to a stretcher.

KEY MESSAGE 2

- Given that traditional methods clearly do not stop all spinal movement, there has been a move internationally to stop using the term immobilisation and change to 'motion restriction'. We need to abandon the idea that complete immobilisation is either achievable or desirable.

The Norwegian flowchart describing prehospital spinal stabilisation in patients with suspected spinal injury is shown, top right.



FACULTY OF PREHOSPITAL CARE GUIDANCE IN 2017

Main points

- Echoes the Norwegian guidelines
- Immobilisation should not impede ongoing care
- If used for a potential injury, immobilisation should not exacerbate known injuries or comorbidities
- Immobilisation and extrication should not delay delivery of definitive care eg. transfer.

The FPHC also emphasised that like the injured brain is vulnerable to secondary brain injury, the injured spinal cord is vulnerable to secondary spinal injury. The causes are similar eg. hypoxia, low blood pressure etc.

The FPHC has identified four casualty groups and identified optimal management:

Awake; no pain or neurology

- For this group, there is no value in traditional triple immobilisation. These casualties can extricate and immobilise themselves under instruction.

- The C Spine can be cleared using **NEXUS**. If NEXUS is positive, they should be transported to hospital in a position of comfort using manual inline stabilisation initially, and packaging with a **MILS and vacuum mattress**.

Unconscious

- This group is the most likely to have a spinal injury and also likely to have other time-critical injuries.
- Aim to extricate rapidly (**CABCEDE**)
- If resources/access are limited, a cervical collar may be useful to aid stabilising the head during extrication, but then remove it.

- Transport to definitive care in a supported neutral position with no collar ie. **MILS and vacuum mattress**.

Awake, neck pain and/or neurology

- Whilst triple immobilisation has been shown to be of no proven value, it is appropriate to use spinal **motion restriction**.
- These casualties may have spinal and other time-critical injuries. The focus should be on gentle transportation to an appropriate hospital, treating/stabilising other injuries as is possible.
- Casualties in this group are extricated and transported in a position of comfort with motion control methods. They should be transported to hospital in a position of comfort using **MILS and vacuum mattress**.

Agitated; combative

- Keep them comfortable.
- Do not restrain them in an attempt to impose immobilisation. Use **MILS and vacuum mattress**.
- Consider treatable causes of agitation eg. hypotension, hypoxia, brain injury (**CABCEDE**).

JRCALC SUPPLEMENT 2017

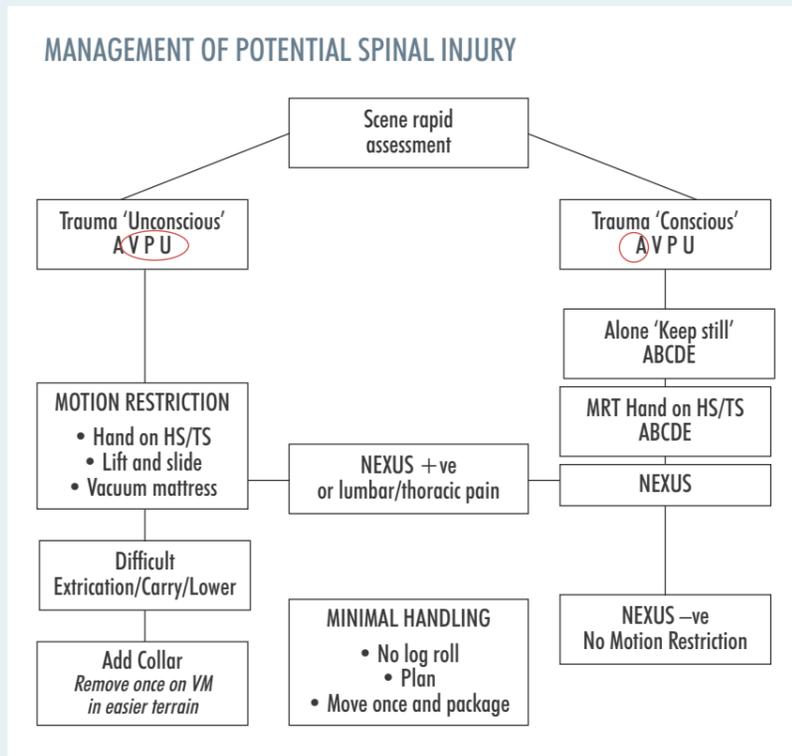
A guideline for spinal injury was published earlier this year which does share some of the recommendations made above (eg. self-extrication). However, it also advises standard use of a collar, which is contrary to international advice, and the flow chart includes a combination of NEXUS plus Canadian C Spine Rule plus other criteria in a decision making rule that has never been validated in a proper scientific study. It is not recommended for mountain rescue teams.

