

Slate Quarries to **t**

C.A.T. NEWSLETTER
No. 12

TO BE LET

BY TICKET,

AT THE HOUSE OF MR. ANTHONY GASKARTH,

CONISTON HALL,

In Coniston, in the County of Lancaster,

On THURSDAY, the Third day of May, 1832,

At four o'clock in the Afternoon,

FOR A TERM OF YEARS, AND TO BE ENTERED UPON IMMEDIATELY,

ALL THOSE

EXTENSIVE AND VALUABLE

Slate Mines,
OR

QUARRIES

Situate in the Manor of Coniston,

In the said county of Lancaster; the property of **LADY LE FLEMING**, of Rydal Hall, in the county of Westmorland. The above Quarries are generally supposed to contain very excellent Slate, and in great abundance; and, in the hands of lessees well acquainted with mining or slate getting, and a little skilful management, might be taken at such a rate as to ensure a sufficient compensation to the farmers thereof.

Mr. ANTHONY GASKARTH will shew the premises, and further particulars may be known by applying to **THOMAS JACKSON, Esq.**, of Waterhead, near Ambleside; or to **Messrs. MOSER, Solicitors, Kendal.**

April 13th, 1832.

CAPPING THE ISSUE

by McF

It was a cloudy autumn day and the fields of Northumberland were grey and damp. Winter was approaching. The bare hawthorn dykes were rattling gently in the breeze, crows gliding over bleak moors, starlings gathering on telephone wires. Farmer Turnbull was sitting in his hen hut, gazing pensively towards the distant smudge of sea through a cracked and grimy window pane. Mid afternoon was always a peaceful time in the hen hut; he would often sit there in the corner, lost in thought, his keen farmer's eyes raking the empty field, his red farmer's ears being soothed by the gentle crowing of somnolent hens. Time for thinking was scarce, invaluable even, and Farmer Turnbull was only too aware of this. Farmer Turnbull was a thinking man and proud of it, his thoughts were profound, introspective, as deep as the distant smudge of sea. Sometimes he was moved to write poetry.

This particular afternoon he was thumbing through an old and cherished paperback, Laxdaela Saga, an English translation by Magnus Magnusson and Hermann Palsson, and considering whether to read it for a third time when a perculiar thing happened. All at once, in one massive dramatic flurry of feathers, every single hen in the building tumbled out of its box and lay prostrate upon the ground, wings flapping in alarm. Farmer Turnbull was surprised, initially, but not shocked for he had witnessed this strange phenomenon before. He knew not why his hens, as if controlled by divine or invisible strings, should choose to tumble like corn before the scythe in one split second of indescribable chaos. But what he did know, and grudgingly appreciate, was that the following morning his egg yield would be down.

Through the short afternoons of the ensuing winter the farmer sat in his hen house with his somnolent hens and witnessed this strange and recurrent display of simultaneous mass-hysteria on no less than thirteen occasions. The farmer made notes, wrote them down scientifically in a green exercise book bought specifically for the purpose, he made important observations and established that the hysteria struck usually on a Friday afternoon, though twice it had happened on a Thursday. He recorded the weather conditions and concluded that the hysteria was at its worst on dull and overcast days.

Farmer Turnbull, as fate would have it, besides being a man of scientific inclination, was a stickler for a puzzle. As a youth in short trousers he had been hooked on those unbearable problems designed for 'lateral thinkers'. He knew how the Arab had hung himself in the hundred-foot high doorless, windowless, stairless tower; he knew how the Boy Scout, trapped on a tiny island by a raging forest fire, had saved his own life with a box of matches; and why the man who lived on the twelfth floor of an apartment block invariably got out of the lift on the seventh floor and climbed the remaining five flights of stairs to his cheerless room. Farmer Turnbull certainly wasn't born yesterday, though he had to admit that the case of the summersaulting hens had got him baffled. In the end he purchased a copy of Laurie Lee's Cider With Rosie and called it a day.

In spring, when the ground was firmer, the farmer hitched his trailer to his tractor and set off to the local quarry for a load of chippings to fill the potholes in the farmyard. The quarry was a couple of miles down the road and it took a while to get there in the rickety old tractor but it was a welcome excursion. At the quarry there was a brief hold up while the face was being blasted, but the farmer didn't mind waiting for he was always keen to broaden his experience and observe something new - he was a thinking man was Farmer Turnbull. While he was loading the trailer the shotfirer walked by with his firing apparatus on his arm. The farmer had a friendly word with him, and after some comments about the weather enquired how regularly the face was blasted. "Every Friday afternoon," said the shotfirer cheerfully, "but sometimes on a Thursday."

Farmer Turnbull returned home, his mind in a frenzy and brimming with theories, visions of earthquakes and tectonic rifts swallowing his hen hut while the amiable shotfirer went about his business of inadvertently disturbing the continental shelf. The following Friday - which was calm but overcast - he crouched in the corner of the hen house clutching a stop-watch and an instamatic camera, heart beating soundly while the drowsy birds crowed and ruffled their feathers.

At 2:15 precisely, the hysteria struck. The hens tumbled from their boxes and floundered on the floor; some made it to the bob-hole, diving frantically into the hen run where they panicked quite unashamedly amid the cockle shells and nettles. Farmer Turnbull remained composed. He walked calmly to the kitchen, picked up the phone and dialed the quarry number. He asked the manager if he had blasted that day. The manager said yes. He asked what time the blast had taken place. "Two-fifteen precisely," replied the manager.

Farmer Turnbull rang the Quarry Inspector and just for good measure got in touch with the Health and Safety Executive as well. He told them about his observations, the quarry blasts, the low egg yields, but being a cautious man omitted to mention his theory of the unbalanced tectonic plates and his fear of chain eruptions along the length of the Whin Sill. The Inspector, with the cooperation of the quarry manager, launched an investigation and in a matter of weeks the problem was eradicated.

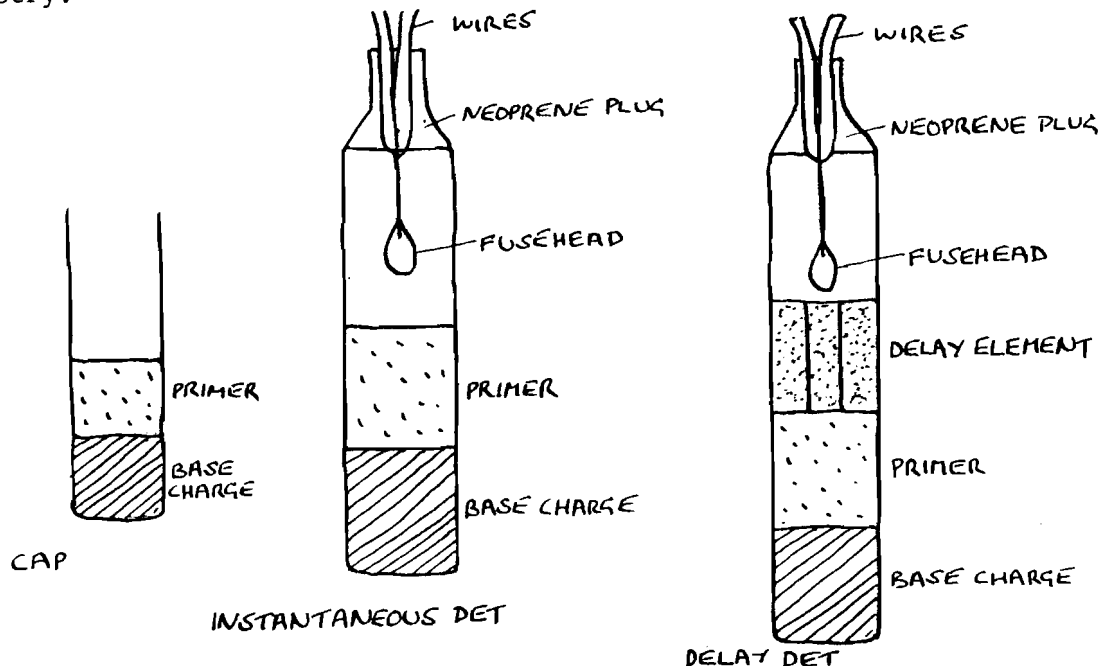
The Inspector, a Mr Lobster, visited the farm with a comprehensive report and explained to Farmer Turnbull, in layman's terms, the causes of his hens' hysteria. The hysteria was, as the farmer had concluded, directly linked to the weekly blasts, though not in the manner in which he had expected. Every Friday the quarry exploded a ton-and-a-half of gelignite in a dozen or so ninety-foot deep shotholes. The holes were fired simultaneously and one of the side effects of this blast was the creation of an atmospheric shock wave. On fine days the shock wave was evenly dispersed and disappeared into the heavens quite unnoticed. On dull days it literally bounced back off the clouds, the Turnbull farm lying directly on the trajectory at the point where the wave glanced the earth. The shock wave, although too indistinct to be detected by human senses, was evidently disruptive to the hens. Mr Lobster's recommendations were taken up by the quarry manager. The instantaneous detonators that had been in use for many years were discarded in favour of short-delay detonators which fired the shotholes independently and at different times. To all intents and purposes there was still one colossal blast, the interval between initiations being but a few milli-seconds only, too minute to be appreciated by the human ear. In theory, the one blast was now a series of twelve explosions spread over a period of three-tenths of a second. The effect was remarkable. The shock wave was substantially reduced and the hens suffered no more ill effects. Farmer Turnbull now rests easier in his bed, safe in the knowledge that the continental plate is not dividing beneath his hen house and the Whin Sill is still as cold and inanimate as ever.

Thank you for your attention. The above - which is based on a true account - started life as a brief introduction to a short article but rapidly grew out of all proportion. The article was intended to be a follow-up to 'An Explosive Issue' which appeared in the last Newsletter and discussed the history of commercial explosives. This edition's offering examines the complex subject of initiating devices.....caps, detonators, cordtex, etc., which were inflicted on the mining and quarrying industries with the sole intention of baffling managers who had nothing better to do all day than thumb through technical journals. No points to those readers who read the title and thought they were in for a lecture on sealing up mine shafts, headware through the ages, or contraception Dutch style.

So what is a detonator? In a nutshell, a detonator is a device for initiating a violent reaction in a chemical explosive and does so by administering a high-intensity mechanical shock. Detonators fall into two main categories - caps, which are fired by sparks discharging from the end of a fuse, and electric detonators, fired by an electric current passing through a resistor. Both varieties are still employed though the former has tended to decrease in popularity in recent years, the electric detonators - available in a multitude of forms - being more versatile and infinitely more reliable.

