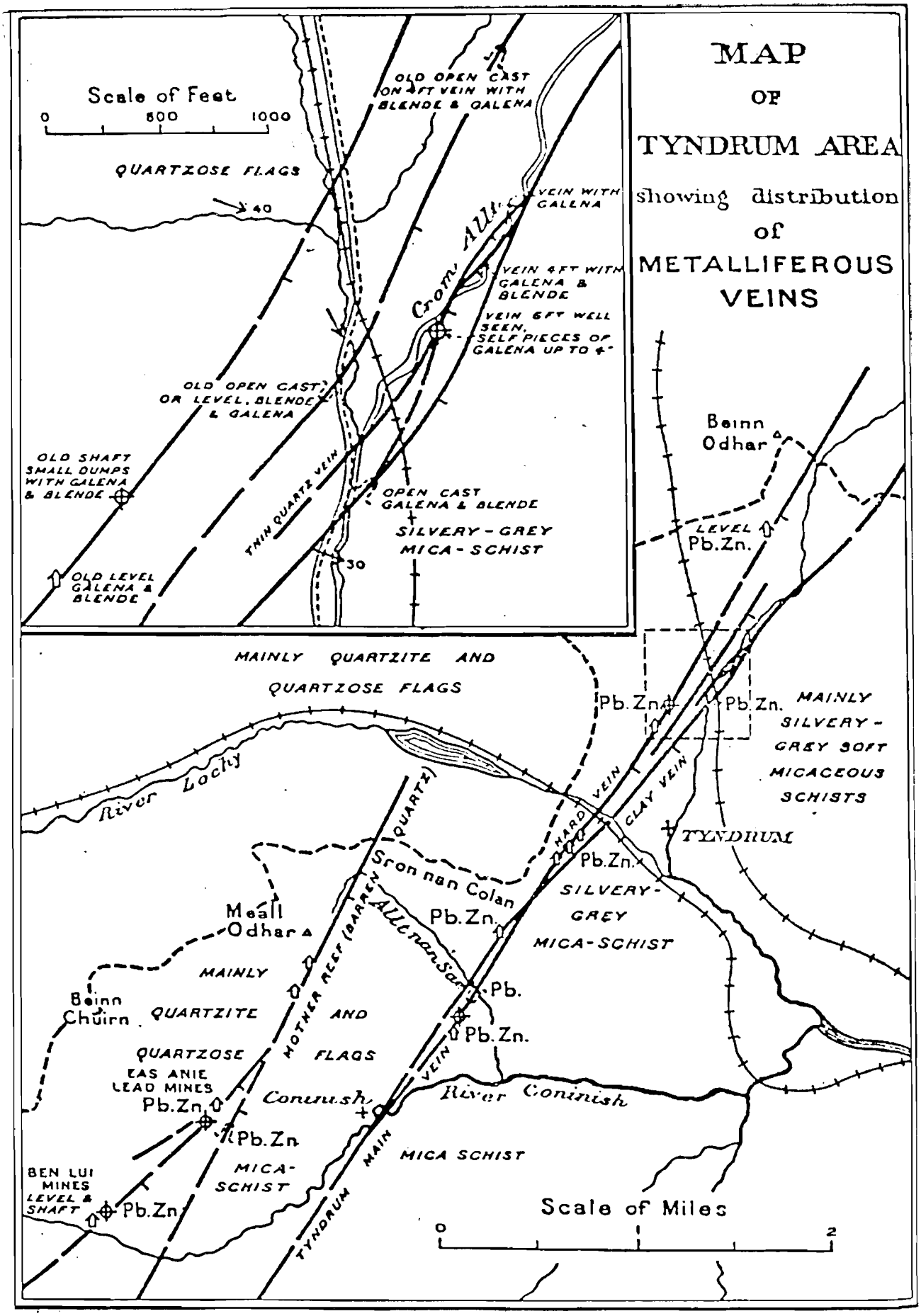


OLD SHAFT LEVEL OPEN CAST

VEIN CERTAIN, a crossmark on hanging wall. VEIN UNCERTAIN

Pb. LEAD ORE Zn. ZINC ORE

CONTENTS.

PLUS. The Questionnaire by Mike Mitchell.

Cumbria Amenity Trust

A mining history research society
Member of N.A.M.H.O.

DECEMBER 1987.

Well Comrades,

Here it is,the CAT Christmas Newsletter.
Hopefully we have come up with a newsletter which will prove enlightening both to the active/less active mining history enthusiast.
Interviews for Editorial jobs usually take place in nice comfortable surroundings, subdued light,tropical plants,comfortable seating. My coercion onto the editorial board began while I was hanging from a rock bolt,going into a stope in Coniston Copper Mines(I suppose the subdued light was there). So if only to secure a chance of safe ascent I decided to take on the (sub)editorship. Not wanting to take the blame for all of it,what with being inexperienced and of the softer sex - see article The Early Mine Tourist.

Coniston Coppermines have been the scene of great discoveries this year. The Top Level Dig and subsequent exploration,plus the reinstatement of a fine ore tub and windlass. A plaque commemerating the great dig has now been put in position. Alan & Mikes underground timbering expertise proved invaluable during the stabilising operations.
A special edition newsletter dealing with the Coniston discoveries is being planned.

In past months Nenthead has been the venue for much CAT exploration,many jigsaws have been pieced together.More exploration needs to be done along the Rampgill level and elsewhere. For those people who don't mind getting wet the Cappelcleugh - Smallcleugh trip is a winner,plenty still to explore. Pete Three Lives Fleming will no doubt guide the trip again - if we ask him nicely.

The Swaledale weekend proved very sporting,the Brandy Bottle incline/Hard level trip is a classic,thanks Anton. Some timbering needs doing on Hard level to stop this trip from becoming impossible.

Sandbeds West Mine,this trip proved that it is still possible to enter this mine and descend the 200' of in Situ ladders.

The June report by Durham,Cumbria & Northumberland C.C could lead to more mine sites being conserved and interpreted. Public interest is certainly there if you take into account how many people visit Killhope. A Lead Mining Trail is envisaged.

The articles on Force Crag Will I hope bring everyone up to date with the project.

So comrades lets make 1988 a year of even greater discoveries. ED.

P.S. Instead of a competition,this year we have a questionnaire, which is on a separate sheet.

MANY THANKS TO ALL THOSE WHO CONTRIBUTED ARTICLES and INFORMATION.
ESPECIAL THANKS TO MARGARET FLEMING FOR PRINTING AND STAPLING AND CLAIRE HAMER FOR TYPING.

SCOTLANDS FIRST GOLD MINE - Could there be gold in them thar hills?
Ennex International are still prospecting for gold at Tyndrum. Two members were on site talking to the drilling teams early september. Two core drilling machines were operating on the side of Beinn Chuirn.Exploration of the area revealed two old levels in the gill called Eas Anie,these had obviously been recently surveyed. A line of freshly dug survey trenchs could be seen from the top of Beinn Lui,these ran directly above the sulphide vein that the drilling teams were intersecting. According to an article in the Guardian 'A substantial strike of high grade gold bearing veins have been found in the metamorphic rocks,assaying out at between 0.25 and 0.75 ozs per tonne. See Memoirs of the G.S.S. Special reports Vol XVII by G.V Wilson. 1921. for mine information.

ONE OF BRITAINS OLDEST COLLIERIES is to become the Yorkshire mining museum. Caphouse colliery near Wakefield which closed in 1985 is due to reopen to the public in June 88. 3m is being spent on the project which it is hoped will attract 150,000 visitors. The 18th century main shaft will be used to take visitors 500' down onto the New Hards seam. Surface attractions will include a ride on a miners 'paddy wagon' a pit pony called 'Able',a 42 bladed roadheader and Ron Calvin R.M. recalling old miners tales.

WARTON CRAG WORK PARTIES. John Helme reported at the last committee meeting that fencing around the shafts was now completed. Many thanks to all those who took part.

THE EARLY MINE TOURIST

by Dave Bridge.

If you think that before modern-day exploration of the North Pennine mining fields the inner secrets of these vast systems were known only to the men and boys who worked them - then read on. It is probably true to say that before the mid 18th Century the mines would have been out of bounds to all but the most adventurous visitors. In those early days shaft working from the surface was still very much the practice, the ore being extracted by use of the horse gin. But by the late 1700's important changes were taking place. Long drainage levels and waggon-ways were being driven from nearby valleys, such as the Barneycraig Horse Level linking the Coalcleugh workings with West Allerdale which was begun in about 1760, and Hard Level driven to the Old Gang workings north of Swaledale which was started in the 1780's. At about this time the London Lead Company was also developing levels to replace shafts in the Nenthead area. By 1770 the company had introduced cast-iron waggon-ways and before the year 1800 the Rampgill Horse Level had been driven along the vein.

And so the scene had been set for the organised mine tour. Fortunately we are able to share this experience thanks to a first-hand description of a guided visit to a typical North Pennine lead mine which was recorded in about 1830 by Thomas Sopwith, at that time a surveyor of lead mines in the Alston area. This description appears in his "Account of the Mining Districts of Alston Moor, Weardale and Teesdale" from which the following extracts are taken. They make fascinating reading, and those who have attended a Nenthead CAT meet may detect an uncannily familiar ring.

"Parties of ladies and gentlemen desirous of visiting the mines can have suitable dresses provided by the landlord of the inn. A coat, pair of trowsers, and hat suffice for a gentleman, while the softer sex are often indebted to the landlady's wardrobe. Old shawls, hats, aprons, and even bedgowns, are taken to the mining shop, and the fair form of beauty and fashion is there disguised in such heterogeneous garments as to create no small share of amusement. The grotesque and novel appearance, both of ladies and gentlemen, frequently contributes not a little to the mirth of the company, and also tends to dissipate any timorous feeling... The party being suitably arrayed, have sometimes to wait a little until the waggons come out, and in the mean time are each furnished with a candle, round which a piece of clay is fixed to hold it by. At length the rumbling noise of the approaching waggons rapidly increases, and their contents having been deposited, they are prepared for the visitors, the inside being cleaned, and a board placed at each end for a seat. The entrance to the mine, or 'the level mouth',

resembles an open arched door-way, into which the waggons are driven at a moderate pace, and the visitors experience the novel sensations which so unusual a conveyance is apt to create. The jolting, hottering motion of the wagon, the splashing of the water, and the dark and narrow passage, all concur to produce a strange effect, which, however, soon wears off, and the subterranean traveller finds leisure to observe the rugged roof and walls of the level, or to listen to the guide urging forward his horse, in tones which the echos of the mine often render musical. Even the fragment of a song from the driver sometimes enlivens the journey, but, on no account, is whistling allowed to be heard in a mine...

"After advancing some distance into the interior, the visitor passes the rise foots, in some of which a store of 'bouse' is laid ready to be taken away, and at length the waggons stop, and the company get out at one of these openings. A powerful vociferation of "put nought down" is sent forth as a warning to those above to throw no work down, and a further summons brings a few miners to render their assistance. When a signal is to be made to some distance, it is done by beating on the rails or posts, five beats, the first two slow, the other three quick, and this is repeated several times...

"The ascent of a rise is frequently attended with some difficulty, especially to ladies; but the gallentry of the gentlemen and the effective civility of the miners soon overcome the apparent dangers, and, one by one, they are raised into the workings of the vein. Hence the party are conducted along the drift of the vein, and this part of the expedition must of course greatly vary in different mines; in all, however, the stranger is apt to be impressed with feelings of awe at the idea of being so far underground...