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RECOMMENDED CHANGES TO MR PRACTICE

- Teach selective motion restriction
- Use NEXUS
- Use cervical collars selectively
- Teach lift-and-slide and not log roll as the preferred method of loading
- Use a vacuum mattress
- Consider when to self-extricate.

MIKE SUMMARISED HIS PRESENTATION WITH THE SLIDE REPRODUCED IN THE DIAGRAM RIGHT:



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COMRU 3	Llanberis 34	Longtown 10
Duddon and Furness 22	North East Wales 8	Western Beacons 2
Kendal 7	Ogwen Valley 34	(Last quarter: 44) 56
Keswick 29	South Snowdonia 2	
Langdale Ambleside 39	(Last quarter: 96) 54	
Penrith 9		
Wasdale 46		
(Last quarter: 122) 180		
Mid-Pennine	Peak District	South West
Bolton 10	Buxton 28	SARA 3
Bowland Pennine 20	Derby 9	(Last quarter: 8) 3
Calder Valley 3	Edale 9	
Rosendale & Pendle 5	Kinder 1	
(Last quarter: 81) 38	Woodhead 11	
	(Last quarter: 64) 58	
North East	Peninsula	Yorkshire Dales
North of Tyne 7	Cornwall 2	CRO 28
Northumberland NP 17	Dartmoor Okehampton 2	Upper Wharfedale 12
Swaledale 10	Dartmoor Tavistock 10	(Last quarter: 30) 40
Teesdale & Weardale 1	Exmoor 8	
(Last quarter: 18) 35	(Last quarter: 15) 22	
		Search Dogs
		England 1
		South Wales 1
		Wales 1
		(Last quarter: 6) 3
		RAF
		Leeming 1
		Valley 1
		(Last quarter: 5) 2
		Total
		531
		(Last quarter: 489)

EDITOR'S NOTE: PLEASE NOTE THAT NUMBERS QUOTED MAY NOT BE PRECISE FOR ANY GIVEN PERIOD. STATS SHOULD BE RETURNED TO THE STATISTICS OFFICER, NOT TO THE EDITOR.



Photo © Dublin Wicklow MRT

SEPTEMBER: MOUNTAIN RESCUER IN FATAL ACCIDENT ON CRIB GOCH

Dublin & Wicklow MRT paid tribute to their 'dear friend and teammate', 43-year-old Kevin Hallahan who lost his life in a fatal accident during a team training event on Crib Goch in Snowdonia. The accident happened in the morning of September 30th.

'Kevin was a skilled and experienced mountaineer who selflessly applied his knowledge to help those in need. He could be relied upon to complete any task efficiently and safely, always looking out for his teammates. He was a man who cared for those around him, supporting and mentoring, with a kind word and his friendly smile. He was a wonderful person who will be sorely missed by all who were privileged to know him.'

They also thanked Llanberis, Aberglaslyn and Ogwen Valley team members, and the Caernarfon Coastguard helicopter and North Wales Police for their assistance.

An inquest in December found that nothing could have been done to prevent Kevin's death. All those who took part in the exercise were experienced mountaineers with all the necessary equipment.

'We'd pre-planned our route and visited Crib Goch and Snowdonia several times before,' said Joseph O'Gorman. 'We knew the area.'