Caps were originally manufactured in ten different sizes, or strengths, though nowadays only two of these are available, No.6 and No.8. The old No.6 caps were the miners' favourites and evidence of their widespread adoption can be viewed in many abandoned mine workings where the rusty tin cap boxes, some still exhibiting patches of red paint and white lettering, lie scattered about. The cap boxes were useful items and not all were discarded. The tool shelves in my grand-

father's wash-house testify to their adaptability, several examples, rescued from Askam's S5 Pit during the 1920s, still going strong as receptacles for screws and panel pins. Their modern equivalents are made from cardboard, flimsy lids fastened down with sellotape. Somehow the romance has fallen out of the No.6 cap box industry.



The first caps were simple copper tubes, sealed at one end and about an inch in length. The miner inserted his fuse in the open end and crimped the body of the cap, ensuring an immovable joint. Inside the cap were two chemical compounds, a priming charge and a base charge. The fuse abbutted against the primer which burned with a fierce heat when showered with blackpowder sparks. Once ignited, the primer initiated the base charge, composed of a high explosive, in turn initiating the dynamite or gelignite into which the capped fuse had been inserted. Modern No.6 caps work on the same principle though the copper tube has been replaced by an alloy counterpart. The constituents, too, have been updated. For many years mercury fulminate was the established base charge though its detonating power tended to depreciate after prolonged periods of storage. The modern base charge, and a chemical used extensively in today's explosives' industry, is the horrendously named pentaerythritol tetranitrate, commonly referred to as PETN, a white powder that could be easily mistaken for baking soda should it find its way into the kitchen.

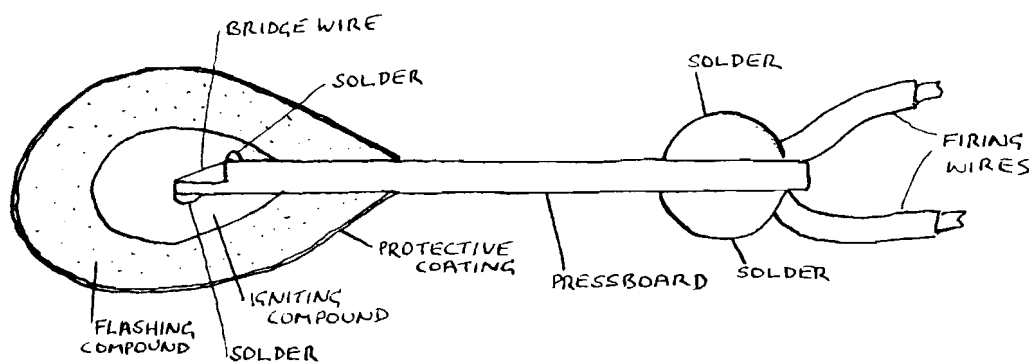
But the big drawback, the overriding disadvantage with the cap, is its susceptibility to water. Once damp it will not fire. Traditionally, the method employed to overcome this obstacle was to smear the capped fuse, and the dynamite pellet into which it was inserted, with a liberal coating of grease. A recent innovation on this theme was to insert the greased charge into a tough plastic bag and tie the ends with baler twine, a practice still promoted by a certain Cumbrian slate quarrying company which is too tight to issue its level drivers with waterproof electric detonators.

Electric detonators were introduced soon after it became apparent that the ubiquitous cap, despite its application of grease, was not going to work successfully in extremely wet conditions. The first recorded electrically-fired shot in the Furness iron ore field took place during the sinking of one of the Yarlside shafts in the latter quarter of the last century. Aberdeen's Donside Granite Quarry fired what is thought to have been the first electrically initiated quarry blast in any granite quarry in the kingdom. This occurred during a severe snowstorm in March 1873. The detonators appear to have been simple fuse wires strung between terminals and buried in blackpowder. The detonators were rigged up by a Mr Wright, the local electrician, who did an excellent job, managing to dislodge an estimated five-thousand tons of rock.

Modern electric detonators are sleek and sophisticated, ninety-nine-point-nine percent reliable, and can be stored almost indefinitely. The main

drawback is that they can explode accidentally if the wires are pulled out. Other causes of premature detonation are induction from overhead power cables, induction from electrical storms, radio waves from C.B. transmitters and radio masts, accidental connection between an earth and the chassis or bodywork of a vehicle, and general abrasion but this last item also applies to caps. If all this were taken into account and all the rules and guidelines strictly adhered to, there would remain about three square miles of territory in the British Isles where electric detonators could be used with a hundred percent degree of safety. However, careful handling is the secret to a long and happy life; the danger lies not in detonators and explosives but in complacency and human error.

So what exactly is secreted within the capsule of an electric detonator? Fundamentally it is, in theory at least, similar to the simple cap. There is a base charge of PETN and a heat-discharging primer, though in this case the primer is ignited by a fuse-head encapsulating a minute resistor which flashes when a current is passed through it. The effect, as with the cap and the crimped safety fuse, is immediate once the cap has been initiated. This type of device is called an instantaneous detonator for its conclusive explosion is - without taking into account the time factor for electrons passing along the shotfiring cable - simultaneous with the pressing of the firing button.



SECTION OF A FUSEHEAD IN AN ELECTRIC DET.

Moving one step up the ladder of scientific advancement we come across two useful devices, the short-delay and the long-delay detonators. Similar in construction, they are basically instantaneous detonators with a compressed, slow-burning delay composition interposed between the fuse-head and the priming charge. The length of the delay depends upon the amount and nature of the compound used. Short-delay detonators are manufactured in strengths No.6 and 8, over a range numbered from 0 to 30 with increments of 25 milli-seconds between each successive number. The first in the series, number 0, is an instantaneous detonator while number 30 has a delay of 0.75 of a second (30x25 milli-secs.). Short-delay detonators are used extensively in the aggregate quarrying industry where the large volumes of explosives used would create undesirable atmospheric shock waves if initiated as a mass. The long-delay detonators, common in underground work, are also manufactured in strengths No.6 and 8 but are produced in a numerical range 0 to 12 with increments of half-a-second between each successive number. Number 0, as in the case of the short-delay range, is instantaneous, while number 12 has a delay factor of six seconds. Why the short-delay range is used predominantly in quarrying and the long-delay in mining is a subject sufficiently extensive to warrant another article. Perhaps sometime in the future, after a sufficiently long delay, one will be produced.

One of the most important initiating devices, and a product used with reckless abandon, is Cordtex, a detonating fuse supplied in 100 meter coils and easily mistaken for plastic washing line when carelessly discarded. Cordtex consists of a white plastic outer-sheath enclosing a layer of synthetic yarn, with a core of PETN. It is used for linking shotholes or masses of explosive charges which are to be fired simultaneously. It is waterproof, extremely adaptable, and has a V.O.D. (velocity of detonation) of 6,500 metres per second. Strictly speaking, Cordtex is not a detonator, it is a vehicle for transmitting a detonation to a

specific location, or a number of separate locations. Cordtex is powerful stuff and the legends surrounding it are numerous. Three loops around a telegraph pole, it is reputed, is sufficient to bring the pole tumbling to the ground. Experiments with Cordtex at a quarry in south Cumbria where three loops were coiled around a selection of old drill steels - the intention being to reduce them to a size suitable for use as vegetable row markers - was decidedly unsuccessful. The participants concluded, after much discussion, that either the three loop theory was a fallacy or drill steels were stronger than telegraph poles. But there is no getting away from the fact that it is handy stuff to have about and can be employed with imagination and in illimitable circumstances. As an example of this I would like to draw your attention to the instance of the Northumbrian shotfirer, employed by Tilcon at one of their quarries on the Whin Sill, who uses to this day a coil of Cordtex to belt his raincoat together in windy weather. (One of our older members, relating his experiences as manager of Greenscoe Quarry near Askam-in-Furness, told me a similar tale of a quarryman belting his overcoat with igniter cord, a slow burning fuse which - despite being of a less explosive nature than Cordtex - burns with an extremely voracious flame, devouring all in its path. "I first noticed the foolish man," said our member, "when he was frying bacon on the cabin stove.")

Moving up a step we come to Superflex, another detonating fuse with a core of PETN. It is four times thicker than Cordtex and is proportionately stronger. One of the characteristics Superflex possesses is its ability to initiate granular ammonium nitrate explosives without incurring the added expense of gelignite primers, so essential when blasting with Cordtex.

And that about caps the issue. There are more varieties of electric detonators though these are for use in special circumstances. For instance: down-the-hole-initiation detonators, used in certain aggregate quarries where it is advantageous to lower the detonators to the bottom of the shotholes; submarine electric detonators, used in water to a depth of 135 metres; hydrostar detonators, able to function in pressures of 675 metres of water. There are also accessories, stacks of them, the list gets longer every day: igniter fuse, slow and fast burning, beanhole connectors, cordtex relays. But the line has to be drawn somewhere and this is as good a place as any.

Answers for Prize Crossword

Across - 1 Coniston Copper Mines, 7 Simon's Nick, 9 Bob Plat, 14 Rag and chain pump, 16 Hospital Level, 21 Buddle, 22 God's Blessing, 24 Cobbler's Hole, 28 Kibble, 29 Tilberthwaite, 35 Thriddle Incline, 38 Red Dell, 40 Bonsor Vein, 41 Company of Mines Royal.

Down - 1 Cassius, 2 Namer, 3 Ognon, 4 Oak, 5 Enounce, 6 Ill, 8 Negro, 10 Pause, 11 Amps, 12 Callus, 13 Strangle, 15 Doing, 17 She, 18 Vie, 19 Adobe, 20 Bilbo, 21 Backward, 23 Duo, 25 Ell, 26 Hardly, 27 Edwin, 28 Kai, 30 In red, 31 Bad play, 32 Trier, 33 Chunnel, 34 Sty, 36 Caste, 37 Enemy, 39 Dip, 40 Bum.

Introductory anagram -- A FIELD GUIDE

ERIC G. HOLLAND.

Cover Picture.

Contributed by Ian Matheson, a fairly self-explanatory sale notice.

Correspondants Corner.

I refuse to believe that in a society like C.A.T. that no-one wants to put pen to paper and write something for this newsletter. Maybe nobody reads it? Write us an article now... it can be on any subject remotely connected with I.A. or Mining, even an account of a meet that you've been on, a letter of complaint, we will print virtually anything that isn't libellous. So get writing!

Meets Leaders.

Following a recent meeting of the committee it was decided that following some recent meets that a repeat of the duties of a meet leader should be spelled out again.