"Blend and calamine, the ores of zinc, are sometimes found spreading their glossy blackness in the veins; and fluor spar and quartz are the principal, almost the only, sparry ornaments that abound...

"The progress along vein workings is often "with cautious steps and slow", especially among the intricacies of flat workings. The friendly caution of "take care ye dinna fall down the rise" sometimes calling the visitor's attention (absorbed perhaps in other thoughts) to a yawning gulf not to be passed over without some caution. Sometimes an almost perfect stillness is suddenly broken by a noise like distant thunder, the report of a blast, which, rolling through the workings of the mine, at length, after many reverberations, dies away. The noise of work "falling down a rise", and the rumbling of waggons occasionally salute the ear; the sound of the latter, gradually increasing and

lessening, resembles the solemn effect of distance thunder...

"At length arrived at the far end or 'forehead' of the vein, the party usually rest, and a pleasant company is occasionally formed by the accession of two or three partnerships. Spirits or other refreshments are sometimes taken by the visitors...

"The miners work by what is often in other trades called piecework, so that the time spent with strangers is taken from their own labour, and the prodigal expenditure of light is also at their own cost. By the latter is meant the custom of miners of not putting out their candles, however numerous the company may be, and a forehead assemblage presents a brilliant illumination, twenty or thirty candles being sometimes placed against a wall...

"Ladies seldom pursue a subterranean excursion further than the main workings, or such others as are easily accessible, while their more adventurous companions frequently accompany the guides into other parts of the mine. In doing so, obstacles present themselves more difficult of accomplishment than those already described. Lofty rises with rude and slippery 'stemples' are sometimes found extremely awkward to climb, and still more so to descend. It sometimes happens that the 'stemples' are covered over with boards to prevent their being injured by the falling ore, etc. thrown from the workings above, and the only footholds then to be had are the spaces between these boards. The attention of the miners, however, who climb and descend with perfect confidence, prevents any real danger, though to a stranger the idea of climbing fifty or a hundred feet on so perilous a footing is seldom unattended with some sense of fearful apprehension.

"Journeying through the drifts of a narrow vein is a less dangerous but often equally fatiguing task, especially if, by reason of accumulated work, the hands and knees are to be put in requisition for several fathoms over sharp angular blocks of rock, which all but fill the narrow passage. At the end or forehead of such drifts, buried as it were in a deep and lonely cavern, a single miner is often found pursuing his solitary labours at a string or thin vein of ore, which, like a bright silvery stream, is seen traversing the rock... The persevering visitor, who would explore every part of a mine, after 'descending the rise' to the level, is probably next taken to a sump head, where he is required to trust his person to a substantial rope hung on the axle of a hand whimsey, often of seemingly frail construction, and is thus lowered down into the deeper workings of the mine, the aspect of which is similar to

those above.

"The subterranean researches of our visitors being at length completed, the waggons are again entered, and the eye accustomed to such scenery surveys with greater clearness the strata of the roof and sides,- pendent drops are seen hanging from above, and the wooden posts, which in some places support the level roof, are covered with woolly snow-like fungi. The timorous sensations felt on entering are now dissipated, and the party can fearlessly look at these and other swiftly passing objects, on which at length a faint white gleam of light is seen to blend with the yellower rays of the candles. The rocky prominences become more and more illuminated, and the solar light, together with the sparkling drops of water impart so bright and silvery an aspect as to excite the greatest admiration. This rapidly increases until, amid the splashing of water and the noisy rattling of their rugged cars, the party emerge from the dark chambers of the earth to the magnificent and almost overpowering brightness of THE DAY."

GUIDELINES FOR MEET LEADERS.

Meet Leaders must:

1. Arrange to be there or get someone else to take over the leadership of that particular meet.
2. If necessary visit the location to assess aims,requirements & safety. Arrange for any necessary permissions and tackle,ropes,first aid etc. Tackle master Chris Jones (0229)63892.
3. For Insurance purposes,collect NAMHO insurance fee of £1 from each new member of the party.A record of names & addresseess of all visitors is required. The insurance is for third party liability only.
4. Make visitors welcome. Assistance may be necessary for newly trained participants, a number of suitable assistants should be enlisted in advance.
5. Record any new discoveries and artifacts found. If possible photograph these before being disturbed.
6. Ensure tackle is cleaned,any damage reported and tackle returned to tackle master.
7. WRITE A REPORT on A4 SEND IT TO MEETS SECRETARY for inclusion in the log book. Send insurance details and monies to treasurer. Send details of visitors to sec.

A fuller guidelines for meet leaders is available on request from Ian Matherson (05394 32957)

NOTES ON THROUGH TRIPS

By A. C-P-Thomas.

"Caves and Caving" (issue No 32, May '86) carried an article which related the unhappy tale of one party on a through trip. They were using the usual pull down line system and one member of the party attempted to abseil on the pull down rope rather than the abseil line, and to the detriment of his health (2 crushed vertibrae, broken pelvis and a broken ankle) consequently fell 50 feet. What the writer of the article suggests is that instead of rigging with the pull down line system from the start and sending everyone down it, with the possible consequence that someore abseils on the wrong line, but that the pitch should be rigged as for a normal pitch (ie fixed line) and only converted to the pull down system for the last man down. The writer also suggests the carrying of one spare rope, of length double the biggest pitch on route, in case of any pull down problems or damage to your primary rope.

Given a well rigged pitch and a sound belay, one of the greatest areas of risk in S.R.T. is the pitch head itself, where usually a slip, a trip, someone accidentally (or perhaps purposely) nudging you, or whatever, as you approach or install yourself on the rope, can be fatal. A usefull aside to rigging through trips as previously discussed is that the "spare half" of the rope can be rigged to provide pitch head security for the whole party. This has usually been a problem on through trips where of course no one likes to leave fixed gear behind, despite some pitch heads being very exposed. A well rigged pitch head approach line will of course provide extra security for the pitch head belay itself.

Another aspect which I have seldom seen addressed on through trips (I'm speaking generally here, ie nationally, not just in our own sphere) is that of abrasion. Often abrasion points will present themselves on through trips, just as they do on normal in and out trips, and just because everyone is on a one way trip does not totally eliminate abrasion, 10 members descending only is likely to abrade the rope as much as for say 3-4 descent/ascents, and there is little problem in rigging a through trip to eliminate abrasion altogether.
"But how" you may ask "Can one expect to apply deviations, rebelays etc and still hope to have a working pull down rope afterwards?"
Well....read on ....

Consider Fig.1(a), here we have the through trip rope (which with forethought may be bighted at the centre, prior to coiling or bagging, thus providing a useful instant indicator of where the middle of the rope is) one half of which has been passed through the pitch head belay sling and down the pitch. The rope is secured to the belay by (preferably) a maillon on a bight at the mid point of the rope, and thus we have in effect two fixed ropes,(as opposed to one fixed and one pull down) one end of which is down the pitch and the other kept at the pitch head to provide an approach security/back up line from a suitable back up belay. Note also that rigged in this manner this "spare half" is also available now for providing a secondary pitch rope (to perhaps assist someone in difficulty mid pitch) or indeed for lifelining a nervous party member (who perhaps shouldn't be there anyhow). It is now impossible for any member to abseil on the wrong line as, for the present, a wrong line does not exist.

Having thus rigged the pitch, the first man descending the pitch rope may now apply all the necessary abrasion counter-measures...deviations, re-belays, rope protectors etc. All subsequent members may approach the pitch head with the security offered by the approach line. The crux of the whole thing now hinges on the last man down.

When everyone has descended he may then dismantle the approach line and approach the pitch head belay (protected himself by means of footloop jammer on the ex approach line if necessary) and here, whilst secured by cows tail to the sling itself may now arrange the rope to effect a pull down line. The maillon now is disconnected from the belay sling and is refastened around the ex approach line, just as you would for a normal pull down system.....see Fig. 1(b). Here we have it then, the last man may, after checking that the pull down is going to run O.K.,

(contd.....)

Fig. 1(a)

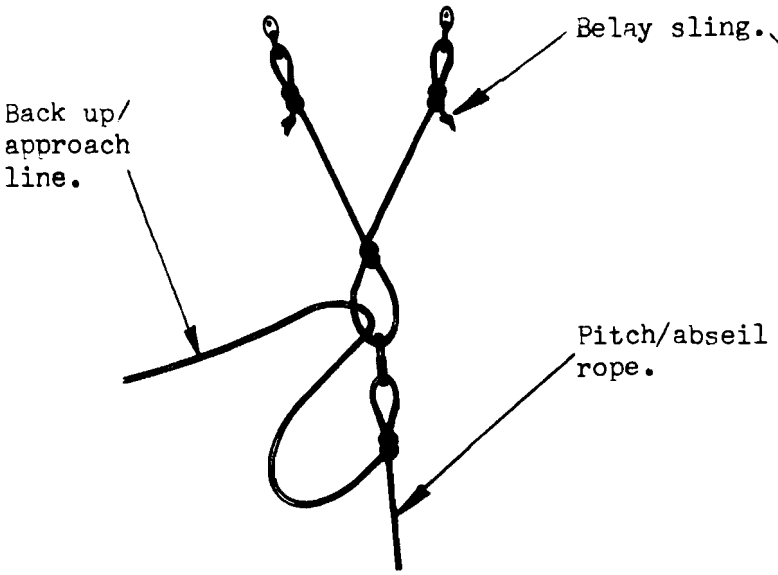


Fig. 1(b)

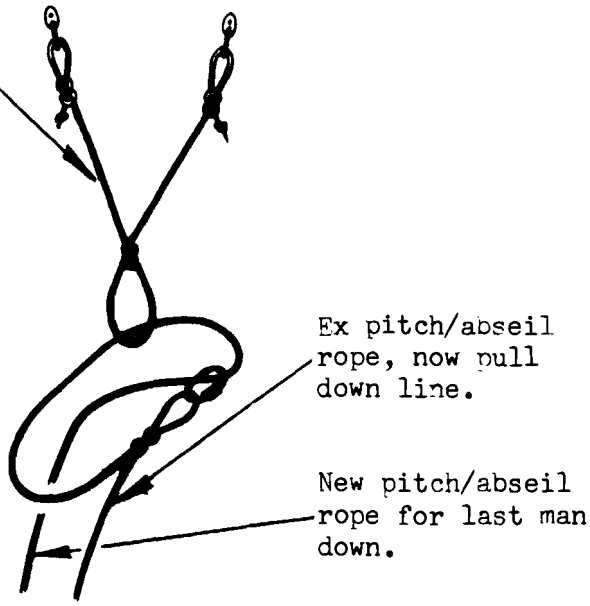
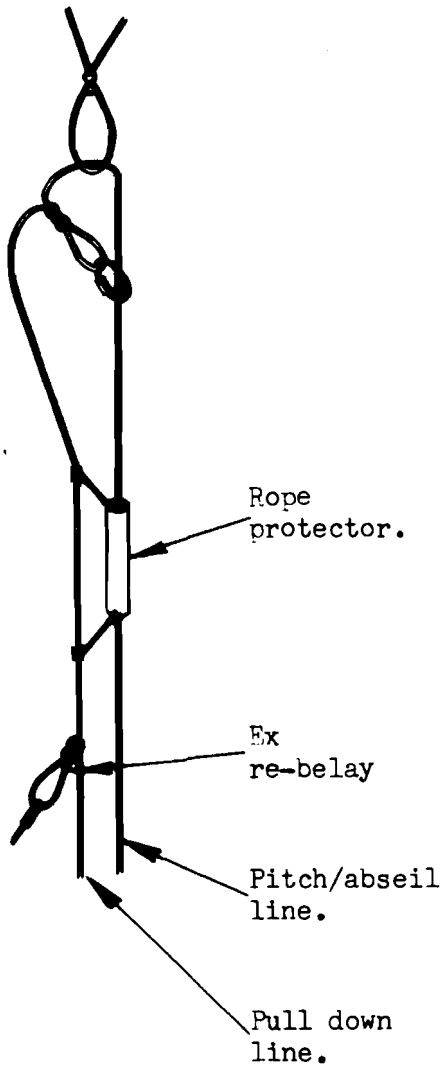


Fig. 2



proceed to abseil on the new pitch rope (ie, the ex approach line), the **ex pitch** rope now serving as the pull down line, am I making myself clear? Now comes the clever bit. As the last man descends, at each and every deviation, re-belay etc, he unbolts the hanger from the rock (the knot, krab and hanger may be left dangling for dismantling at the pitch bottom later) & in their places protects his own descent rope by means of rope protectors. These rope protectors must be secured top and bottom, the prussik knots thus used being attached to the pull down rope whilst the rope protector sheath is wrapped around, and thus protecting the abseil rope....see Fig. 2. Only in this way will the rope protector be supported for the duration of the continued descent, and also be enabled to be physically withdrawn, without risk of "bunching", down the abseil rope when final pull down is effected.