Gruffudd Sion Owen, of the Llanberis team, described the conditions that day as 'particularly greasy', following several rain showers in the local area, adding that it's not unknown for rocks to dislodge on the ridge.

'It can be quite challenging, even for experienced mountaineers, and despite it looking solid, that may not always be the case. It's impossible to tell how he fell for certain, but the likelihood of an accident is always quite high.'

Pathologist Dr Mark Lord confirmed that Mr Hallahan would almost certainly have died instantly, suffering a fracture to the back of the head following a fall from a considerable height.

Summing up, coroner Dewi Pritchard Jones noted that there's no such thing as a safe mountain. The Crib Goch ridge, between Pen-y-Pass and Snowdon's summit, has been the scene of numerous rescues, including some fatal incidents, during recent years.

books

RISKING LIFE AND LIMB

TGO BOOK OF THE YEAR 2016, 'RISKING LIFE AND LIMB' BY JUDY WHITESIDE + 'IMAGES OF A WARMING PLANET' BY ASHLEY COOPER STILL AVAILABLE FROM THE MREW SHOP. MOUNTAIN.RESCUE.ORG.UK

ASHLEY COOPER

IMAGES FROM A WARMING PLANET

© Ed Dowcra



DECEMBER: PATERDALE TEAM MEMBER ED DOWCRA SAYS THANKS TO RESCUE COLLEAGUES AFTER SERIOUS FALL

Ed had been ice climbing with Graham Uney, a member of Kirkby Stephen MRT, when he fell, sustaining multiple injuries. Both Ed and Graham are very experienced, skilled mountaineers and were extremely well prepared for their adventure that day. Team members from Penrith, Kirkby Stephen and Patterdale teams were called to the incident above Blea Water. The rescue lasted for several hours, involved 40 mountain rescuers, the Great North Air Ambulance and the Coastguard helicopter.

'We'd had a great morning climbing the Far Left Fall, then moved over to the Blea Water Icefall,' says Graham. 'Ed was leading a pitch on the main icefall when he fell. I made him safe and called it in to mountain rescue.'

'It was a huge relief to see Penrith team arrive, closely followed by Kirkby Stephen. When Patterdale also came to assist it was great to know we were surrounded by friends and colleagues all there to help get Ed safely down from the icefall, and off the fell on his way to hospital. Thanks for being there for us guys!'

It was a technical rescue in very difficult circumstances and a very long carry out to the road at Mardale Head where the helicopter was able to pick Ed up and take him on to Newcastle. It transpired he had six broken ribs, a fractured scapula, his L1 vertebrae was broken into five bits. He also had a pneumothorax and a small bleed on the brain but he is already well on his way to recovery and took to social media to thank all the wellwishers and everyone involved with his rescue and subsequent recovery, who have helped him 'keep positive and fight through' — not least his mountain rescue colleagues.

'I hope I provided a suitably realistic scenario for you to work through? At times I thought I may have taken the realism a little too far, in the search for authenticity. Hopefully, the opportunity to practise the various elements, from cascade to manoeuvring a casualty on steep ground, inter-team working, and everything in between, was of benefit. However, I won't be organising any such training again soon (if ever), I hope. Seriously though, thank you for coming to my aid.'

'Like most team members, I suspect,

I've always said I'd rather crawl off than have to call a team out. But when you're knocked out and can't physically move, that changes a bit! I wasn't half glad to know you were all coming! Hopefully you enjoyed the songs on the slog of an extraction? Thanks again all and please pass my gratitude to all those unsung supporters in the background, the husbands, wives, partners and children who allow members to shoot off at the drop of a hat and allowed you all to be there for me that Monday.

'Many thanks also to Prestwick Maritime and Coastguard Agency and the Great North Air Ambulance crews for all your efforts in what I understand were difficult flying conditions, and for getting me to Newcastle RVI as quickly as possible. I have to ask though, does that winching get me my winch training tick for the year? Now that would be multitasking!