1. The meet leader is responsible for making a list of members present and also non-members from whom he should collect the daily membership fees.
2. They should be responsible for helping new or inexperienced members on pitches and underground generally.
3. They have a responsibility to fill in a comprehensive report for the C.A.T. Log Book including details of the number of people present and a brief description of the day's events.
4. If a Meet Leader is unable to attend a meet then he should ask some-one else to stand in for him.
5. He should make a note of any artifacts, etc. discovered or recovered in the course of a meet and this should be recorded.

Poets Corner.

This is part of a song spotted on a new album by folk band 'Run Rig', called 'Heartland'. The track is called 'Lifeline' and I should think it conjures up feelings familiar to most of us.

"...You cry in the wilds
Hope on the ledges

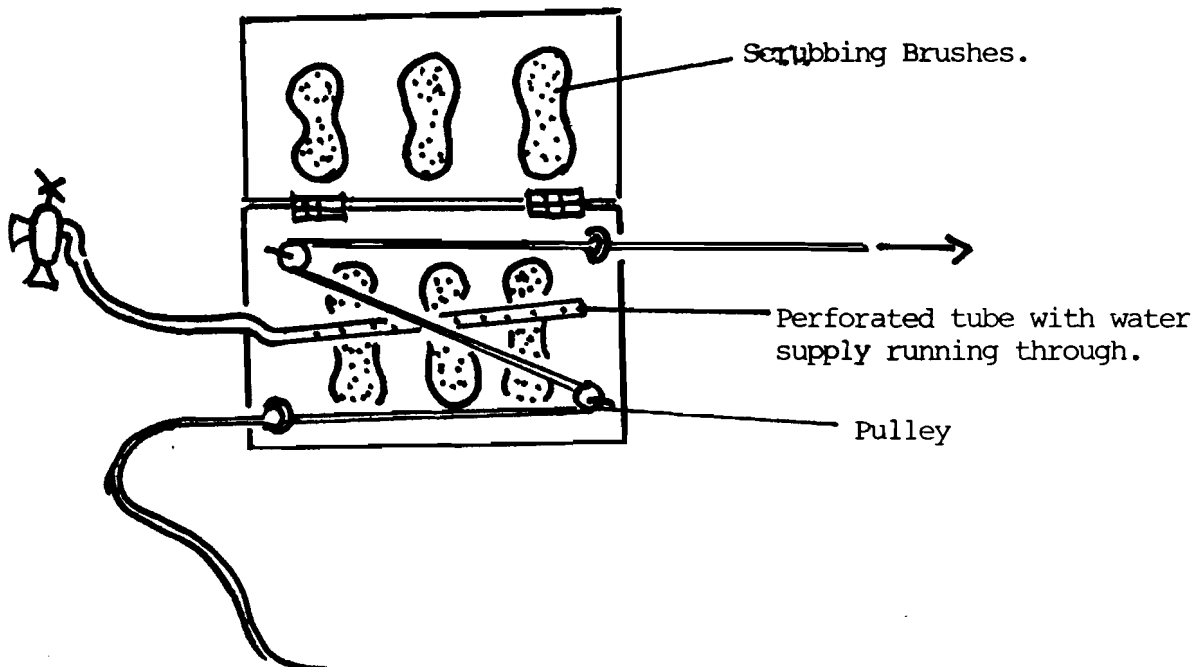
Your hearts in the stars
 Nights in your eyes
 The rockface inclines
 Hold her, leave her
 Rise to glory
 Over Mankind..."

Ridge Records RR005.

Rope Care.

It is essential when you buy a new S.R.T. rope that you do not use it immediately. New 'kernmantle' type ropes should be shrunk before use. This will permit the sheath to shrink on and grip the core properly. This point is even more important if Troll 'Aguaguard' is used, I have a sample length of this rope under test and when new the sheath slips easily down the core. One of the problems may occur when people rush into a caving shop, buy a length of rope and bung it straight down some shaft. The correct way to pre-shrink rope is to stick it in a bath of clean water overnight then dry it out carefully.

While on this subject ropes should be washed and inspected for damage after each trip. Sloshing the rope around in a stream is rarely sufficient to properly clean it. Why not invest a few quid in a rope washing machine as illustrated below, it really does clean ropes you previously thought were clean. If you have an understanding wife or mother it is perfectly all right to put a rope into a washing machine, but use warm water (40°C) only. Ropes are best plaited for machine-washing.



Minerals.

Each issue we hope to feature a geological report on a mineral specimen. These will contain some very basic information on each mineral including locations where it can be found etc. Now read on...

ANHYDRITE. CaSO_4 (Calcium Sulphate)

This is a similar mineral to Gypsum but less abundant due to its ability to take up water whereupon it converts to Gypsum ($\text{CaSO}_4 \cdot 2\text{H}_2\text{O}$). It is found in sedimentary rocks deposited by sea water. Smaller quantities do exist in some veins and nitrate bearing beds. It is orthorhombic, with three good cleavages at right-angles to one another. Crystals are rare, the mineral usually occurring in massive form though it can occasionally be fibrous. It usually has a white colour but it does occur coloured grey, blue, pink and purple. It has a hardness of 3.5 (Moh's scale) and the specific gravity ranges from 2.92 - 2.98. It will strike fire when hit with a pick. It is often found with a pearly lustre.

Its uses include the manufacture of ammonium sulphate which is used as a fertilizer. It is also used in the manufacture of sulphuric acid, an increasingly important chemical in these times. It is produced by reducing anhydrite with coke, marl and sand to produce sulphur di-oxide, this is in turn used to make sulphuric acid. One of the important by-products of this process is a variety of cement. At Albright & Wilson's Marchon plant at Whitehaven, 1.7 tons of anhydrite yielded 1 ton of acid and 1 ton of cement clinker. Anhydrite has also found a variety of other uses from time to time including road filler, plaster of Paris substitute, substitute for Gypsum in Portland cement and as a filler in roofing felt.

It is found in many parts of the British isles and in the mineral report devoted to the mineral of 1938 some 40 odd mines and quarries are discussed. In Cumbria, there are or were several mines and quarries of note mainly around the Cumwhinton area, Kirkby Thore and Whitehaven. Now, alas, only Kirkby Thore remains. The Whitehaven mine at Marchon closed in 1976 and is now partially flooded (C.A.T. visited in 1984). The mineral is even found deep under Barrow-in-Furness beneath the layer of St. Bees Sandstone at a depth of approximately 1500 ft.

Book Review.

Dept. of the Environment, 1976.

Reclamation of Derelict Land: Procedure for locating abandoned mine shafts.

A4, 88pp. 113 refs. £3.00 inc. p&p.

A procedure for locating abandoned mine shafts has been compiled from the experiences of those familiar with the problem. The procedure begins with a careful study of all the maps, aerial photographs and documents related to the mining activity and may include specialized surveys using geophysical, geochemical and aerial photographic methods when specific conditions are known or are likely to exist at the site. Direct methods, of either excavation, probing or drilling are required in each instance to confirm the location.

Most of the methods are illustrated with case histories, and seismic and remote sensing methods are discussed in detail in appendices. Also in appendices, specific sources of information related to mining are listed. Physical characteristics of mine shafts which are likely to have a bearing on the finding of the shaft are discussed, and an outline of the costs of the methods is presented.

A glossary of mining terms used in the document and a detailed bibliography are provided.

Review.

The historian and discoverer-digger will both benefit from the sections on map and document research (although some addresses have changed since 1976).

The geophysical and geochemical techniques are briefly covered, and there are sections on aerial photography which is most useful in hilly terrain.

The ideas in this inexpensive and worthwhile book could help reduce foot-slogging and spade-work. Must be a winner!

A.S.L.

Obtainable from: The Dept. of the Environment Sub-Library.
Building 6,
Victoria Rd.,
South Ruislip,
HA4 0NZ

Coniston in 1849. Contributed by Ian Matheson.

From "Ramblings and Ravings around Coniston"

These anecdotes are from a description of Coniston Copper Mines written by Alexander Craig Gibson who was the medical officer at the mine from 1844 until 1851.

"...there is good reason to believe that copper was wrought here, and that extensively, by the Romans during their first occupation of the country, and also by the Britons before them. In support of this supposition, I beg to offer an extract, bearing upon that subject, from that grave and erudite work, Mr A'Beckett's History of England. "Before quitting the subject of Caesars invasion it may be interesting for the reader to know something of the weapons with which the early Britons defended themselves. Their swords were made of Copper, and generally bent with the first blow, which must have greatly straightened their aggressive resources, for the swords that followed their own bent, instead of carrying out the intentions of the persons using them. This provoking pliancy of material must often have made the soldier as ill-tempered as his weapon"..."

[Ed. note. There is no modern evidence other than hear-say to suggest that the mines were ever worked before the Elizabethan period.]

"...It says much for the excellent arrangements on the part of the management, that, notwithstanding the dangerous nature of the work, and the number of hands employed, serious accidents are of very rare occurrence; and when they do occur, they are almost always as a result of negligence, frequently involving disobedience of orders, on the part of the sufferer. However one of the most melancholy that has yet occurred, was purely accidental, and I may relate it as a sad episode in mining life. A father and son - Irishmen - named Redmond, were employed at the foot of a shaft, "filling Kibbles". The fathers kibble had descended, and he had unhooked the chain, handed it to his son to attach to his kibble, which was full, and commenced refilling, when his attention was attracted by a cry, and starting round, he saw his son carried with the kibble rapidly up the shaft. He called to him to hold on by the bucket, but that was considered hopeless by the workmen about because the shaft is tortuous, and the sides very rugged and uneven. A very short time proved that they were correct, for the unfortunate youth's body was heard tumbling down the shaft. The old man placed himself below, stretching out his arms to catch the body as it fell, and was with difficulty dragged from the position where he would have shared the fate of his son, whose mangled body fell close to his feet..."

News from Industry.

The Concord Tin Mines Ltd. are at present re-opening the Wheal Concord mine at Redruth and have been given planning permission to mine at the former tin/tungsten mine at Cligga Head, Perranporth.

Planning permission has also been granted for Amax Exploration's tin/tungsten mine at Hemerden Bell near Plymouth.

There is a small exhibition of Welsh Gold at the Geological Museum in London until the end of March.

Down in Wales the gold mine at Gwynfynydd closed in the middle of January. All the miners were paid off.

Gear Review.

If you suffer from thermal shock when you contemplate the purchase of a new mountain jacket then why not D.I.Y. Pennine Outdoor are selling proper paper patterns for outdoor jackets. The cost is around 3 quid. Enquire from the company at Hard Knott, Holmbridge, Huddersfield, W. Yorkshire. HD7 1NT.