NOTE! This article presupposes those employing this technique to have the required level of familiarity with normal pitch rigging & pull down techniques, there is still plenty of scope here for the last man down + kill himself if proper pitch head procedure is not observed. I must also make quite clear that with respect to the approach line/abrasion protection aspect this technique is to my knowledge new, & thus does not have the honourable distinction of being well tried & tested (although on the three occasions that I have withdrawn rope protectors from a pull down line, every thing has gone as planned). Intended users must also assure themselves that no misinterpretation is incurred either by my wordage, or their interpretation thereof, (a quick trial run from a bedroom window/bridge etc will soon clarify this) and must also appreciate that a certain level of on site discretion is required in that a pitch bristling with stemples and/or other projections is unlikely to assist a normal pull down, let alone one with rope protectors and dangling rebelay bights, although the latter may be dismantled totally, on the last mans' descent, to leave an uncluttered rope

(contd...)

More widely applicable to S.R.T. now, although still of import on through trips, is the need to have all your personal S.R.T. gear (including cows tails, chest jammer and chest harness, and footloop jammer and security link) about your person and ready for immediate use at all times.

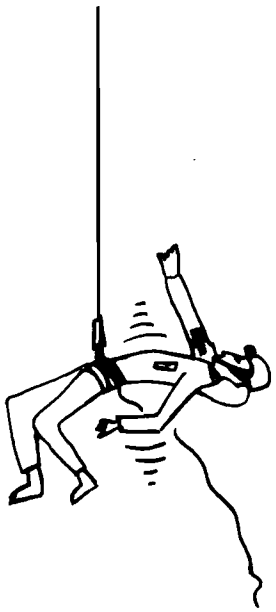
My wife Sheila learned this lesson very early in her S.R.T. career, in perhaps the best possible way, which is above ground on a suitable training pitch, with no greater consequence other than acoute embarrassment and sufficient discomfiture to ensure that the lesson learned is not forgotten. She was abseiling (with descender and sit harness alone) from a 30ft training bridge, and so far down some hair became entangled in the descender. As the rope was dry and unfurred, and thus tended to run, she got quite a close insight into the workings of an auto-stop descender before she was able to lock off, but, having no prussiking gear about her, she was not able to extricate herself from her predicament....painfully stuck. As she was just within reach of ground, a simple self rescue technique (some buttockular support, from no doubt willing hands,) saved the day.

In the same vein, a friend of mine later related the tale of how on one trip his beard became entangled in the descender and only by shear luck was there a minimal foothold nearby that he managed to hook a toenail into and, with desperate exertion, managed to reverse the rope flow and thus free himself. He also told the tale of a friend of his who, on a free hanging pitch with no prussiking gear, and thus no possibility of extricating himself, actually had a portion of scalp removed (ouch). Also watch out for your helmet strap. All the above are possibilities anywhere, and in tight or well haded pitches the possibility is higher still.

It must be said though that the above, hair raising account that it is, is about the least consequential outcome of abseiling without all the essential equipment to hand. Apart from the **really** obvious things like hair/beards trapped in descenders, descending past nasty abrasion points with no option but to go on, descending into bad air, descending into a predicament unnoticed or aggravated or indeed created by someone before you (eg rockfall, running deads etc), being unequipped to assist yourself or anyone else, severly limitting your options etc (as if those aren't enough good reasons) I contend that the very design of a caving sit harness, with the main attachment point around or perhaps even below the centre of gravity of the human body (for prussik efficiency) holds, if used without chest harness, some potentially nasty consequences.

Any fall taken by somebody not wearing a chest harness to revert the torso to a more or less upright position on impact, is likely to take the fall as per Fig. 3.

Fig. 3



If the victim were to take the fall tending towards upside down, then the harness may tend to be stripped off, leaving the individual in a state of free fall. The consequence of taking the fall as per Fig. 3, with the severe wip-lash on the spinal column, is an almost dead cert broken back.

A fall leading to such a predicament is the possible consequence of :-

(i) Loosing and then regaining control of rate of descent whilst pivoting about your feet as you walk down the pitch face.

(ii) Backing over pitch head before taking in all slack between caver and belay.

(iii) Pitch head belay failure, fall being arrested by back up belay.

(iv) Re-belay failure.

Note. To be safe, a chest harness must not only be worn, but must also be in a **reasonable** state of adjustment.

La Fin.

INCIDENT FEEDBACK

By A. C-P-Thomas

The trouble with incidents related to our underground activities is that whilst no secret is made of it amongst the immediate circle of active members concerned, the vast majority of members have no knowledge of it and thus a speculated potential danger will remain just that, underrated by the fact that the odds against it are high and the attitude of "I haven't heard of it happening in practice anyway." The one good thing about an incident is its contribution value to the learning process. Three cheers to P.F. for his fine article to this end in the last newsletter.

Suggestion.... Maybe an incidents log book of either S.R.T. incidents, (however trivial) or underground generally, or both, should be kept..... the lessons of which may assist us in achieving an immaculate level of safety.

Incident....Sat. 22nd Aug. '87. One member experiences significant leakage from a light cell whilst it is in the back of his vehicle. To my knowledge no equipment was affected on this occasion. Battery acid poses a real threat to S.R.T. equipment (and ladders) so make sure that any ropes, harnesses, cows tails etc, etc, are kept well seperated from acid cells during transit, portage and stowage of same. Either that or get an FX2.

Incident....Sat. 8th Aug. '87. One member (not on an official C.A.T. meet) abseils a 45ft pitch without control of tension on the tail rope from his auto stop descender. In consequence he went fast (as they say, "There he was.... gone") in a virtual state of free fall, and in panic held the auto-brake lever in all the way down. The member concerned had an uncomfortable but thankfully a not fatal landing and, after the to be expected normal adrenalin withdrawal symptoms, was able to proceed. The member, whilst having experience of a few S.R.T. trips, had received (nor had he applied for) no formal S.R.T. instruction, and the whole incident really developed from the fact that his descender was not locked off when it should have been.

To those members just beginning their S.R.T. career please note this. All the techniques used in S.R.T. are based on pre-caution, do not blow this all to the wind by committing yourself before you can handle any predicament which may befall. To the untrained, incidents such as this are not just a question of if they happen, but maybe more one of where and when.

ED. Anyone with an incident to report for log book or publication (anonymity-guaranteed) lets have it. It may be humourous or it might possibly help someone who finds themselves in a similar situation. Sorry Anton,but I do not think the immaculate level of safety is achievable,a lower risk factor yes. An element of danger is what its all about surely (PFs article,Do cat members have nine lives sec,para).

A SYNPOSIS OF THE ACTIVITIES OF NEW COLEDALE MINING LTD

New Coledale Mining Ltd was incorporated 24th July 1984 to obtain the lease and work Force Crag Mines Braithwaite (GR. NY 201217)

To bring the mine into limited production the following work has taken place.

1. Gaining access to O Level & No.1 level. Retimbering 30' of No.1 level with close set timbers,through glacial overburden and boulder clay. Clearing two falls near the entrance to O level and making safe timbers 800' into the mine.
2. Supplying underground services i.e. water & compressed air. A 365 CFM C.P. Mobile Compressor was purchased and installed. Existing air pipes were replaced by 3" Victaulic pipes for 300'.Water is supplied from a dam on No1 level using a Worthington Simpson Reciprocating pump. This can supply adequate water for two drilling machines.
3. Widening rail to 2' gauge. This was slowlaborious work,achieved in approx 3 mths part time working.
4. Construction of two tipping ends. One for waste rock and one for ore. The ore is trammed from O Level and tipped into a 3 ton Thwaites 4 W.D Dumper. It is hauled to a hopper situated above the mill.
5. Development of stopes. Existing access to the orebody had been provided by Force Crag Mines UK Ltd. Two stoping areas have been developed one at 1500' and one at 1200' inby of O Level portal. The first being from Zero 30' up in Barytes.

Two ore passes and a manway were excavated and equiped. The second a sub level between O and No 1 level. This is a drive in ore from an existing ladderway. The ore is mucked out using a Joy Sullivan two drum slusher to an existing ore pass down to zero level. During the 18mth period that the above took place other ancillary jobs listed below were undertaken.

a. Improvement of Offices/changing room
b. Installing of 7 KVA&112 KVA Generators.
c. Laying of 300 mtrs of cable.
d. Purchase and overhaul of Yale loading shovel.
e. Purchase,removal and installation of jigs in the mill.
f. Maintenance of road.

I shall deal with work undertaken in the mill in the next newsletter.

* The owners of New Coledale Mining Ltd would like to thank all those who helped us to achieve the progress detailed above. This project would have been impossible without the dedication and determination of those mining enthusiasts who are prepared to devote their time and effort into preserving the last Ore Mine in the Lake District.* PB

Cave Photography by Chris Howes. Published by Caving Supplies, Buxton.

ISBN 0 9512204 0 3 Priced at £5.50

What can I say about this book, suffice to say I can't wait to take a camera and flash underground. If you can't take a half-decent shot after reading this book I would be surprised. It is a small paper-back which at first glance seems overpriced but the excellent quality of the black and white and colour reproductions inside make it well worth while. Every facet of underground photography is covered from the most useful gear to use to the detailed use of it. Not only that but there is a detailed description of how each of the many photo's in the book. Go out and buy this book if you want good photographic results (I only wish I was on commission).

CDJ

Elizabethan KESWICK by W.G. Colingwood. Republished by Michael Moon, Whitehaven. Cost-£20.00

First published in 1912 and up to now obtainable only by rich bibliophiles, the book covers the mining operations of the Haug, Langananeaur & Co. of Augsburg. It makes fascinating reading containing as it does, the meticulously entered costs of running the company including the consumption of wines and beer.

CDJ

Poets Corner

There was a young fellow from CAT,
Hung round on a rope like a bat,
But when rope-washing came round,
He couldn't be found,
He'd shot off out of sight like a rat.

S. Stemple.

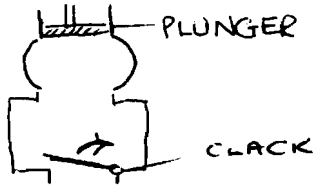
Anymore poetic efforts gratefully received.

Exam Questions Answered

Last issue (17) you may remember the quiz, well here are the answers.