'Of course, I'm super grateful to Graham for taking care of me initially and for the many man hugs when I was lying on the belay ledge freezing. Cheers, Mucker! Thanks for getting me back on the ledge and calling the cavalry. Hope I haven't put you off climbing with me and sorry you're a partner down for this winter climbing season!'

Ed also paid tribute to staff at Newcastle RVI for their care and 'putting the reins on when I want to do too much too soon' and last, though not least at all, his family and friends, who have helped Kirsty out with a variety of tasks, 'including bed moving and the boys' and 'the amazing Kirsty' herself and his boys.

We hope all these thanks will be amplified a little by inclusion here in the mag. Get well soon Ed! ☺



CHRISTMAS DAY: EARLY CALL FOR PATERDALE

Christmas started early for Patterdale team members, with the pagers going off whilst everyone was still sleeping and waiting for Santa! The call came in at 5.15 am, when a couple who'd been walking on Helvellyn on Christmas Eve, called from their tent at Red Tarn.

The pair were warm and dry and well-equipped, but had suffered a pretty grim day on the hill and got very cold and wet. Sensibly, they had taken shelter in their tent to sit the night out but were worried about the weather.

One super-keen team member was walked up to them to assess the situation. They were in no danger and were walked back down the hill to their car. The rescue involved five team members for four hours.



DECEMBER: EAT YOUR HEART OUT, BAKE OFF...

What better way to celebrate your 25th birthday than a shiny new Land Rover made entirely from cake?

This showstopper, made for Western Beacons team member Liam Rose by his mother-in-law, took 20 hours to confection, we hear, her only reference a photo of a team vehicle. Series winner, we reckon.

Photo © Liam Rose



NOVEMBER: TRAGIC OUTCOME FOR DOG TILLY, TRAPPED IN OPEN FISSURE

South & Mid-Wales Cave Rescue team members were forced to make a tough decision in December, when a missing dog was located in an open fissure on a hillside above Blaena.



Photos © SMWCRT

Tilly had been missing overnight and the search had involved cavers, local residents and the South Wales Fire & Rescue Service. On the Tuesday morning, a small contingent were deployed to make an assessment, including other agencies such as the RSCPA and USAR. The incident was handed over to the team at 3.30 pm, after the dog had been precisely located by the Fire Service using a camera on an 8-metre pole.

The tight rift was quickly rigged for surface lowering and hauling. An initial 6-metre recce down the rift resulted in the haul point being moved eighteen inches, to a slightly wider point in the rift. This allowed one small, brave team member to reach the bottom of the 8-metre rift, but in a very tight slot, unable to turn or bend. Tilly was very close by but unable to get out onto the rift floor. She was encouraged verbally, with dog food and with a hooked pole. After an extended effort of twenty minutes, the tough decision had to be made, that there was nothing more we could do — the decision wasn't taken lightly. The rescue attempt finished at 7.30 pm, with all team members off the hill by 8.30 pm.

A big thank you has to go to South Wales Fire & Rescue Service, the local community and cavers who assisted in many aspects of the rescue attempt. And a special mention also to the gutsy team member who pushed the rift and got within a few feet.

Ed, before the fall © Graham Uney

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Busy doing nothing...

PETER SAPSFORD

If you've ever wondered what a 'dogsboddy' does while waiting, alone on the hillside, for a search dog and handler to appear, it's not the cold, wet, boring experience many assume, what with the bivvy bag, the roll mat, and the sensible clothing – outer layers supplied by the organisation, courtesy of Páramo. As to what I do...

The radio crackles. Just starting with Morag. Act dead and do nothing 'till I get there'.

Act dead and do nothing? Normal people do *something* on the fell side – walk, run, cycle, generate adrenalin around a casualty site – but few will be deliberately following instructions to lie out in all weathers, doing nothing.

But, as I said, I'm all toggled up in the right gear, very happy and – besides mulling over ideas for a column about what a dogsboddy does while lying on the hill doing nothing – I'm pondering on the question: is owning and wearing the aforementioned brand of clothing actually a religion? (Other clothing brands are available, of course). After all, adherents absolutely believe in it. They swear by it, they follow its care labels religiously and have often been converted to it by other evangelists. It is undoubtedly an organised system of beliefs and practices followed with great devotion.