From Troll is a new oversuit, they've done away with those useless press-studs and gone on to decent quality 'Velcro' with a unique flap behind it to channel water down and out. There is also a skirt which is pulled up inside to ensure as long as there is a good seal around the welly then you can go up to the waist in water and none will get in, at least that's the theory. Price...approx. £39.00.

There is also a new 'wonder' belay/battery belt from Troll in a acid/alkali proof material called HI - 10.

Troll have a new S.R.T. sit-harness in nylon or polyester, made from either 50mm or 25mm webbing. It is a simple design and is one-size. Costs are £18.00 and £15.00 (approx.).

Finally they have a new bolt-driver with various features at around £5.50.

Caving Supplies have a new range of tackle-bags called the "Sherpa" series. The larger will accomodate 100m of 10mm rope, the smaller, 65m.

Lyon Equipment have started to market a 10mm attachment to the Petzl holder-driver so you can put in bigger 10mm bolts. The stainless steel 'Heart' is also made in this size so you can fit them. But this can cause problems

if you mix them up or if you forget that you need a different sized Allen key for the 10mm and 8mm anchors. They are also now import a cross between the Rawlbolt and the heart. Just the thing for the soft rock over in caving country but remembering the last time I took a star drill into Coniston Copper Mines I don't think we'll see it much over here. Having said that, as a permanent belay it has to be the last word...

New on the market are 'Hotcans' They are a can of food in several good appetising flavours. When you pierce a sachet of water this creates an exothermic reaction which heats the food which is in an inner tin. The sachet of water is provided as is the tool with which to poke a hole in it. The only drawback is the weight, around 1 Kg. Still not bad for a hot meal underground. Cost around £2.25.

Speleo-Technics users may be interested in a new product from the company which is a series cable used to join two standard battery units together to drive a special halogen bulb in the lamp. This gives a very intense high output beam of light. [Better than dragging M.M.'s heavy battery pack around...Ed.]

Now here's the ultimate for those really disgusting mines like Pikedaw Calamine Caverns or some rather nearer home. A German Multi-Fuel stove which is truly multi-fuel. It will even run on DRIED DUNG. One good sized t... will reportedly boil $\frac{1}{2}$ a litre of water in 2 minutes. Seriously the manufacturers claim it will run off anything which is remotely combustible (including dried dung, fir cones or solid meths) thanks to revolutionary built-in fan. This even runs off solar power. Cost is a very remarkable £24.25.

Parys Mine.

As mentioned in a previous newsletter Parys Mountain mine on Anglesey is being developed. Our colleagues of the Welsh Mines Society have been approached by Gwynedd C.C. to submit details of features worth preservation on the site.

TROUBLE AT T'PIT

L. HARRISON

Recent exploration of underground mine workings at High Crossgates near Tytup, Furness, prompted activity at the Barrow Archives Office for information relating to the mine. One item which came to light as a result was a letter from the Duke of Buccleuch's agent to the Duke of Buccleuch referring to a pumping accident at the mine. The following is an extract from the letter.....

High Crossgates, February 3rd, 1896. While working at Tytup this afternoon I took the opportunity of visiting the High Crossgate Mine and found a bad state of affairs. The pumps had stopped, and after examining them I found the balance box smashed to pieces, the high pressure cylinder of the pumping engine missing, and the cross head and slide for the same broken, and marks on the wall (plaster broken off) as if pieces of the engine had been flying about.

Upon enquiry I ascertained that about 9 o'clock this morning the engine came back on the in-door stroke with such violence as to knock the end of the high pressure cylinder out, smash the cross head and slide and to break the balance box to pieces. It was the end of the cylinder and stuffing box which caused the marks on the wall.

The cause for this was a breakage of the spear rods, consisting of the shearing of the bolts at one of the joints resulting in the engine coming back with no load upon her.

The reason for this may be either:-

1. Defective bolts.
2. Badly designed joint, ie. bolts not strong enough for the load.
3. Engine working at a higher speed duty or with a heavier load than she was designed for.

The latter I should imagine is about the right one as I believe the engine and pumps were originally designed to pump from a depth of about 100 yards, and at a moderate speed whereas latterly the depth has been 155 yards and the speed 13 or 14 strokes per minute which is an excessive speed.

I am given to understand that there are some men picking about in the top heights wherever they can find a bit of ore as this part of the mine is above the water table. The stocks at this mine are rapidly diminishing.

I am,

Your Obedient Servant,

John Satterthwaite.

MORE BOOKS

THE COAL MINES OF BUXTON - We have just published this scholarly and readable monograph (by A.F. Roberts and J.R. Leach), a hundred pages containing maps, illustrations, and diagrams, writes A. Forrest of SCARTHIN BOOKS.

Copies may be obtained from the publishers at The Promenade, Scarthin, Cromford, Derbyshire, price £3.75 plus 40p postage.

NAMHO CONFERENCE 1987

The Carn Brea Mining society are the hosts for the next conference which is to take place in July 1987 in the campus of the Cambourne School of Mining, at Poole, near Redruth, Cornwall. More details will be supplied nearer the date.

HI-TECH CAVING SUITS FROM "POLAR FOIL"

Throw away your DAMART longjohns folks! From the U.S of A Ken Batt has managed to obtain a free sample roll of what the best dressed mine explorer will be wearing under his kilt next year. As mentioned in the American caving mags. this amazing new material which is all the rage over there is going to revolutionise caving wear. Seriously though, the material was originally developed by N.A.S.A for the shuttle programme as a means of self heat regulating spacesuits and keeping delicate equipment at a constant temperature. It has recently appeared in the shops in the USA under the trade name POLAR FOIL and as a complete suit known as a POLAR HOT SUIT.

POLAR FOIL is far superior to the better known space blanket material in that at first sight it appears to actually flout the laws of thermodynamics by exhibiting the property of transferring heat from one side (dull) to the other side (shiny) until a pre-set temperature is reached.* The best way to demonstrate this property is by an example which Ken Batt. has tried. If a cold raw egg is wrapped in POLAR FOIL (shiny side in) and left - after about half an hour the egg will be perfectly hard boiled. Obviously there is great potential for hot meals underground, self heating soup etc.. Ken has tried wrapping an ordinary pan in POLAR FOIL but the metal appears to affect the properties although a ceramic pan as used in micro-wave cookery should work (Ken hasn't tried this. The Battersbys being very poor cannot afford a micro-wave!)

POLAR FOIL apparently is a thermo-polymer plastic film which comes in several grades depending on the desired cut-off temperature, the coolest being set to body temperature. Obviously a suit worn under a boiler suit should keep one warm indefinitely (however it is rumoured in the States that a shuttle astronaut accidentally wore his gloves inside out and his hands literally froze solid so there are snags). Although quite expensive the material is surprisingly tough so gloves or underpants made from the material should last a long time.

For those members wishing to try the above egg test a free sample of POLAR FOIL is included with this newsletter. Simply wrap your egg in POLAR FOIL, fasten with small pieces of sellotape and leave for about half an hour. Any further information on this amazing material will be passed on to members through the newsletter.

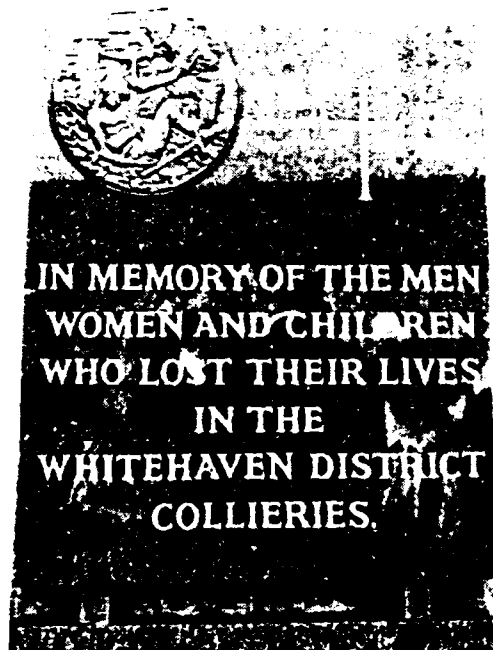
* For anybody into advanced Physics I believe that the explanation is that POLAR FOIL demonstrates modified properties of molecular Thermal transfer as predicted by Buller's first law of Thermodynamics as applied to polymer materials - whatever that means.

ANSWERS TO THE JOLLY XMAS COMP.

Mavis Brick: Loondale, Panned by critics, Discovered a new talent
 Old Woman Bones; Hagbarrow, Thrown off committee, Made new friends
 Peter Fuming; Black Dell, lost Kibble, Learned self sufficiency
 Mac Mutchwell; Tupperthwaite Ghyll, Overwork, Started new hobby
 Cedric France: Bent Head, Anxiety attacks, Took G.C.E. in ind. Arch.