The Mining Quiz.

The answers to the exam questions in the last newsletter.

1. Plutonic rocks such as porphyry are Elvan.
2. Right running lodes are champion lodes or the main ore-bearing lodes, caunter lodes are those running in a different direction from the champion lode.
3. Gossan is cellular quartz. Tin lodes frequently have no gossan.
4. Costeaning is the process of sinking two shafts and connecting them by a level in order to explore new ground.
5. ½ in. fall per fathom.
6. Wooden stemples, Dead rock, rock brought in from outside or it may support itself.
7. The hole is bored by a borer which is struck by a number of beaters, a little water is fed into the hole from time to time which is swabbed out. The gunpowder is placed in the hole, a piece of safety fuse is put into the hole to reach the powder and this is then with a tamping material, filled and tamped down with a copper tamping bar.
8. A portion of the shaft is covered over by a temporary roof called a penthouse.
9. Chains of 11/16 in. - working load, 54 cwt.
   Hemp Rope 8 in. circ. - working load, 54 cwt-breaking strain 18 tons
   Iron Wire 3 3/8 in. circ. - W.L. 54 cwt - B.S. - 18 tons
   Steel Wire 2½ in. circ.- W.L. 54 cwt - B.S. - 18 tons
10. The poppet heads are the uprights of a timber headframe.
11. 

12. to permit ease of drainage.
13. Too much slime ore is produced resulting in lossesin subsequent dressing.
14. Catch pieces support the weight of pump rods in case of breakage.

If you think some of these are a little strange remember this was written in 1875.

Percy Pitprop says "Never deal with solicitors unless you're sure they're genuine."

Those of you familiar with the zoom headtorch will be interested to know that it has been joined by the 'arctic' with a seperate battery pack to wear aound the neck and keep the batteries warm for maximum efficiency. There is also another headtorch called the Micro which is basically a miniature Zoom with the batteries behind the light.

Finally there is a new fixed cheek pulley to complement the swinging cheek model.

A new chest harness for the SRT enthusiast is available from BAT Products down in Somerset. It looks to be a very good design and is claimed to be tested extensively in the Gouffre Berger. Priced at £5.99.

A rather better design of ring hanger is available from Camp. It is the same design as the Petzl hanger but instead of being welded together this appears to be drop forged and a much safer looking piece of equipment.

Petzl have slightly re-designed and rationalised their range of hangers, most of them now being available in both 8 & 10 mm size. There is also a new design hanger in stainless steel which is permanent once installed.

Percy Pitprop says "Anyone who goes down Yordas Pot should take an electron ladder with them!"

Book Reveiw.

The Glasdir Experiment by P.R. Jenkins, Published by Dragonwheel books

ISBN 1 870177 02 9 priced at £1.50

This tiny, rather overpriced book (20 pages) tells the story of Frank Elmore, the inventor of the flotation process of mineral seperation in North Wales. It is an interesting book but only whets the appetite for the full story. This is apparently in the pipeline and will be called "Magic Bubbles". Still an interesting booklet.

Copper & Copper Mining by R.L. Atkinson, published by Shire Publications, ISBN 0 85263 895 7 Priced at £1.25

This A5 format book is up to Shire Publications usual high standard and gives an interesting overview of copper mining both in the British Isles and overseas. It is full of interesting snippets of information and even the most hardened "expert" should find something of interest, for instance, did you know ... Cornish emigrants in Australia, at Moonga mine, were forced to make their Cornish pasties from goats, rabbits, wallabies and Kangaroos! The Lake District only gets a single paragraph I'm afraid but there is one of Eric's engravings. Well worth the money.

Gear Freaks Paradise.

Troll Oversuits now feature waterproof wrist seals on their tried and tested P.V.C. model. This seems to be quite a useful innovation and definitely keeps the water and mud out, could be a bit tight for more 'well-built' members.

T.S.A. also have a new oversuit out with quite a novel design front fastening which means that if you have a good welly seal you could submerge to the nipples without getting wet. In yellow P.V.C. and a bit pricy at £50.00. However I have seen a CAT member dressed in this mode.

A new helmet is now available from Colombet which looks and is constructed exactly like the Petzl, it is however much cheaper at around £24.00. If you use an old site helmet, you should consider a decent U.I.A.A. approved one.

Everyone knows how useful a spare light source is but how many of you actually carry one. Many CAT members have a small electric torch attached to the side of the helmet. One you might consider is the MITYLITE, a tiny American torch which uses 2 AAA batteries and is entirely water tight. It's most remarkable feature is a special xenon fired bulb which is very bright but has a low power consumption. About £10.50.

You may remember some time ago I asked how long it would be before caving gear followed the lead of the climbing fraternity in producing multi-coloured harnesses. Not long it seems. I have the latest Petzl catalogues which shows all the old favourites but in beautiful new colours. Who is going to be the first to wear one?

The old faithful Croll harness is now available in pink, black and blue.

The Avanti harness has been completely redesigned in 40 mm tape (blue) with an integral chest harness, looks a pretty good development and could even take over from the Croll in the popularity stakes.

Thehanger range has been redesigned with the coudee (straight), vrillee (twist), couer(twist), ring and the clown. Many of these are available in both 8 and 10mm and there is a 10mm adapter for the drill. There is a double length expanding bolt for 'soft rock' and the 'Long Life', a permanent anchor and sheath combined all in stainless steel (at a price).

Petzl now make a figure of eight descender with a peculiar square shape which they claim does not cause the rope to kink into knots. It also has a nifty little plastic tab which is described as a "burn preventer"???

The handled ascender and the chest mounted croll both have a safety catch to prevent the cam being ripped out in the case of a severe shock loading.

The Croll also has a new shape cam with a groove in the toothed part to prevent mud making it inoperative. It also has a better design of opening handle making it much easier to use with gloved hands.

OF GOLD AND PUFFINS

"I've never seen one of them on 'ere before" said the Caithness farmer as he veiwed the sight of the Citroen motor parked on his peat bog.

Why was the car there anyway you might ask? Not wanting to appear to 'whimp out' on the situation and longing to know what was at the end of the track (which was inevitably the wrong one) we had proceeded,onto what we found to be an area used for cutting peats.

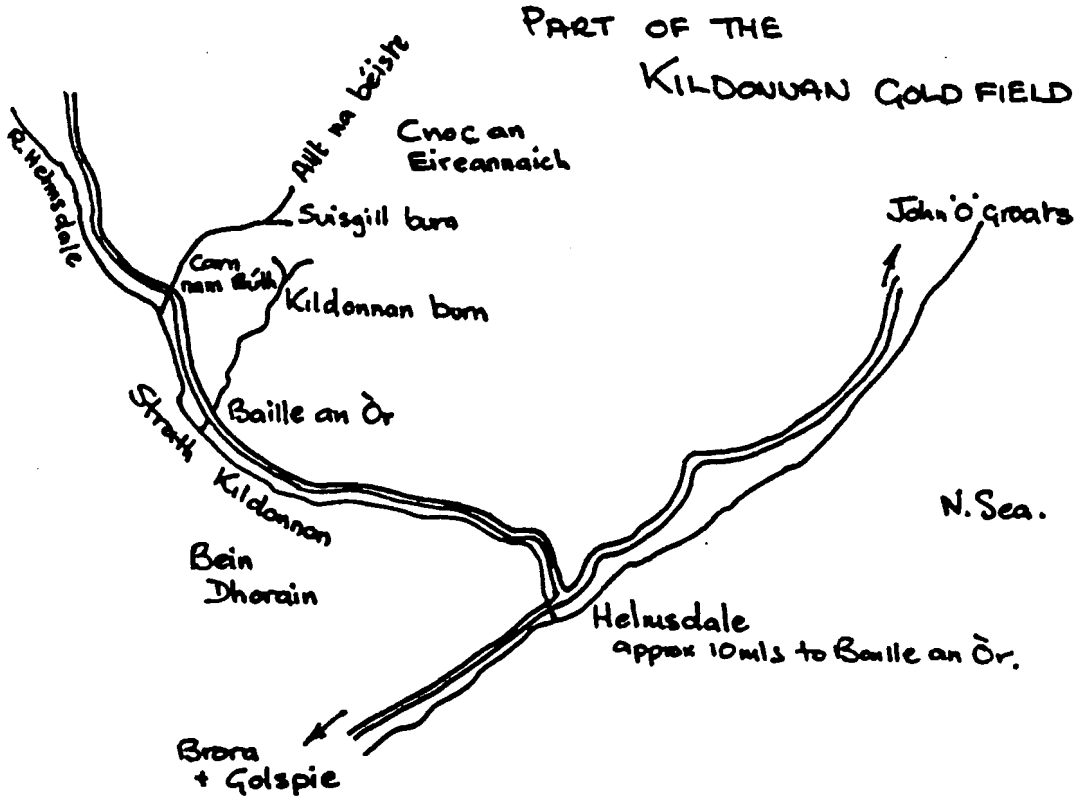
The previous day we had spent panning for gold in Strath Kildonnan,(strath being a wide flat valley) so to go looking for puffins at John'O'Groats didnt seem such a bad idea. As it turned out we had more luck finding gold than the elusive little b....puffins.

The history of the Kildonnan Goldrush is rather unusual in that it was one of the few goldrushes to have taken place in the British Isles.
I shall try to relate some of the facts about it in the following article: -

Various mineral collectors had told us about the Kildonnan goldfield,we had not visited this area before,so with a feeling of great optimism three of us set off for Helmsdale(ND 303015) on the N.E Scottish coast. After an 8hr drive we arrived at this sleepy little coastal village. The caravan site we had booked had every amenity,cold running tap water,flush toilets and electricity. What more could one ask for.

The gold panning equipment we took consisted of a black plastic pan(the modern equivalent of the iron one traditionally used for panning)and a metal wok. The woks ability to cook food proved very useful later in the week,when we decided to steam some fish and even cooked a rabbit. Much to the amusement of the other gold panners - Alistair take note.

Our first day out in the field proved very enlightening. The first thing you must do is obtain a license from the local factor at Kildonnan farmhouse. This is free. The main gold camp is at Baille an Õr(town of the gold) This was a settlement of wooden houses put up in 1868,nowadays this area of open fell is still used as a campsite. Another area further north called Carn nam Buth(cairn of the shop)marks the spot where the prospectors lived rough in a settlement of tents and shacks.



Our first attemps at panning in the Kildonnan burn just below the camp site proved rather disappointing. How was it possible to swirl the water/silt in the pan/wok without flicking it all out over the sides and get a good separation. After some tuition from more experienced panners the technique improved and we found small pieces of gold. Gold is distinguishable from Pyrite(FeS_2)by its colour,it appears to be yellow and smears yellow when crushed against the pan.

Even today the 'Gold fever' that existed in the 1870's still persists,even though the economic need to find gold is not as great. The excitement and originality generated in the gold camp is quite impressive. Various implements are used for panning from washing up bowls to wheel hub caps. The small suction pumps used to extract sediments from rock crevices are ingenious. Many prospectors spend weeks up here looking for gold. The local people seem to have little interest in gold panning but are extremely friendly and very willing to give information.

As evening began to darken the sky and the drizzle started,we reluctantly left our gold prospect by the Kildonnan burn and headed back to Mrs Sutherlands caravan site.

Gold has been found in the Kildonnan area since Roman times. A nugget weighing 15g was found in the Helmsdale river(Kildonnan burn is a tributary)in the 1820's. Not until 1868 did the gold rush begin in earnest(Klondike began in 1898).