One colleague found a lost jacket at the bottom of a climb, put the word out on social media and after no responses started to wear it and now he has the faith and won't wear anything else. By the way, if it's yours, get in touch, state the site of the loss and we will see if he will relinquish it.

But my pondering about this belief system is interrupted by Morag, a Border collie, hot, noisy and excited.

After the success of Morag's 'find' and playing with the squeaky toy reward, Morag and handler leave. All goes quiet and I gaze at the stars attempting to identify constellations. If you've ever tried to navigate by the stars you too might have found the Plough annoyingly covered by cloud, and found locating Polaris, the Pole Star, rather difficult.

But a dogsboddy out there with nothing to do has time to locate Cassiopeia, tilt his (or her) head to get a line on the tops of the 'W', go up at 90 degrees from the left end

and work out a bearing to the Pole Star to enable a route back to the car park (other navigation aids are available).

I wonder if the modern ways are too easy? Short cuts to simplification like the automatic camera exposure leads me to think I'm a great photographer. Flat pack furniture assembly means I'm a competent carpenter. But, suddenly, my reverie with the heavens and how things used to be is interrupted by Isla, another professional Border collie delighted to find me.

And, when it's all gone quiet again, I get out a thermal imaging camera (many brands available). Actually, although it's called a camera, it's an infrared sensor I borrowed from its usual purpose, assisting in the control of grey squirrels. It provides a view of another world based not on visible light but on all the subtle differences in heat from trees, paths, rocks and sky. The heat of the day cools at different rates depending on the materials and surfaces and, with care, I could use it to find my way through a wood in pitch darkness. (Other forms of illumination are available).

Suddenly, through the camera viewer, I see a bright white image of a dog at 200 metres, zig-zagging towards me, a fantastic sight. I take the viewer away to check where the dog is and, of course, I can see nothing at all. Soon the handler comes into view and I decide not to tell him that I can tell which parts of him are colder than others.

So, what with admiring the skill of the search dogs and the dedication of the handlers, playing with squeaky toys, getting lost in my own thoughts, pondering the religion of a clothing system, navigating by the stars, mentally writing a magazine column, building an imaginary flat pack and identifying hotspots, lying around on the hill 'doing nothing' can be pretty entertaining, very busy – and fun, of course. ☺

NEW YEAR HONOUR FOR MALCOLM GRINDROD



Five members of mountain rescue were appointed MBEs and a sixth will receive a British Empire Medal, in the Queen's New Year Honours list. Malcolm Grindrod, vice president of the Lake District MRSDA and a member of Coniston MRT, was awarded the MBE for services to mountain rescue in Cumbria. Malcolm was one of many handlers who featured in 'Search & Rescue Dogs: Fifty years and counting', by **Bob Sharp** and **Bill Jennison** see below.



Malcolm has been involved in mountain rescue for 55 years – initially with the Langdale Ambleside team for 28 years – and a member of SARDA for 45. He has trained, qualified and worked six dogs and served as both training officer and call-out coordinator.

His first association with SARDA was at a Mountain Rescue Committee conference at Eskdale Outward Bound in 1972, with his Irish Setter Jan. On the

first SARDA England course, in January 1973, based at the King's Head Hotel, he and Jan graded.

'At the time,' he says, 'dog training was mostly done at nights with the help of our faithful bodies. We had to train at least once a week, and the January course was held to grade each dog team. I became training officer for SARDA England in the late-1970s and began running weekend courses throughout

England. Along with assessors (selected from the more experienced dog handlers within the association), this made it possible to develop and maintain standards. At the end of each day's training, we would note the progress of each dog and handler.

'Dogs were put on the call-out list at a much younger age. Training was less rigorous, but I can honestly say, in all my years training search dogs, I can never remember an instance where a dog, having found the casualty on a real search, failed to take its handler to the missing person.