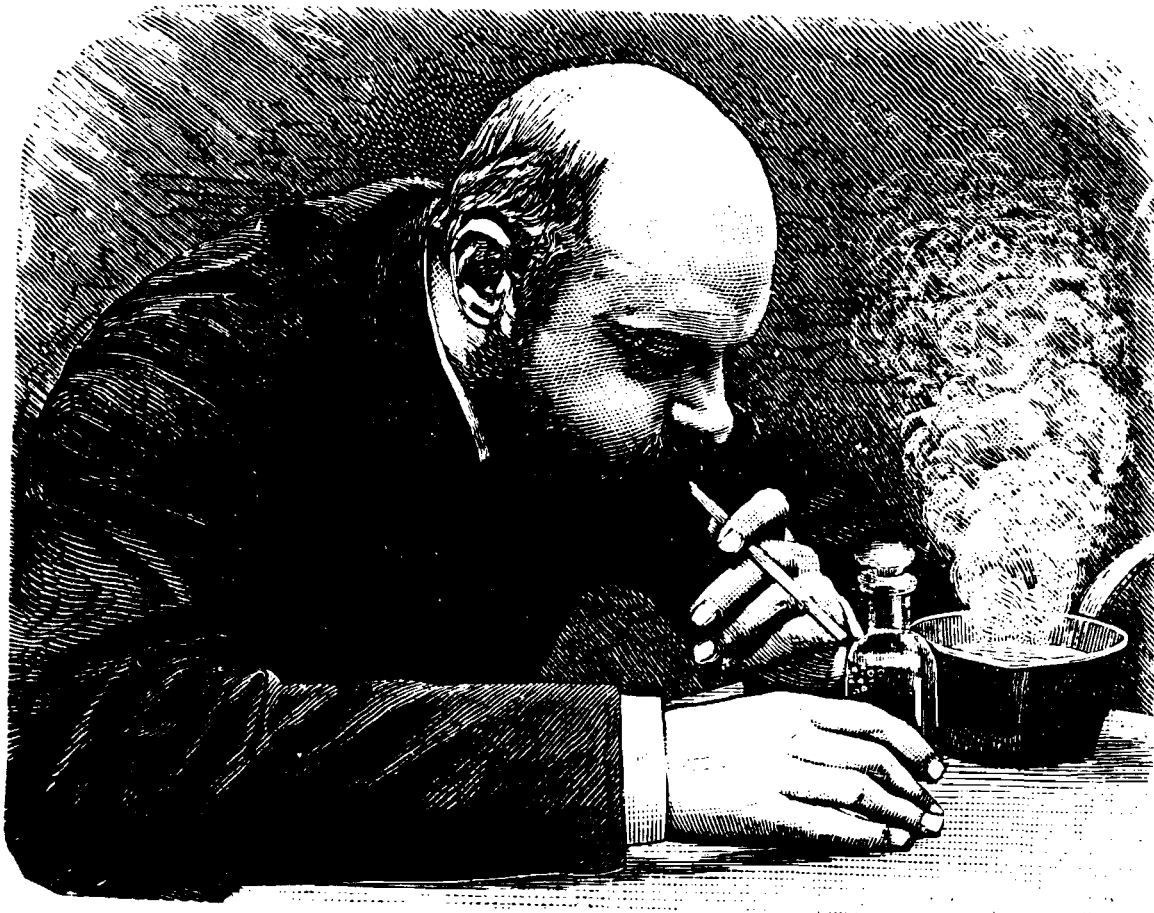
ANSWERS TO CHRISTMAS CATAclysms

- | | |
|----------------------------|------------------------------|
| 1) Cumbria Amenity Trust | 11) Derby Pit |
| 2) Burlington Slate Quarry | 12) Silverband Mine |
| 3) Michael mitchell | 13) Brandy Bottle Incline |
| 4) Andy Carter | 14) A. Westall |
| 5) Eric G. Holland | 15) Cosmographia Universalis |
| 6) Maureen Stone | 16) Kibble |
| 7) Dennis Webb | 17) Middle Kinmont Mine |
| 8) Brewery Shaft | 18) Sir Francis Lewel |
| 9) Joniston Copper Mines | 19) Martin Maher |
| 10) Grahame Atkinson | 20) Lindsay Harrison |



A simple inscription belies a host of tragic tales.

A recent visit to new C.A.T. committee member John Helme's house found him involved in a new project for mining. What is he up to? Humorous explanations please to either C.J. or McF. It will appear in the next newsletter.



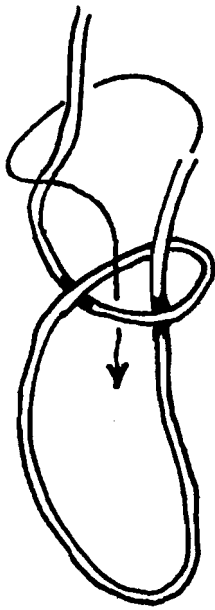
Get Knotted.

Bowlines.

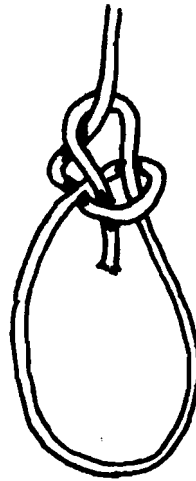
One of the most useful knots, it should be in everyones armoury. It is a safe simple Knot best for attaching the rope around standing belays such as stemples, lumps of rock, etc. It has something of a tendency to work loose when tied in stiff rope and should be backed-up with a knot tied on the same side as the rope end. The bowline is Not as strong as a figure of eight but it is easily adjusted and easily untied after having been loaded.

Double Bowline.

This is just a bowline tied in a doubled section of rope. It is most useful rigging, belays in mid-rope, improvised harnesses and for rescue.



1.

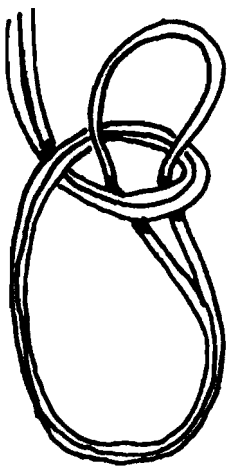


2.

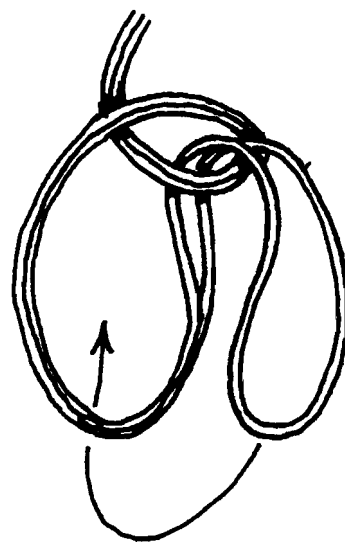
Tying the Bowline.

Bowline on a Bight.

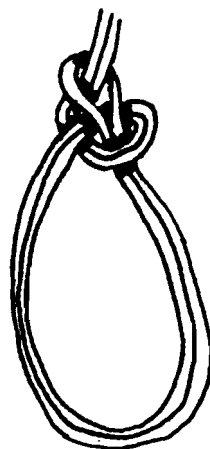
This is a type of bowline tied in a doubled rope (a bight) with the end loop passed back over the half-completed knot. Each of the two loops is adjustable. It can be used for rigging, mid-rope attachment and 'Y'-anchors.



1.



2.



3.

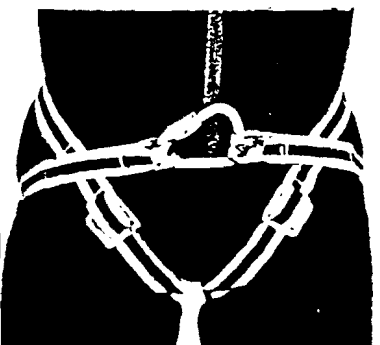
Bowline on the Bight.

As so many members of C.A.T. now use the 'Stop' descender, Ben Lyon the Petzl importer has given us kind permission to print the following notes on its use.

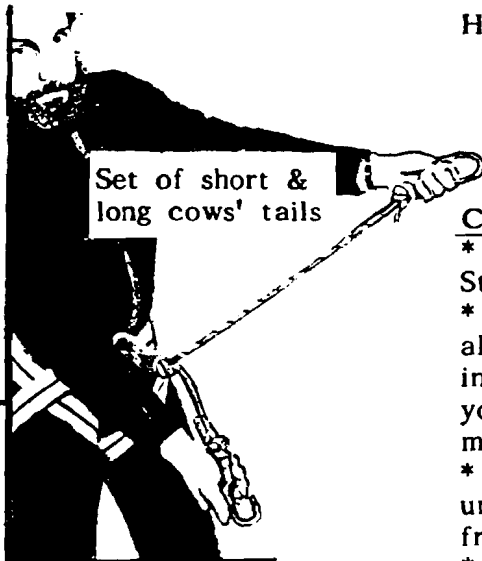
You have obtained one of the most sophisticated and versatile descending devices ever made. However the Stop does not operate all by itself, and you, the user, must learn how to control it for efficient and safe operation.

The Stop should always be used together with:

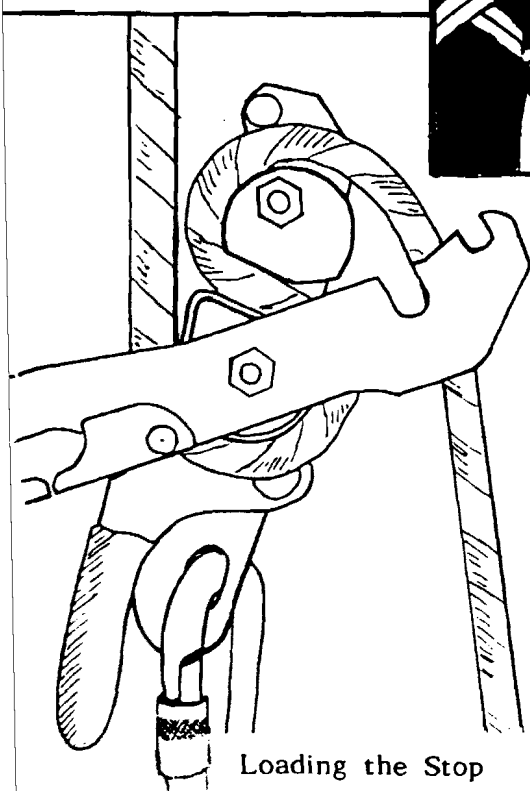
- A comfortable sit-harness having a front load-attachment point.
(A Petzl harness is recommended.)
- A 10mm semi-circular or delta Maillon Rapide for clipping into the harness.
- A set of 2 safety-strops (Commonly known as cows' tails) which are fastened to the harness via the maillon rapide. These are best made from a 2.75 metre length of climbing rope, with double fig-of-8 knotted eyes at each end, and a third knot at $\frac{1}{3}$ length to give one longer and one shorter strop. The cows' tails can then, with karabiners clipped into the eyes, be used to keep safe while manoeuvring on pitches.