A local lad Robert Gilchrist on returning from prospecting in Australia,sought permission to prospect in the Strath Kildonnan. Gilchrist found gold in the Helmsdale river and many of its tributaries,two in particular the Kildonnan and Suisgill burns. The word was soon out and the Kildonnan Gold Rush had begun.

At the height of the gold rush 500 prospectors were at work in the Strath. Between April-Sept 1869 it has been estimated that £12,000 worth of gold was removed. What would an ounce of gold have been worth in 1869. The state taking 10% in royalties and the Duke of Sutherland required a license fee of £1.00 a month,for prospecting an area of $45m^2$.

Large amounts of gold were traded for food and drink. The village of Helmsdale prospered as a consequence of the gold rush. 'Like the Yukon on a Sat night'was one description given to the village when the men came to spend their gold money. Undoubtedly the gold prospectors helped save the Helmsdale community which was suffering at the loss of the Herring fishery and the Highland clearances which had taken place during the 1820's.

The license that you are issued with today only allows panning in the Kildonnan burn,access to Suisgill has been stopped the possible reason being the use of sluice boxes and the removal of large areas of river bank. Both these practises are forbidden. The largest nugget recorded was from the Suisgill burn,it weighed 63g.

Way back in 1870 the Duke of Sutherland after pressure from sportsmen and farmers,stopped all prospecting in the strath. The areas of encampment were removed and the men dispersed. The reason being that the mud and sediment washed into the river from sluice boxes,spoilt the salmon fishing and the men disturbed the deer and sheep. The same sporting interests are just as powerful today as they were 100yrs ago, the Helmsdale being one of the finest salmon fishing rivers in Scotland.In Alaska sediments entering rivers after gold mining operations are proving a great problem. Plants and algae cannot photosynthesize due to lack of light,fish are starved of oxygen and their gills are damaged.

The source of the gold at Kildonnan does not belong to a particular vein, enough prospecting has been done to prove that it covers a wide area. Four burns in particular that flow down from Cnoc an Eireannaich(hill of the Irishman)and flow into the Helmsdale river are known to contain gold.

A number of theories have been put forward as to its origin. A volcanic explosion bringing up mineral rich fluids from deep in the earths crust,spread the gold over a wide area. Folding of sediments and subsequent formations of vast bodies of granite,caused gold rich fluids to disperse amongst surrounding sediments.

The Duke of Sutherland offered a reward of £10 to anyone finding the source of the gold,this reward was never claimed. In a newspaper of 1868 it was explained that the gold was not found with quartz(as is often the case)but rather bound up with the red granite. As weathering and erosion take place the intrusive granite/ pegmatite degrades and gold particles are liberated and become part of the riverbed alluvium.

Where minerals are carried by rivers the deposits are known as placers. Various minerals are found in placer/alluvial deposits. Most of Alaskas gold comes from placer deposits.

Minerals that we found were Magnatite Fe_3O_4 (iron oxide) commonly known as black sand. Ilmenite $FeO.TiO_2$ (iron titanium oxide) and lots of small Almandine garnets Tourmaline, Zircon and Epidote can also be found. Magnatite is often found in placers which contain gold and is a good indicator that gold is around. In the case of the wok these heavier particles are carried into the center of the pan.

Gold when pure has an SG of 19.3, in its native state it is between 85-95% pure the rest being silver. Magnatite has an SG of 5.18. Gold panning must rate as the earliest and simplest form of density separation. To form an alluvial deposit gold is carried by fast moving water and deposited as soon as the water speed slackens, often in the lee of an island or boulder. Deep pools and rock crevices are also good places to look.

The old men found that the best recovery of gold took place where layers of soil/sediment and bedrock meet (river banks). We found that by removing silt from rock crevices we got the highest yeilds of gold.

In the search for richer pickings the old men drove tunnels 50-60yds long, we could find no evidence of these at all.

The local council recently financed a small drilling operation to quantify the amount of gold that might be available for extraction. Four bore holes were drilled, but it was decided that a mining operation would be sub-economic and would be detrimental to the natural beauty of the area.

Gold is liberated very cleanly using a gold pan, apart from some cloudiness caused by washing of sediments there are no environmental problems. Sluicing creates problems as mentioned earlier. Processes using mercury and cyanide have been employed in the past. These can create hazardous wastes, which can be damaging to the environment if not handled correctly. The use of mercury as a dense media was used by the Romans in 13 B.C. Great mineral technlogists the Romans!
One method of recovery used today is that whereby algae are used to precipitate gold out of solution. In nature a similar process of chemical/biological absorbtion has helped to form large areas of workable gold deposits. These were formed 2.7 billion yrs ago.

It is perhaps fortunate that the Strath Kildonnan goldfield is considered sub-economic, even with todays hi-tech methods of extraction. Local sportsmen would no doubt have alot to say if a mining company tried to take gold from the Strath (rumour has it RTZ have the mineral rights).

The area is better left for the recreational gold panners and the tourists - with a mining company in the village it might once again look 'Like the Yukon on a Sat night!

While in the area visit the Timespan exhibition in the centre of Helmsdale. This is new and alot of money/effort has gone into it. It shows the developement of the area from the Iron age up to the present day. The whole thing is very professionally done and needs to be seen. At Golspie further south along the coast, the Orcadian Stone Company run by Don Shelley has a fine collection of rocks, minerals and fossils.

As for the Puffin watching, Dunnet head west of John O Groats is the best place. To lie on your stomach on a rock ledge 300' above the sea is quite an experience (especially on a windy day). The Puffins emerge from burrows just below you and take to the air like little acrobats- superb. Good place to practise S.R.T watch out for regurgitating Fulmars and R.S.P.B officers (no not regurgitating officers).

On a cautionary note:- The Suisgill burn is reputed to be inhabited by a 'violent supernatural being' the area to look out for this thing is called Cnoc na Béiste (the hill of the monster would you believe).

FIRST AID

by Dr. Phil Merrin.

Some of you may be aware that a First Aid Kit is now available to each Meet Leader for use if required on C.A.T. Meets. It is to be kept in a rucksack and should be present on all C.A.T. Meets. I hope that this article will serve not only to inform members of its contents, but also to refresh memories about simple first aid.

Each piece of equipment has a specific use, and has been added to the kit so that with common sense, an untrained person can administer effective first aid in any situation where it becomes necessary. Some of the items included have specific relevance to possible urgent situations underground; no cream for insect bites has been included, but you will find a low reading thermometer!

I must point out that this kit is not a substitute to the personal kits I am sure we all carry already, but is designed to be used in conjunction with them. Each member has a responsibility for his own safety in this respect.

The specific incidents I feel should be covered as they are the most frequent/likely given our particular hazardous environment, are:-

Trauma

Falls (and things falling on you)	⟶	Fractures of limbs, fingers and toes. Head injuries Spinal injuries
Hypothermia		2^{o} immobility from any injury, prolonged immersion, etc.

Trauma must be the single most likely reason for us to need first aid underground, from a simple cut or graze to spinal or skull fractures.

So - the things in the box for abrasions, lacerations and so on are:-

Sterile gauze swabs
Savlodil cleansing fluid sachets
Sterile mellonin dressings
Plasters
Steri-Strip paper sutures - clean and dry skin edges before application.

Plaster rolls and tape

If a laceration is too large to close easily with Steri-Strips it can be cleaned with Savlodil and a sterile covering applied until definitive closure can be undertaken. Elevation and pressure applied to bleeding points is usually enough to arrest haemorrhage; always add extra dressing on top of your existing bandages if blood seeps through.

Sprains and Strains, broken bones etc.

In many cases, and to all intents and purposes, making the actual diagnosis of a broken bone underground is unnecessary; what matters more is that an element of loss of function has been introduced, so

as to handicap an individual's independence underground and this may be as bad with a sprained ankle as a broken ankle. If the patient can't walk, he can't walk, whatever the cause and the immediate treatment of any closed injury will be much the same whatever the X-ray eventually shows. Therefore, in most situations, immobilization will be the mainstay of treatment, and within the limits of your environment, if this has been adequately performed, little more can be done until skilled help is reached outside the mine. Manipulation of fractures at this stage is not just foolhardy if untrained, but generally unnecessary as adequate immobilization will afford a reasonable degree of stability to the situation and comfort to the patient.

This is a longwinded way of introducing a brief run-through of various sites of injury on the body and simple effective means of immobilization.

Scalp and Skull

Stop bleeding as described. Leave helmet on if possible. Was the patient knocked out? Are they still orientated or confused. A confused person following even an apparently minor injury is certainly not safe unaccompanied underground and should not be let onto a rope or ladder!

Cervical spine - the neck

Two collars have been included in the kit. They are absolutely essential should you be faced with a wait for a rescue team (assume for a moment none of them are with you) and a patient who has a neck injury. Never underestimate the possibility that neck pain after a fall or head injury could be serious. Always put on the collar, it's better than typing with your teeth for the rest of your life.

Collar bone, shoulder, arm and elbow injuries

Adequate immobilization for all of these can be attained with a firm sling, tied so that the hand on the affected side lies against the chest above the nipple on the unaffected side. Putting the sling on inside the patients clothes is a good tip - the arm is then well supported and totally immobile.

Ribs

Serious rib and chest injuries are a hideous possibility given our particular area of interest. A fractured rib alone requires no treatment expect pain relief at any stage of its management, but fractured ribs have been known to puncture organs such as lung, liver and spleen - this is pretty hot water, as you can imagine, and I'd need more than a simple first aid kit to manage it. I think external help would be required in such a situation. Open injuries of the ribs also need careful management - padding the wound and light strapping may be required to stop bleeding.

Wrists and Hands

A splint designed to stabilize a wrist injury is enclosed, but on no account should a wrist injury be forced into it if the patient finds it uncomfortable. In this circumstance, a sling and some pain relief will suffice. Fingers can be adequately immobilized by strapping them

to an adjacent finger with some tape. Put some padding between them before you start. Cover any lacerations or wounds with sterile dressings first of all.

Back injuries - thoracic and lumbar spine

There is no provision made in this simple kit for immobilization of spinal injuries; moving such a patient should be avoided until such support (e.g. a stretcher or splint) is available. However, if the patient's situation itself is life threatening then he may have to be moved before this time; the most important thing is to ensure you have sufficient numbers to move him slowly and without altering his posture, to a safer spot. This one is not so much hot water as boiling oil!

Legs

Again, in this instance, impaired mobility may be such a problem that you have no choice but to sit and wait for adequate numbers to carry the patient out. However, sensible immobilization of the affected limb will stabilize the situation and bring comfort to the patient.

Injuries from hip to ankle

Using the triangular bandages provided, tie one leg to the other. Think about knots that may become uncomfortable when pressed against the inside of the stretcher. Don't tie too tight as you may impair circulation or compress nerves. Padding between the knees is also useful.

Ankles and feet - minor sprains

A wide roll of elastoplast tape is enclosed in the kit and if wound around the leg from toe to knee will help support the ankle.

More major sprains, or any injury where weight bearing is a problem, can be treated in the same way, but mobility may be restricted to such a degree that you have no option but to sit and wait for help.

Toes

Toes can be strapped to each other as described for fingers.

Open (compound) fractures

These should be covered with sterile dressings and immobilized as far as is practical, using the guidelines above.

Painkillers

Some painkilling tablets have been included in the kit. Apart from Paracetamol for mild pain, there are some Temgesic tablets. These tablets can be used for moderate to severe pain, and are to be placed UNDER THE TONGUE, and sucked, NOT SWALLOWED. Painkillers should not, as a rule, be given to patients with head injuries, as they may mask important signs as they develop. TEMGESIC may make you feel sick, but

one or two tablets four hourly is quite safe. If you use them, let me know so they can be replaced,.