'Over time, SARDA England became too large to carry on as a single organisation – we had fifty graded dogs, half in the Lakes and the rest scattered around England – so SARDA Lakes was formed. Today, all the weekend courses are run within the Lake District, the only exception being the annual winter one-week course in the Cairngorms. Training takes much longer and dog teams must pass all fourteen assessments, on all aspects of search work including forest, footpath, moorland and long mountain day searches.

'We set up the winter training course in 1991. The main benefit is the dogs get to work with buried casualties. They become very focused on the scent coming up from the casualty. The handlers also get to work in

extreme weather conditions. 'Some memories linger on but one event sticks in my mind. After a night search in the Upper Esk, Dave Riley's dog found the boys. At first light a helicopter arrived and the boys were soon being winched up into the hovering Sea King. When the time came for us to be winched, down came a double strop and up we went, each holding our dog tight in our arms. Trouble was, six or seven metres up, our dogs began to fight! Clinging on for dear life to two struggling dogs, the pair of us finally arrived at the helicopter. Dave 'wearing' his dog on his head like a Davy Crockett hat! A sight I will never forget!'

Malcolm was also part of the recovery operation following the Lockerbie tragedy in 1988.

Without doubt, he is a respected member of the wider mountain rescue community and has helped many of today's handlers achieve their goal of becoming a graded search dog team. Coniston team paid tribute to Malcolm's knowledge and experience. His comical 'tails' of wisdom, they said, have helped many a dog handler on a cold, wet fellside.

Malcolm, congratulations. This is very well deserved. ☺

Top: Malcolm and Jan © Malcolm Grindrod.



'SEARCH & RESCUE DOGS' BY BOB SHARP & BILL JENNISON IS AVAILABLE, PRICE £25, AT MOUNTAIN.RESCUE.ORG.UK

'SEARCH & RESCUE DOGS: FIFTY YEARS AND COUNTING' BY BOB SHARP & BILL JENNISON IS AVAILABLE FOR A £10 DONATION TO NSARDA VIA BOB SHARP, EMAIL: LOMONDBOB@GMAIL.COM



Jim Gallienne with Izzy courtesy of @cornwallSRT.

Jim Gallienne with Izzy @cornwallSRT

CONGRATULATIONS ALSO TO JIM GALLIENNE, PETE BUXTON, ALEC COLYER, TIM BIRD AND MARK GUNTER BEYER

In Cornwall, another search dog handler will receive an MBE for services to policing and search and rescue. **Jim Gallienne** is a serving police officer with Devon and Cornwall Police and was a founder member of Cornwall SRT in 2002. He has since served variously as chairman and vice chairman, and is currently team leader.

'We're incredibly proud,' ran the team's Facebook tribute to Jim. 'He has dedicated his life to the team, also finding time to train his collie Izzy up to graded search dog level, qualifying as a Swiftwater Rescue Technician and 'cascarer'. So we hope you'll join us all in congratulating him on this well-earned recognition'.

Also in the south west, **Alec Collyer**, a founder member and chairman of the Dartmoor Ashburton team, was similarly honoured for services to search and rescue in Dartmoor. He has been involved as a volunteer rescuer for more than 40 years and is still an active volunteer of the team. A team spokesperson said the award was 'very well deserved'.

A member of Duddon & Furness MRT for 26 years, **Pete Buxton** was appointed an MBE for services to mountain rescue and the community in Cumbria.

And in North Wales, another police officer was nominated by North Wales Police for his MBE. **Tim Bird**, an Ogwen Valley team leader, received his honour for services to policing and the community in North Wales.

'Tim plays an important part in the development and training of technical rope rescue and swiftwater rescue,' says the team's Chris Lloyd. 'With these skills he is a valuable asset to North Wales Police when there are fatal incidents on the mountains and nominates OVMRO to assist NWP to recover bodies from remote places.'

Mark Gunter Beyer of Devon will receive the British Empire Medal for services to defence and the Dartmoor mountain rescue group. He is an administrative officer with the Ministry of Defence.

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