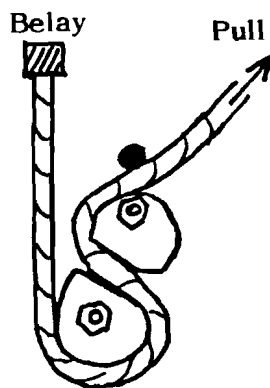
Harness & Maillon Rapide



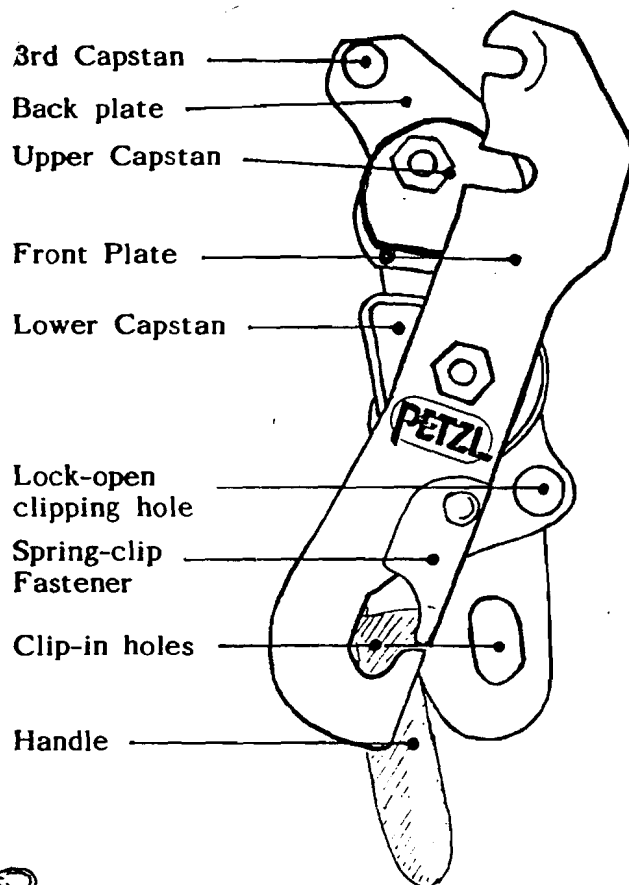
Set of short & long cows' tails



Loading the Stop



Pulling slack rope through the Stop



Clipping & loading the Stop

- * Check that the front plate of the Stop is facing you.
- * Use a **large** (11 or 12mm) gated, alloy karabiner to clip the Stop into the Maillon Rapide securing your harness. (A twist-lock type may be most secure).
- * Push the spring-clip in, and unclip the front plate of the Stop from the karabiner.
- * Load the rope round the capstans as shown, and clip the front plate back into the karabiner.
- * Then pull the tail-rope upwards through the loaded Stop until there is no slack in the rope between you and the belay.

NB - If starting the abseil from an exposed position, keep a cow's tail clipped into belay or traverse line until you have your weight on the descender.

Learning to control the Stop descender

Start by rigging a rope somewhere convenient so that you can practise descending no more than a couple of metres to the floor. Insert the rope and pull all the slack through the Stop, then hold the rope below the Stop firmly in the right hand, and let your weight come onto the Stop.

With 11mm used or wet rope, the Stop will lock completely.

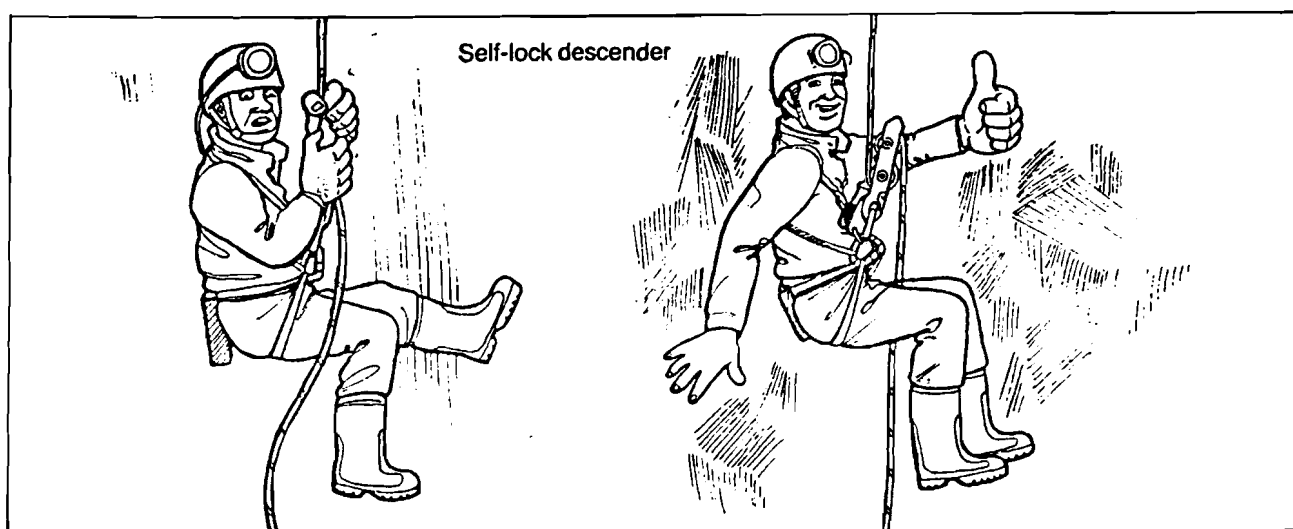
With new, or thinner ropes, there will be varying degrees of 'creep' when the right hand is released. (This 'creep' will be at its maximum when trying out the Stop in the dry with the weight of only a metre or two hanging below. If you can cope with this in these practise conditions there will be no difficulty later when at the top of longer ropes.)

Pull down hard with the right hand to generate enough friction round the capstans to control descent, and squeeze the handle into the Stop with the left hand to release the lock. Descend, controlling with the right hand.

Repeat until confident, then practise letting go of the handle during descent.

Continue this exercise until the reaction let-go-to-stop is automatic.

When totally confident, increase the length of the practise descents, still controlling descent with the right hand, and using the handle as an on-off control only.



Emergency braking with a self-lock descender

Using the Stop for real

At the start of abseils, always clip a cow's tail into the belay anchor point, or traverse rope from safe ground.

Clip into the Stop, pull any slack rope up through it so that you can hang in the descending position and check your gear before unclipping the cow's tail.

The reason for this is to make absolutely certain that the front plate is clipped into the karabiner, and the karabiner is properly aligned before consigning your life to the descender.



Starting the descent. When starting an abseil, check that everything is OK before unclipping the cow's tail and starting descent

NB Having a spring-clip on the front-plate allows the Stop to be clipped to you at all times, eliminating the risk of dropping it. This makes it generally safer and easier to use. However it does mean that the front plate can become unclipped, and although this happening accidentally is unlikely, and impossible once your weight is hanging from the clipped-in Stop, care must be taken when starting descents and at rebelay. Do not drop your weight onto a loose jumble of rope, descender and karabiner. If the karabiner twists sideways against the spring-clip as everything straightens out, it is feasible for the front-plate to come undone.

Control descent as in practise, using the sliding right hand to pull on the rope to give the necessary friction through the descender, using the handle for on/off control only. - Experienced users often progress to use of the brake handle to control their descent, but do not do this until totally confident of your ability to control with the right hand.

Negotiating rebelay

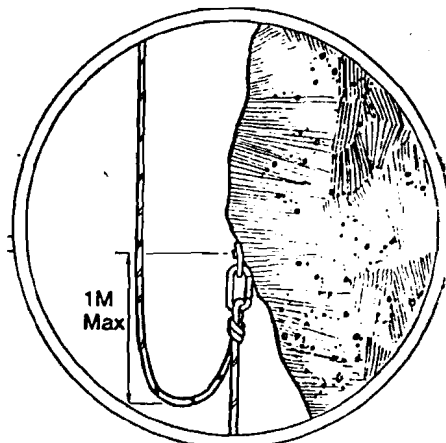
- Firstly, ensure that there is a loop of between $\frac{3}{4}$ and 1 metre of rope hanging above re-belay.

Descend until level with the re-belay point, and clip your short cow's tail into it.

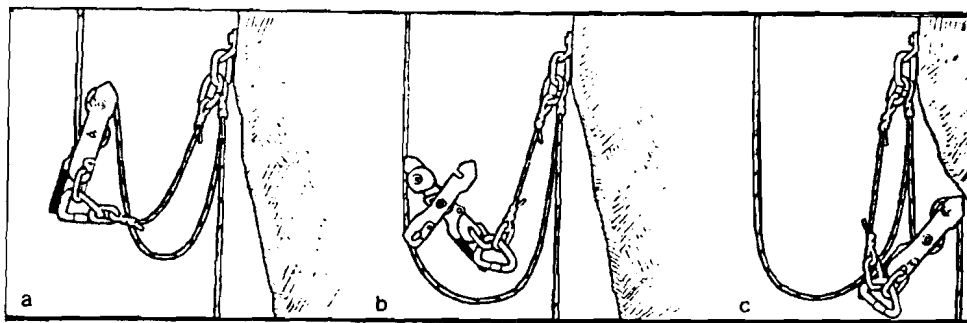
Release the Stop, and descend until hanging from the cow's tail. If you have left enough loop the rope will now be slack, and the Stop can be removed from it.

Clip the Stop back onto the rope beneath the rebelay, pull the rope tight so that there is no slack between Stop and belay. Check carefully that everything is clipped in correctly before removing the cow's tail and continuing the descent.

NB - If the loop at re-belay is too short, it may be necessary to struggle to remove the descender from the upper rope, as it will still be tight. In older models of Stop this misuse can cause bending of the back-plate.



Allow a loop of no more than 1 Metre at re-belay to facilitate manoeuvres.



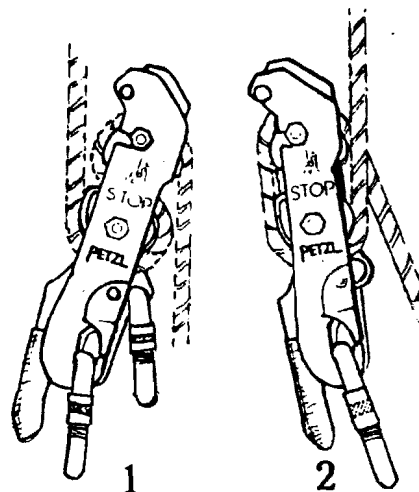
Passing a re-belay on the descent

- a. Clip short cow's tail into re-belay
- b. Descend until weight is taken by cow's tail, and, hanging from it, remove descender from rope above re-belay
- c. Install descender on lower rope and then remove cow's tail. Unlock descender and continue descent