Hypothermia

If you have been immobilized, for whatever reason, underground, for more than a couple of hours, I am sure you will have started to feel cold, especially if you're wet. In the normal run of events, properly dressed, it is usual for people to feel cold underground. However, consider a wait of several immobile hours for a rescue team, and I am sure you can imagine that hypothermia is a possibility and it is for this reason that a thermometer and "space" blankets are included.

However, beware, these foil blankets are of limited value and you should take as many steps as possible to insulate the patient's heat loss and promote his heat production (for example by feeding) as well as using the blanket.

The thermometer is low reading, and will serve as a monitor of your patient's progress (or otherwise) as long as it is shaken well down and left for several minutes under the tongue, or arm.

I hope I have covered the likely, common problems that we could face underground, and that given a simple first aid kit and the information above, effective early treatment can be administered if needed. Of course, the subject is far from complete so please, if you have any problems, questions or suggestions, let me know.

The complete First Aid Kit contains:-

Triangular bandages
Sterile wound dressings
Plaster rolls - varying widths
Scissors - round nosed
Crepe bandages
Sticking plasters
Steri-Strips
Analgesia
Cervical collar
Pen and paper
Savlodil
Safety pins
Sterile gauze swabs
Thermometer
Low reading thermometer
Space blankets
Instruction cards

1

MEGA MINE MAN

MORE TALES OF HEROIC DEEDS, DEEP INSIDE THE EARTH

BOUDING OVER BONSOR!

SPEEDING THROUGH SMALLCLEUGH!

A MUNDANE, DUMBRIA OUTDOOR GROUP TRIP IS INTERRUPTED by a DISCOVERY of UNPRECIDENTED MAGNITUDE!

LOOK, A LEVEL

ITS DENIS WOODS LEVEL!

2 3

BACKGROUND INFO – DRIVEN BY THE OLDEST OLD MAN, DEN WOODS LEVEL IS BLOCKED BY A DOOR, WHICH NO MAN HAS BEEN BEHIND SINCE ITS CONSTRUCTION.

OK DEN?

AYE, OK MIKE

(APOLOGIES TO OUR CHAIRMAN)

MEANWHILE, BACK IN THE MINE, IN FRONT OF THE DOOR

C'MON, LETS OPEN IT!

BUT – WE DON'T KNOW IE..

4

5 THE DOOR OPENED, THEY GO IN!

AARGH!

HELLLP!!!

OHHH NO!

ITS DISASTER!

BUT OUR HERO HAS BEEN KEEPING A CLOSE EYE ON THINGS, WITH HIS X-RAY VISION –

6

7

SO – FOUL PLAY – AS I SUSPECTED

MEGA-MINE-MAN SAVES THE DAY WITHOUT LOSING HIS BOTTLE!

8 9

LATER (– IN THE PUB)

IT WAS GHASTLY!

IT WAS GRUESOME!

IT WAS GROSS!

TERRIBLE!

ATRAGEDY!

I THOUGHT IT WAS WEARING A HAWAIIAN SHIRT

ACTUALLY, READERS, BETWEEN US, IT WAS JUST A BRASS PLAQUE ON THE WALL!

TO BE CONTINUED

********** STOP PRESS ITEM FROM ANTON **********

*********DIG THIS*********

Work on the Clerks Level project (see CAT minutes 10/9/87)has begun and although the dig is enjoying a reasonable standard of equipment and logistical support,we are a bit thin on the ground in terms of field crew .....WE NEED YOUR SUPPORT.... the job is being progressed 2 - 3 nights a week & at wkends,so anyone keen,willing and able please come on down.

For further details and to reserve your prospectus ring (0229 3591)

EUROCLERK
BE PART OF IT

*********BOOKS*********BOOKS*********BOOKS*********BOOKS*********BOOKS*********

Lead Manufacturing in Britain by D.J Rowe. Pub Davis Bks,Newcastle upon tyne. Reduced to £15. Lead industry from Ancient times to the second war.

The Alum Farm by R. Turton. 1st pub 1938,Michael Moon £16. The first chemical Industry.

SKETCHES OF THE COAL MINES IN NORTHUMBERLAND & DURHAM by T.H Hair.

Davis Books - Newcastle upon tyne £20 Available now.

ELIZABETHAN COPPER by M.B. Donald. The history of the company of Mines Royal 1568-1605 Pub Micheal Moon. £25 available shortly.

WORK MEET

CONSERVATION WORK ON BRAKE HOUSE AT THE HEAD OF MOSS HOUSE ROPEWAY AND LOW WATER POWER HOUSE - CONISTON OLD MAN QUARRIES. BOXING DAY MEET.

PHONE IAN MATHERSON on 32957 05395.

AUCTION SALE

Of Caving/Climbing Gear. SUNDAY 17th JANUARY 88 (Following Coniston meet). in the CROWN HOTEL,CONISTON,at 8pm - viewing before hand.

PROCEEDS TO CAT AND COMRU - for more details phone Dave Blundell on 0539 821750.

NEW BOOK NEW BOOK NEW BOOK NEW BOOK NEW BOOK NEW BOOK NEW BOOK NEW BOOK NEW BOOK

WYTHBURN MINE AND THE LEAD MINERS OF HELVELLYN

by ALEN McFADZEAN

For over forty years the miners of the Thirlmere valley tunnelled their way into the igneous heart of Helvellyn - England's third highest mountain - in search of galena, the glittering, silver-rich lead ore of Cumberland's deep and elusive mineral lodes. Wythburn Mine was their place of work, a remote 19th century industrial settlement steeped in Cornish mining tradition though embracing the techniques and the expertise of the north Pennine ore fields.

In this, his first publication, Alen McFadzean recounts in detail the fascinating story of Wythburn Mine, the men who worked it, and the managers who struggled against nature and financial hardship only to see their achievements torn down by the industrialists of a distant northern city. In the 1840s Wythburn Mine was a nascent mineral enterprise, underdeveloped and archaic in every respect, though by the 1860s it was one of Lakeland's most progressive metaliferous mines, supporting a sizeable immigrant community. In the 1870s the Waterworks Committee of Manchester Corporation purchased the manorial estates of Wythburn and adjacent Legburthwaite, preliminary steps in the creation of the Thirlmere reservoir. As a cautionary though unfounded measure to ensure a wholesome supply of water, the Committee closed down the mine's crushing and processing mill, an act which seriously affected the mining company's fortunes and hastened its decline. With the death of its manager, in November 1882, Wythburn Mine was abandoned, never to be worked again.

This history is not confined to the Thirlmere valley for the men and officials of Wythburn possessed strong family ties with the mining centres of Alston and Caldbeck. Other Lakeland mineral concerns - Greenside Mine in particular - played an indirect though important role in the evolution of Wythburn Mine, and there were also links with Goldscope, Force Crag, and Driggith. More curious were its associations with the hematite boom of 1873, the reopening of the Providence and Fairfield iron mines at nearby Grasmere, and the involvement of one of its managers in a legal battle with the Lake District Hematite and Mining Company.

The history of a mine, or any industrial centre, cannot be considered complete unless it examines the social issues, particulary the effects the industry has upon the local community. It was inevitable that the establishing of a lead mine in a predominantly agricultural environment would stimulate social change, culminating in

either a more integrated society or the creation of a separate and almost isolated community within the existing social fabric. Surprisingly, the author states that the latter was very much the case right down through the forty year history of the mine....."They were a clannish breed, tight family units often bringing with them nieces and nephews. On the whole they seem to have kept themselves distanced from the farming community, miners' sons marrying miners' daughters.....The miners of Wythburn were predominantly men from other areas, offcomers born into a profession that was a way of life. Even the miners christened in the local parishes were, almost without exception, the sons of immigrant parents."

The execution of Manchester's Thirlmere Scheme heralded social and environmental change on a grand scale. Hut settlements, erected for the navvies and the miners driving the aquaduct tunnels, were "squalid, insanitary, and detrimental in every way to the well-being of the inhabitants." The author has unearthed some startling and tragic facts concerning the settlements and the blasting of the tunnels, facts to which the unmarked graves in Wythburn churchyard are an everlasting testimony.

With twelve monochrome photographs, and maps and diagrams besides, WYTHBURN MINE AND THE LEAD MINERS OF HELVELLYN is a highly original monograph containing a wealth of previously unpublished material. Alen McFadzean's staightforward literary style conveys a true, precise, and often colourful account of the history and development of a Lake District lead mine.

Special price for C.A.T. members. For more details ring Alen McFadzean on 0229 64172 or write to:

RED EARTH PUBLICATIONS
7 Silver Street, Marton, Ulverston,
Cumbria.

STRONTIAN MINE still working - 2 members got a trip underground early Sept. Much developement underground has been going on for the last few months and a very good Baryte product is being produced.

L.D.S.P.B GO UNDERGROUND. **********
Officers from the L.D.S.P.B were taken on a conducted tour of Greenside workings, descending the 700' of fixed ladders.

WATER BOARD VIEW WOODEN BARRIER.
In October two officials from the N.W.W.A went underground with CAt members to view the Top Level Extension and Woodends Level.

SWALEDALE WEEKEND

22/23 August 87 By A. C-P-Thomas.

Saturday.

Devis mine level.

Quite an intriguing little geological specimen this, the addit level intersecting as it does a natural phreatic maze containing over a mile of passageway in an area of only 400 x 150 ft. This maze area provided some classic routefinding fun as we negotiated our way through to crystal chamber, a fine little grotto exhibiting stal formations of a quality rarely seen outside of Easegill.

The shafts down on South East level would bear closer examination as down here somewhere are said to be the huge caverns or self opens after which the mine is named. These self opens are said to form some form of link with Keld Heads Mine, Preston-under-Scar....(see G. of the N.P. Orefield vol. 2 page 178). Due to a missinterpretation of the terminology of the survey, we unfortunately had no S.R.T. gear with us on this trip, so all our exploration was confined to the Devis Mine Level horizon.

Sunday.

Hard Level.

This might sound like meet leader bias, but I thought this trip was a classic, offering just the right balance of geological, archeological and sporting interest. Definite geological interest in "geode passage" where geodes are studded in the shale beds literally like currants in a bun. Archeological interest in the incline waggons & ore tubs, shoot boxes, partitioned climbing ways etc that still remain....and of course the sporting element which is amply catered for by the fact that right from the word go one is offered a range of aqueous immersion ranging from a mere flat out (in water) squirm to a chin deep, helmet scraping gurgle.

It is worth mentioning here that to our knowledge on entry to the mine, Brandy Bottle incline (to which Hard level connects) was closed..... the incline portal having been blocked or bulldozed at some time past..... and it was our intention merely to find the incline from below, if possible, and maybe undermine the blockage or in some WAY create an indication of where the portal was (for a future surface dig) and then simply return the way we went in. It was very satisfying indeed then to not only find our way through to the incline foot, but also to find that someone had already secured the portal with an oil drum thus enabling us to complete, unexpectedly, a classic sporting through trip.

Over the weekend we had 10 members in attendance and I'm sure we would all like to express our thanks to Anne & Peter for their fine Ravenstonedale hospitality over the weekend. On the subject of thanks I would personally wish to exempt the particular canine who twice...in one sitting!... managed to wrap it's neck around my dinner, a fine vegetarian quiche if I remember right, ah well, it was fated not to be. Beware this creature for it has table manners few.

Note. For further details... shaft depths in Devis, through trip route and incline portal grid ref. in Hard level (so it isn't lost again) etc, see meets report log book.

SANDBEDS MINE, SEPT 20TH 1987.

Six members turned out for this meet, but unfortunateley the Meet Leader was not amongst them. Don Borthwick had travelled over from Newcastle, Ann Danson from Ravenstonedale, Dave Bridge and Chris Moor from West Cumbria, Paul Timewell from Barrow, and Ian Matheson from Ambleside. We waited at Calebreck for guidance until eleven fifteen before setting off hopefully in the general direction of the mine. Whilst we knew it's location we had no idea how to get in, so the day began without any great expectations.

The mine site has been thoroughly demolished, leaving little that is recognisable on a bare bulldozed landscape. Above on the fellside are a number of spoil heaps, and many small fenced enclosures containing craters where the boulder clay has collapsed into cavities the workingsbeneath. We wandered about the site finding little to encourage us. A large adit was well blocked, and another issued water through the remains of an old car at the bottom of a ten foot deeep pool. Two holes were partly open, but to dig in would be dangerous without timbering, as they passed through unsupported and structureless boulder clay.

We followed a line of fenced enclosures through the mist. Most contained only a depression, though one very unstable crater did have a hole in the bottom. It was time for lunch, but Don suggested that we should first check out what seemed to be the last enclosure. It proved to contain a small hole about three feet across which looked more inviting, so half the party returned to the mine site to fetch their gear, whilst the rest, who had had the optimism and the energy to carry it with them, settled down to lunch.

The pitch was rigged using Ann's hauser laid climbing rope, and she was first down, followed by Dave, and when things began to look promising, by Ian. Later Don and Chris followed, but Paul had to remain on the surface because as the meet had been billed as non SRT he had not brought his gear.

The first pitch ended about thirty feet down on a floor in a vein of barytes which had been stoped out to within three feet of the surface. The hole was probably driven through to surface for ventilation. From here a short traverse and a twenty five foot pitch down through two tight squeezes gave into a tramming level containing several hoppers, a wheelbarrow, and a number of wooden stemming rods. This led to a ladder way which was abseiled, for the ladders did not look trustworthy. Fifty six feet below was another level containing another row of ore hoppers, many of which still contain baryte. The level was followed to a sump, near which was a hole through which the water drained. The vein had been lost here, and a cross cut which had been driven in an attempt to locate it had failed to do so.

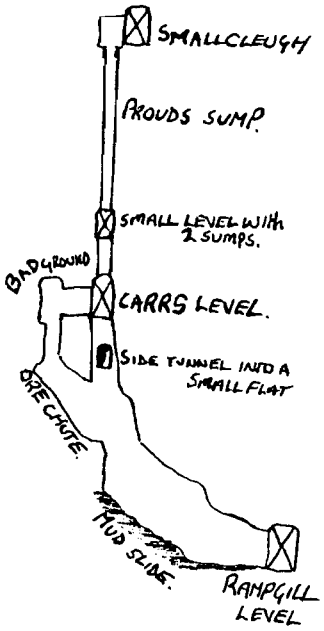
In the other direction a collapsed floor delayed us for a while, but it was passed by stripping the rope from the ladder pitch in order to descend, and by using a miners ladder to ascend back into the continuation. Further on, past a long row of hoppers, we came upon another ladderway leading downwards. Having no more rope this was

descended cautiously, but was found to be sound except for the occasional broken rung.

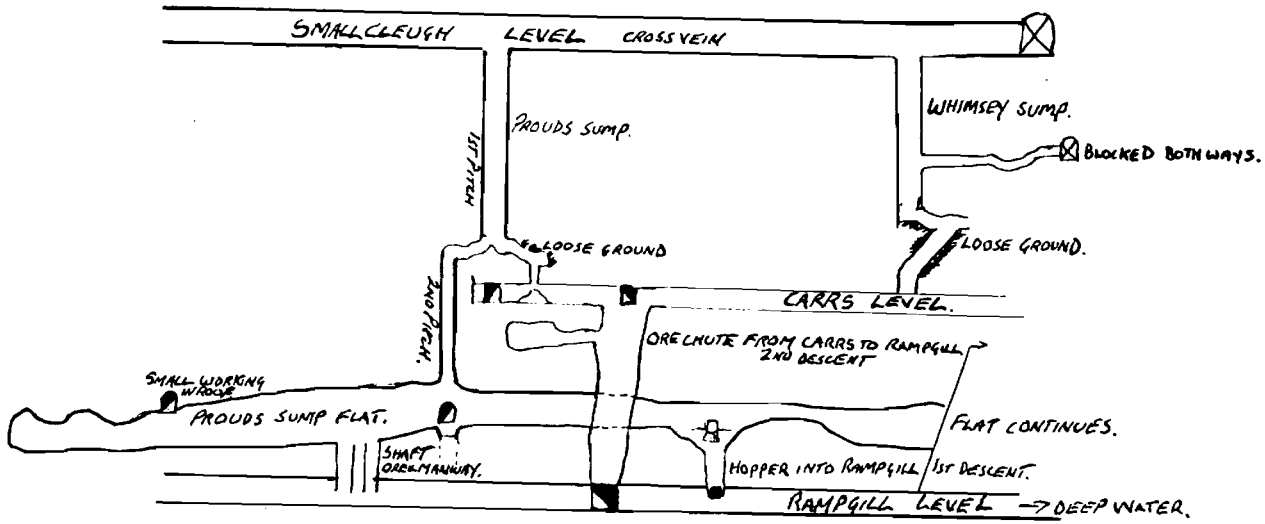
The mine has been systematically stoped out for barytes from the bottom up. Ore was tipped down rows of chutes onto tramming levels, each approximately fifty feet above the last. There are about a dozen chutes on each of the four levels which we explored. From the level with the collapsed floor forty six feet of ladder descended to the next, then sixty feet, then fifty five feet to the lowest that we were able to reach. This was a foot deep in water and was blocked by a collapse a short distance each side of the ladder.

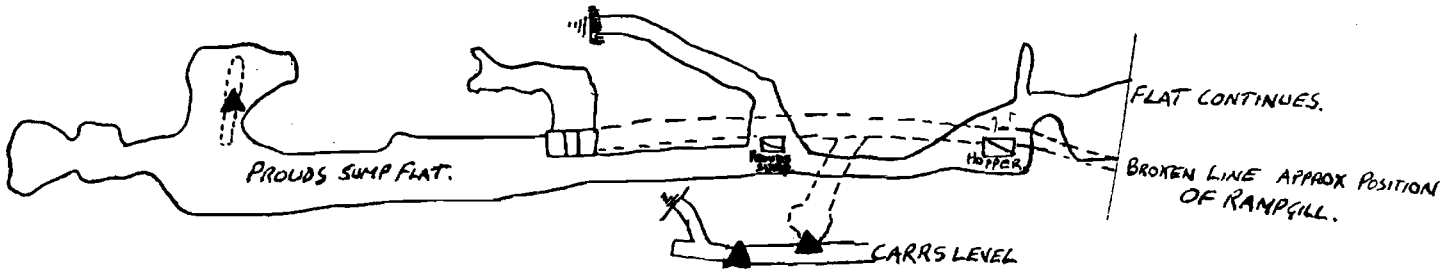
In all we descended fifty five feet of rope from the surface, followed by two hundred and fifteen feet of ladders, a total of two hundred and seventy feet. We concluded that we had probably found the system for which the meet had been intended, but we were unable to find any other way in or out other than by SRT from the surface. A subsequent conversation with Ian Tyler confirmed this, as he recognised a description of the level where the floor had collapsed. It would seem however that the area between this level and the surface above had not been explored in recent times.

Ian Matheson. Sept 87.



CROSS SECTION OF CAT. THROUGH TRIP FROM SMALLCLEUGH TO CARRS TO RAMPGILL (THE SECOND WAY) COMPLETED ON 6-9-87.





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SKETCH PLAN – NOT TO SCALE. SHOWING C.A.T's SMALLCLEUGH TO CARRS TO RAMPGILL THROUGH TRIP.

DESCENT 1 – PROUDS SUMP — PROUDS SUMP FLAT — HOPPER INTO RAMPGILL 16-8-87
DESCENT 2 – PROUDS SUMP — CARRS LEVEL — ORECHUTE INTO RAMPGILL. 6-9-87

C. GILCHRIST

FOR KEY TO SYMBOLS SEE NEWSLETTER No 6

NENTHEAD STRIKES BACK ?

Two general observations about the Nenthead meet are :-
The significant amount of new ground explored (and perhaps more important that earmarked for next time) and the relatively small number of members attending.

Perhaps it was the beautiful June weather or just that the dates conflicted with something that just had to take precedence. Or could it be that there is a general attitude that only Smallcleugh and Rampgill are worth visiting and well we have done everything there anyway have'nt we! as the meet review in Newsletter number 10 suggests.

Saturday morning saw 11 members congregated at Cherry Tree Cottage.

Nine prepared for some underground exploration (The leaders Maher and Mitchell, the ladies Danson and Helme along with messrs Helme,Gilchrist,Moore, Lings and Borthwick) Ken & Wendy Battersby intending to sample the rain rather than the darkness. The group first set off for Cappleclough High Level a prominent concrete portal above a semi ruined mine shop to the West side of the valley. The entrance leads via some steps down to a low concrete lined level, this was followed until the way ahead went into some loose shale. Anne & Alistair crawled forward to a collapse, so much for this level. Really not a level but basically a spillway for water from Perry's Dam via the Bog Shaft. A shaft to the surface to the surface had been noted on the way in, & some time was spent in searching for it on the surface as we headed toward what would probably be the main exploration of the day in Middlecleugh. Much searching failed to reveal the shaft top, but what a curiously clad bunch of fell walkers.

Middlecleugh was somewhat of a disaster the level having collapsed a few yards (metres) beyond the portal. Not the best of starts to the day, thus it was a slightly less than buoyant group that set off back down the valley with the intention of having a look at part of Rampgill.

Old railway sleepers covering a shaft top at the South end of Smallcleugh reservoir took our interest for a while, one worth further investigation later perhaps?

A bit further down the track the irrepressible Lings (Dodd End excepted) dragged us all off to look at an outcrop of galena at the beck (river) side. Now at the beck side there is an excavation (possibly quite old) which is itself quite short. But down a short easily climbed shaft there is a level, if Mitchell's left hand rule is applied the way ahead is very short. That is unless you are like Chris Moore & like low,wet dangerous crawls, having persued this someway then he saw reason & returned reporting that it was still venting strongly. Turning right lead on via a couple of small collapses & on through some waist deep water & on till what we later were to identify as Carr's level, new ground for C.A.T. & quite extensive. Quite suddenly and rather by chance (serendipity I suppose) we were spoiled for choice as to what to explore. The main level itself does not go very far before a collapse but by doing a bit of climbing there is much to be explored. Time did not allow more than a rather cursory investigation & to realise that there was a days worth of exploration to be had here. A change of plan for Sunday perhaps.

The portal of Carr's level had been viewed a couple of years back (at the end of a long day in Rampgill). Then it was guarded by a gate locked by a very rusty bolt, it was pressumed not to be of much interest and kind of disregarded. Know we have a third horizon between Smallcleugh and Ramgill and as yet unspoiled be graffiti and beer cans.