Non-standard uses of the Stop

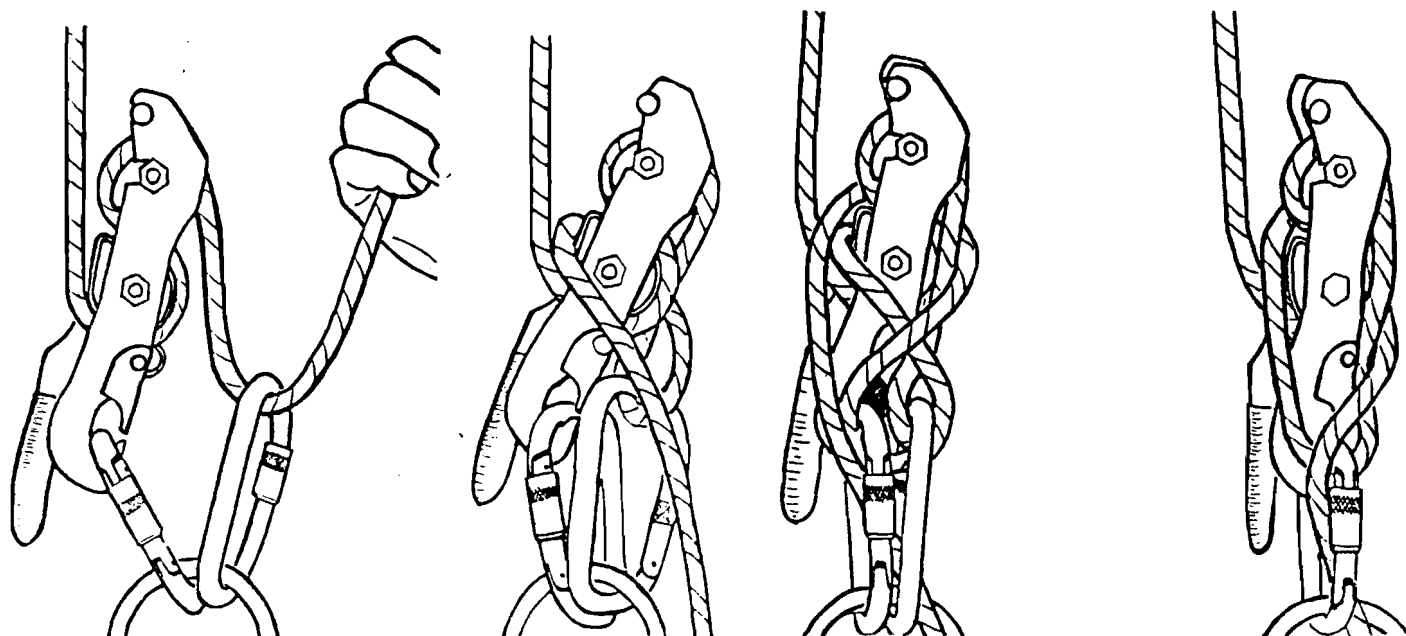
1. To turn the Stop into an 'ordinary' descender, clip a karabiner through the lock-open clipping hole. This is useful when descending very tight pitches where it is not feasible to keep the left hand on the handle all the time. Beginners may find it useful to practise using the Stop in this manner two metres off the floor to get the 'feel' of the right-hand control.

2. If using an oversize rope it is possible to load the Stop as shown to make a descender. In this mode the descender is not in auto-lock function.



On wet, old, and large diameter ropes the Stop locks itself. However on small diameter, new, or dry ropes, some 'creep' can occur. The simplest way of stopping this is by running the rope below the Stop through a second karabiner clipped into your Maillon Rapide to the right of the Stop. Raising the rope in the right hand now automatically increases the friction in the system. If the tail-rope is then hooked over the top of the Stop there should be no 'creep' at all. To lock the Stop of securely, take a loop in the tail-rope as shown, thread it through the two karabiners, and loop it over the top of the Stop.

There are a number of other ways of locking and controlling the Stop. These can be learnt from experience once the basic system is fully understood.



Second karabiner for more friction.

Tail-rope looped over the head of the Stop.
(Soft lock)

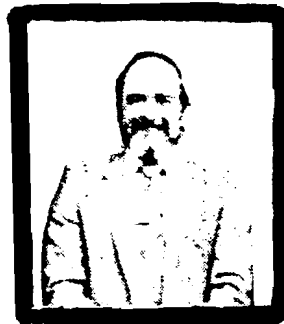
Loop from tail-rope pushed thro' both karabiners, & hooked over Stop.
(Hard Lock)

Locking the Stop securely without a second karabiner. (Use this method when fully confident)

Tips, warnings, and care of your Stop

- * Avoid clipping into your Stop with maillons or small karabiners. They are more likely to push the spring-clip open than big karabiners.
- * Use the handle for on/off control until you are really experienced.
- * Don't try to unclip the Stop when it still has your weight on it.
- * Using a Stop for safety when traversing out to rig a pitch is not advised. Clipping into a knotted loop in your rope is safer.
- * Don't descend at breakneck speed. The lower capstan is made of steel, which gives longer life and smoother friction, but has slower heat dissipation than alloy ones. Over-fast descents may result in glazing of the rope surface.
- * Use ropes of kernmantel construction, between 9 and 12mm diameter, of nylon or polyester, not polypropylene or courene. (NB this applies to all descenders.)
- * If a Stop is used on thin - eg. 9mm - ropes long enough to wear a 9mm groove into the upper capstan, it will jam if subsequently used on thicker ropes.
- * Check your Stop for wear regularly. If either main capstan, or side-plate, is severely worn, replace. (Spare parts are available through the shops.)

If you are not sure of how to use your 'Stop' or lack practical experience do not be afraid to ask other users for advice or demonstrations of points raised in this article.



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COLUMN

It is with very great sadness that I write a final report on Haigs last working days, and wish to pay my tribute to the miners who gave up their lives in rescue work and who lost their lives in the explosions, and whose final resting place is in Haig Colliery.

THE FINAL CLOSING OF HAIG COLLIERY

A few notes I have of the last few weeks of Haigs life. On Monday 18th November 1985, they started to salvage Haig and by Friday 17th January 1986, all the salvage was complete on the inbye workings and all the under ground fans were stopped.

On Monday 20th January 1986, I walked up to No 5 shaft on a cold wet night to see the first loads of concrete being poured down No 5 shaft. This was a very sad sight, knowing this really meant the end of Haig. I have a lot of very happy memories of Haig which I will cherish the rest of my life.

On Monday 27th January 1986, Mr Mapp the Manager took the last underground ride in Haig to pay a last visit to the stopping, where behind these stoppings are entombed 14 miners, killed in two explosions in 1927 and 1928 and this area is their last resting place. Salvage continued from the pit bottom area and all the salvage was up the pit on Monday 3rd February. So by Wednesday 5th February 1986, all the shuttering was complete at the bottom of No 4 and Thwaite shafts. Again the Manager, Mr Mapp, went down the pit for

the last time, and he and the Under Manager, Mr Towson and John Plummer Deputy, were the last miners up Haig. So on Thursday 6th February 1986, they started pouring concrete down these shafts and by Friday 17th February 1986, all the shafts were blocked by concrete at the bottom.

Since then they have been digging muck from around the pit top area and dumping this down the shafts and on Friday 14th February 1986, No 5 shaft was filled to the top by 5.30pm. To date No 4 shaft has a few feet to go to beach drift and Thwaite is nearly full. They will only fill No 4 shaft to the beach drift eye, then go into beach drift and put stoppings up. The concrete is ordered for Monday 3rd March 1986, and all the shafts should be filled by then.

There will be a Memorial Service on Thursday 27th March 1986, in respect to the 14 miners who are still down Haig. This will be held on the pit top.



Grim faces of the past — a rescue team prepares to go below at Wellington Pit, West Cumbria.

THE EXPLOSIONS OF 1927 AND 1928, HAIG COLLIERY, WHITEHAVEN

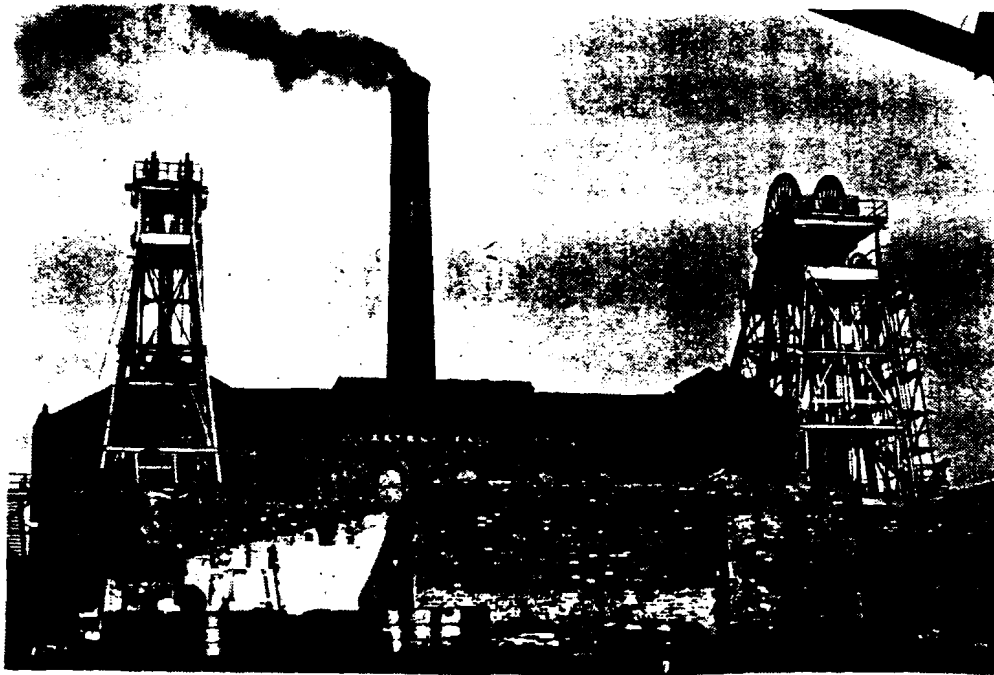
Following the explosion of December 13th 1927 three bodies were recovered before an outbreak of fire prevented the rescuers reaching the fourth victim, Harold Horrocks. It was decided to seal off that section of the pit, which is known as the Development District, and the richest coal seam in the local coal field, the seam being 11 feet thick. Since then the pit has not worked.

Stoppings were built to seal this area off and the main stopping was of 3 feet of brick and faced with cement, this was built across the main road. During the period the mine was closed, stopping watchers were placed on 3 shift to check on the stoppings and air samples were taken from small pipes built into the stoppings. They were so convinced that all the oxygen had been used up behind the stoppings that on Thursday 9th February 1928 doors were placed in the stopping and locked ready for the exploration work that was to take place on Saturday 12th February 1928.

So at 1.00 pm in the afternoon of Saturday 12th February 1928 a party of hand picked mine officials and Inspectors of Mines descended the mine. Also with the party was Gilbert Tucker, Instructor at the Brigham rescue station. They then entered the sealed off workings using the doors that had been built into the stoppings, and found things in a safe order, good progress was made, and the seat of the December 1927 fire was located in No 1 Dilly in the Development District.



TWO VIEWS OF HAIG



TIPPING CONCRETE DOWN No.5 SHAFT



NOT TO SCALE.

← TO WELLINGTON. PIT.

SALTOM DRIFT

3 MILES TO SHAFT

BRAKE ENGINE PLANE

JOLLYS DRIFT

ROPE ROAD

← THE MAIN STOPPING

DEC FIRE

N° 1 DILLY

--- $\frac{3}{4}$ MILE → DEVELOPMENT →

← TEMP. STOPPING

ENGINE DIP

MR STEELS PARTY WERE TRAPPED INSIDE
 ENGINE DIP. WHILE THE FIVE DEPUTYS
 WERE OVERWHELMED WHEN WORKING NEAR
 THE ENTRANCE TO N° ONE DILLY.