Sunday saw the personnel of Saturday minus the Battersby's and Helm's but plus the Flemings, Angela Wilson, Dave Blundell & later in the day Chris Jones. Unlike the single party of Saturday, Sunday was to be exploration by much smaller groups. Alistair and Dave exploring surface remains on Rodderhope Fell, CDJ exploring in Smallcleugh, Mike,Angela,Gordon & Chris following up some of the interesting possibilities of Carr's.

Peter Fleming lead his promised Capplecleugh (Low Level) - Smallcleugh through trip, taking Anne,Martin & Don on a very interesting if rather wet (officially armpit depth) jaunt. Capplecleugh still houses many artifacts, two toilet boxes, two wooden ventilating machine (a sort of centrifugal blower) one still in excellent condition, a wooden sign describing signalling on an incline and a couple of roof arching profile gauges.

Two manways were climbed & some upper workings explored in least in part, time constraining the wish to follow everything that looked interesting. The worked area is quite extensive , one large stope had an interesting shaft disappear upwards and considerable quantities of deads supported on wide unusually flat arches.

During exploration at the top of the second manway, Peter expressed the feeling that he 'had been there before' and not as part of the through trip. His suspicions having been aroused during a short crawl to bypass a fall that had possibly been dug in recent times , this dig appearing to have been made from the 'other side'. A little later in the day, on our way out we were able to confirm that there was a second connection between Capplecleugh and Smallcleugh mines. For one period during this section of the trip the party became split up, P.F. found his way into a passage some sections of which were partly lined with concrete. Realizing that the rest were not following along behind, he returned to locate the other two parts of his party, leaving this interesting passage not fully explored.

Time passing we decended back to our original route (& food), wading on to the bottom of the Bog Shaft where the hydraulic engine once stood, then on to the manway to,take us up to Middlecleugh. Strange as it was to relate to our meeting with a university group on our last meet at Coniston (3rd May), stranger still to find two blokes (from Swaledale) coming down intent on doing our trip the other way. A request to know when journal No 3 would be out followed Peter explaining who we were, how many time have you heard a C.A.T. membership promotion while in chest deep water that far from daylight ?

A short detour at the top of the manway (scaled by a beautiful white ladder) confirmed we had all been there a short time before. What it also does is to extend our area for further exploration, Peter's concrete line passage was in the region of the Bog Shaft, Capplecleugh High Level is the spillway for water from the Bog Shaft and is concrete lined. Unrelated perhaps, but worthy of investigation the passage should be followed to its end and compass bearing recorded.

Luncheon was partaken in the 'Banqueting Hall' (a larger flat than the famous 'Ballroom' even though part filled with deads. The route out to day further took in the 'Church' and a mini 'Ballroom', a coal seam, a couple of excellent three-way junctions and the Horse Whim.

Daylight and drizzle were gained after nearly six and a half hours underground - a really superb trip many thanks Peter.

C.A.T. EXPLORATION IN THE HENTHEAD AREA. Official meet 28-6-87

The Sunday started off with most members opting to do the gruelling Caplecleugh round trip. Mike Mitchell, Angela Wilson, Chris Moore and myself decided to return sensing there could be a further opportunity for something big, so we set off deciding to try and push Carrs as far as possible. We entered Carrs by the adit mouth, and followed the main level past the tight crawl coming to the first sump which we had noticed on the Saturday.

We suspected that this dropped into Rampgill, so I decided to descer and prove the connection. The pitch was rigged using pitons driven into the level arching as there were do rock belays nearby, this was a very wet pitch. At this point I noticed I had left my S.R.T. kit behind so I borrowed Chris's and set off down. The first part of the pitch was 40' down to a wooden floor which inclined into a wooden chute. This continued to the top of a flooded hopper, that had a ladder way next to it. The ladders are still in situ.

I descended the ladder and halfway down, the flame of my carbide lamp ignited a piece of timber on the side of the hopper, a miniature flame shot out from the wood with a loud bang. I nearly fell off the ladder in fright. Anyway I got down off the ladder into a large level the total depth of the connecting pitch is approx 75'.

I set off walking following the water for about a mile, or so it felt, until I came to the Brewery shaft. The connection with Rampgill being proved, I thundered down the level at about 30mph thinking the others would be getting worried. I was moving so fast I totally missed Chris Jones and Cheryth admiring the Brewery shaft. I exited from Rampgill walked up the road and back into Carrs and derigged the pitch. We then moved about 40' up the level and climbed up into a rise where the main level is blocked here by a collapse. The rise is 35' high leading into a flat above the main level.

We had decided on this trip to concentrate on workings going up as we were sure we were not far under Smallclough. We encountered a lot of large rises going up quite a distance, some looked in excess of 50' high and were 10' in diam. Anyway we left these and continued following the flats and found an inclined tunnel which seemed to be draughting, we followed this to a sump blocking the level (this was to be an important place on further meets). We skirted the sump and continued down the tunnel, this small narrow tunnel was lined with straw stalagtite and ended in a flowing calcite cascade. We crossed causing no damage, only dirtying it slightly, we then dropped into a crosscut running parallel with the main flat. The tunnel was blocked at one end but near the blockage was a choked sump. At the sump top were some amazing spaghetti like formations on the wall and over the floor, well worth a visit to photograph.

We then moved to the other end of the level which was in very loose and shaly ground, this opened out into the side of a large shaft driven to the surface, approx 150' above. As the ground was very loose here Mike and Chris belayed me as I edged cautiously to the shaft lip, I estimated there was another 100' to the bottom. On the opposite side there was another large shaft station. The back looked as if it was collapsed. The only way to reach that side would be from the surface, even then it would be difficult to gain a footing as the floor is only a pile of loose shale and rubble. This will be tried at a later date, we'll let you know.

On the Saturday we had been throwing boulders down a shaft situated up above Smallcleugh by the side of the footpath, we now suspect this was the previously mentioned shaft (this was proved correct on the next meet). Leaving the shaft area, we went back into the main flat and followed it to a climb up into another flat with what appeared to be a natural cave passage traversing the roof. At the end of this flat we found two old wooden ore bogies, one in a very advanced state of decay, the other was still on it's rails and moveable. The axle on this one were still showing bright shiny metal. Two ore hopper's were noted here, we left these for future investigation. We retraced back down into the main flat, and reached its limit on that level, we then noticed a narrow connecting tunnel about twenty feet long by three high. We climbed through this, it led us into another flat, this one was similar to Smallcleugh main flat, i.e. stacked with deads. A couple of rises were climbed in this flat these led to higher workings which were getting smaller and narrower as they gained height. The uppermost workings we entered were like cave passages along which we crawled on hands and knees. At a guess some of these workings are about the same level as the Smallcleugh main flats. We dropped back down the rise into the main flat and back through the connecting crawl, back to its limit where a crack in the floor about 1' wide was noticed. We peered down this and could see another flat leading off, it was late so this was left for next time.

We headed out, our heads full of ideas for the next meet here, where would the best place for connections to the other mines be? Mike reckoned the key would be to find a way past the blockage on the main level, his idea later proved right.

We exited from Carrs caked in black mud, but pleased with our progress.

Stay tuned for more details to come with meet No 3

Members present were: Mike Mitchell : Angela Wilson : Gordon Gilchrist : Chris Moore.

N.P.H.T ..... The Trust is in the process of producing a newsletter regarding its activities to date. The chicken farm may be developed as workshops and an interpretive center(this will be run by the Trust).C.C.C is in the process of purchasing the Smallcleugh mine site.

There is a young member of CAT,
Who is really a bit of a RAT,
He uses our ropes to climb up the STOPES,
But to wash them refuses quite FLAT.

Percy Pitprop.

C.A.T. EXPLORATION AT NENTHEAD. Unofficial meet No 3

Members present : Gordon Gilchrist : Mike Mitchell : Don Borthwich : Anne Danson : Alistair Lings : Angela Wilson : Dave Bridge : Chris Moore.

This meets' objective was to descend the shaft found on the previous meet, and find the continuation of the Carrs level, which we were sure continued under Smallcleugh and above Rampgill, and to find a connection between any of them which could possibly lead us into new ground in both mines.

We entered Carrs, got past the squeeze, climbed the rise and got into the flat we had explored previously, Mike was sure the shaft in the inclined passage which we had skirted last time dropped into the main level past the blockage. Members who hadn't seen the formations in the crosscut, visited the site and took photo's. Once again I visited the shaft at the end of the level, now known as Hangingshaws engine whimsey and found the string and weight hanging down from the surface, which I had placed there earlier to prove it was the shaft by the footpath.

We returned to the shaft and rigged a rope, the shaft proved to be 20' deep. I descended and found myself back in the main level. This we followed, noticing a couple of deep shafts on the left of the passage, these looked about the right depth for Rampgill mine. A pretty nasty squeeze through a collapse with a shaft encroaching on the level, needed care to pass as a misplaced hand would send you sliding down shaft. Once passed the squeeze we were back in the masonery lined tunnel, this carried on to a Y junction, the right hand side was collapsed about 20' from the junction. The left hand side was also collapsed but was not the same material, being rock from above. Crawling along the rubble to where there was a gap in the roof, I could see the level continuing. It looked safe enough to pass but on moving, a few more rocks started to slide down from above. Mike in his serious C.O.M.R.U. voice said we should wait and fetch some timbers to shore it up.

We returned to the rope and got back into the main flat, heading for the flat with the cave passage in, to have a look at the sumps and rises we left on the last meet. After a difficult climb up using etrier's, a new experience for most members, though they have proved one of the most useful items of gear we have used in this mine. When everyone had admired the bogie and photographed it, Anne Danson made a difficult climb up into the roof to see if the cave passage went anywhere. It didn't!

Anne used a novel method of aid climbing to gain access to this portion of tunnel, she used the Lingsbax method, Alistair providing the back.

In this flat we came across a large shaft and rise about 8' across with a passage continuing on the other side, it was bad ground so we had no decent belays. A rail was dragged into position to bridge the gap, Anne, Mike and myself went across this precarious bridge only to find the tunnel was 5' long to a heading containing wooden arch formers, one promptly fell apart when I picked it up. A narrow crack was noticed in the foof of this level, it seemed to go well up, so Anne and Mike decided I should try and scale it. I employed Mikes back to stand on to gain entry, which wasn't easy as I had to keep my head sideways on as it was the only way my helmet would fit through

the gap. I climbed this for 20' and found it choked at the top, so I had to return, employing gravity to assist my descent and dropped straight through the crack, landing on my behind on the level floor. Having exhausted all our options in this flat we decided to return to the main flat and continue exploration. We arrived at the crack we had noticed on the last meet. The team descended this, which meant a 10' free climb into another flat. This flat was explored to it's outer limits, or as far as we could go, the passages reducing down to flat out crawl's and winding tunnels.

We went back to the first rise from the main level, and set about free climbing one of the very large hoppers there. I managed to climb about 40' up a very slippy hopper to a side passage, whilst I recovered Anne followed me up. We were both a bit dubious about the next bit, the ladders and staging were still in situ and didn't look too good. Mike came up to assess the ladders and set off up (he must have left his C.O.M.R.U. head at home). Mike ascended another 25' then his hands started to sink into the wood - he decided to retreat. After this we all decided to call it a day, and set off out, feeling quite pleased with the days' exploration.

1. We had found the continuation of the main level.
2. We had proved the connection to surface via the engine whimsey.
3. Most importantly, we had found at least two more exits from the mine via Rampgill, both there connections involving squeezes.

With so much to still explore, we arranged the next meet. This is the meet that led to that well known mine explorers phrase "Oh no! Not Smallcleugh again."

All of us at the Editorial Office would like to wish the membership a M.C. & a H.N.Y

Anne D.