See Diagram. The fire had been of an extensive character. For about 25 yards the coal face was a mass of coke, and the props had been charred to a depth of about 2", but were found to be quite cool. At about this stage around 11 00pm several members of the party were relieved and went to the surface and refreshments were conveyed to the remainder who were joined by fresh miners. Shortly before midnight the conditions were still favourable, and while the rescue party returned to near the temporary canvas stoppings at the entrance to the Development District to recharge their apparatus with oxygen, a section of the party headed by Mr Steel entered the main engine department where it was expected to find the body of Horrocks...Leaving five Deputys to clear up falls in the main road, and three engineers wiring. At about this time when Mr Steel and his party were about three miles from the pit bottom, there occurred without any warning, a series of three explosions within 10 minutes. The first was comparatively light, described by the survivors as a dull rumble. The second was more serious enveloping the men and covered them in coal and stone dust, which blinded and choked them, while the third was extremely violent hurling the men off their feet, and filling the workings with foul air which penetrated to the shaft bottom. Battered and bruised the eleven survivors groped their way to the pit bottom.

On arrival at the pit top they presented a pitiable appearance. They were all suffering from shock. Several were unable to speak for some time, and in the words of the official who attended to them, with their hair coated with stone dust, they looked like old men.

The area was inspected later in the week but all the roadways were found to have fallen and the district wrecked so it was sealed off forever.

THE DEATH ROLL 1928

Robert Steel	Works Manager
William London	Inspector of Mines
Peter Burdess	Inspector of Mines
Robert Fell	Under Manager
Henry C Hanlon	Miners Agent
John Tyson	Cumberland Colliery Officials Association
Tom Walker	Overman
George Hodgson	Deputy
James Ruthery	Deputy
Frank Wilkinson	Deputy
Jesse Cresswell	Deputy
Hugh McKenzie	Deputy
William Graham	Deputy

A SHORT NOTE ON MINING DEATHS

In the Lead Mines from 1800 to 1900 there were 30 deaths.

In that same period in one local mine in Whitehaven, William Pit, 72 men, boys and girls were killed in 6 explosions. But thats not all, in a further 4 explosions in William Pit it claimed the lives of 121 more miners, a very high price was paid for coal in William Pit.

R Calvin, R M
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Welsh Visit.

We will be staying near Devil's Bridge, a beautiful part of the world, near the upper end of the Vale of Rheidol light railway (steam). We will be camping at Erwbarfe Farm campsite, on the A4120, 1½ miles N. of Devil's Bridge. This is totally surrounded by mines (not the explosive variety).

Friday.

If permission is granted by the Forestry Commission for access a visit to NANTYCRIA mine is planned. Little is known of this early 18th C. venture. Following this we will have a look at the LLYWERNOG mining museum. Finally a walking tour of the GRAIGOCH, WEMYSS & FRONGOCH surface remains. More dressing floors, wheelpits and engine houses than you can shake a stick at.

Saturday.

Mines near the village of Pen-Bont-Rydybeddau, including DARREN, SOUTH DARREN, CWMDARREN, CYMSYMLOG, BRONFLOYD & CWMERFIN. If you think that's a lot, they are all within a 2 m² block on a very rich lead lode. Many remains and underground workings stretching back to the 17th C.

Sunday.

CWMYSTWYTH mine, far too much here to need a description, suffice to say this valley is even more heavily mined than the Coppermines valley.

Monday.

This is left to those who come on the weekend, possible suggestions are BWLCHGLAS with its underground headframe, YSTRAD EINION for another look at the waterwheel. Possibly the best place would be DYLLIFE, one of the foremost mines in Wales.

If you need anymore information about the meet, phone Chris Jones on (0229) 63892.

Irish Visit.

If you want to go on this trip you must contact Chris Jones as soon as possible so that I can get it sorted out.

Programme.

We hope to visit the following mines...

Avoca - We saw this last time when it was in the throes of closing down for good and were astonished by the sheer number of overlying periods of history. This is quite a large mining field and there should be quite a bit to do.
Wicklow Mountains. - A high mountain area, not unlike the Lakeland Fells where there are a number of small mines which we suspect have never been entered for many years.

Allihies. - A stunning area of Cork, it was agreed last time we visited this area that we could all like to retire here. It is very quiet but plenty of pubs and even better, plenty of mines, Cornish Engine Houses everywhere. Take the cable-car to Dursey Island - big enough for 4 people or 1 cow. Visit the Ring of Kerry. Climb MacGillycuddy's Reeks. Etc. So much to do and not much time to do it in. This is not to be missed.

Silvermines. - This is likely to be missed out as there may be not enough time. If there is then we will see more of the old dressing floors, managers house, stores, Cornish engine houses, etc.

The cost for the trip is likely to be between £80 -£100 per head, this will include vehicle hire, ferry fees and petrol. Guinness money is definitely not included.

RING ME NOW

Chris Jones (0229) 63892

Caving Capers.

What really happened on Sunday the second of March in North Yorkshire...who is the member of the C.A.T. committee who has gone one better than the fell-walking excuse...who were Miguel and Rodrigues...what was so awful that it struck two men dumb... all the answers to these questions and more are revealed on the next page...Now read on.....

A bleak but sunny Sunday morning saw meet leader Chris Jones waiting alone in Horton in Ribblesdale. No-one came near so he set off for Alum Pot with a days solo caving in mind. Up in Selside he met up with the legendary Wild Woman of Wharfedale and her husband already geared up in the infamous CAT suit. Leaving instructions to way-lay any others the meet leader returned to Horton. Who should be there but the shadowy and little known figure of CAT committee member Andy Carter who having contracted a nasty case of Maher's syndrome claimed he knew nothing about the meet and was only in the area to do some ski-ing. He attempted to back this unlikely claim up by waving two old planks around.

Back at Selside Colin Horne, Pete Dixon and 'Bones' Merrin, a peddler of quack cures. As the world and his wife had also come to Selside the intrepid group left for Kingsdale and the Swinsto system, a Grade IV cave. Col and Pete went in Valley entrance to rig the end pitch while Jones, Bones and the 'W.W.W,' went on up to the entrance, at this time a small snow hole. The 'W.W.W.'s' both tried their new gear out for the first time and were unpleasantly surprised by the infamous Swinsto Long crawl. The successive pitches were quickly passed but at the penultimate shaft we were overhauled by a small group of 'hard' cavers. Having scoffed at our quaint mining talk of big drops in Cumbria they began to brag of their exploits in Mexico. It was at this time that Jones and Bones realised they were talking to those notable Latin explorers Miguel and Rodrigues Ramsbotham who seemed to think we were serious when told that we had never used these fancy descender things before only having borrowed them that morning.

At the 25' climb out we were confronted by a group of novices led by an experienced caver who seemed to have no way out of the hole. We lent them ascenders, etc. and our rope to get out, lucky we happened along. We all followed them up and after de-tackling the pitch headed for the exit. At the far end of the duck Jones and Bones waited for the Wild Woman of Wharfedale and spouse and what passed there was so horrific that both the good doctor (who claims to have seen a bit) and his companion were both struck dumb.[The information could be prised from them in any hostelry on receipt of several pints of the amber throat-charmer.] Exit made after a 5 hour trip...an excellent day's entertainment.



THE DEVELOPMENT OF THE BONSOR MILL, Coniston Copper Mines, by Mr Philip Johnston, a business man from Cheshire, advanced another step in January. Mr Johnston submitted plans to the Lake District Special Planning Board outlining his intentions to convert the powder house into staff accommodation, the foreman's hut into an information building, and the power house - the most impressive ruin on the site - into "upmarket accommodation for up to eighteen people." Mr Johnston has also approached the Board to have a public footpath - which is the only official public right of way across this historic site - diverted around the perimeter of the property.

The committee of the Cumbria Amenity Trust, after discussing this issue at a meeting on February the 17th, decided to forward a letter to the Board opposing further development of the Bonsor Mill on the grounds that it is now an official ancient monument, protected by legislation for the education and enjoyment of the people, and that in their view Mr Johnston's plans amounted to nothing more than the blueprints for an exclusive holiday complex.

At the meeting Alen McFadzean pointed out that in the three-and-a-half years that Mr Johnston has been developing the site absolutely no restoration work has been carried out on the milling buildings, the abandoned machinery or anything that was related to the actual processing plant, the owner's efforts being concentrated on preparing the staff accommodation and keeping walkers off his property by fencing off the entire area and raising massive iron gates. Mr McFadzean also pointed out that in his endeavour to push ahead with the project Mr Johnston had partially filled some of the old settling pits, rebuilt the powder house to such an extent that it doesn't even loosely resemble the original building, and planted dozens of trees on spoil heaps and terraces, the roots of which will eventually destroy important remains - acts which appear to be discordant with his claim that the site is to be an "Industrial Archaeology centre."

STOP PRESS STOP PRESS STOP PRESS STOP PRESS STOP PRESS STOP PRESS

RESULTS OF PLANNING APPLICATIONS IN NEXT ISSUE. POWDER HOUSE CON-

VERSION REJECTED ON THE GROUNDS IT DOESN'T EXIST: NO PREVIOUS P.P.

IN THE WAKE OF BURLINGTON SLATE'S latest coup - a 2.2 million pound order for green slate to be shipped to America, the biggest order ever won by a slate firm anywhere in the world - speculation is rife that the company is to build a helipad on the tips at Kirkby, where new offices are to be erected. Rumours among the workforce quadrupled when visitors to the Kirkby quarry, and guests of Lord Cavenish the owner, on the 3rd of February, included none other than the wife of Leon Brittan. Could this be another twist in the Sikorsky affair? Or was she simply trying to find her husband a job?

MINE ENTHUSIASTS visiting the Caldbeck Fells are urged not to drive their vehicles off the metalled roads and onto mine tracks and common fell land, following a clampdown by the Lake District Special Planning Board. The Board has received complaints from local farmers that motorbikes and four-wheel-drive vehicles (not particularly belonging to mine enthusiasts) have been roaring over the open spaces and disturbing livestock. Among the culprits are "gem collectors, amateur geologists and mineral hunters - who load their vehicles with samples." The Board is striving to make people aware that the Caldbeck Fells are for "quiet recreational pursuits.".....And what could be quieter and less obtrusive than mine exploring.

IAN TYLER has asked us to point out that the meet he is due to lead on the 13th of April will not include a visit to Brown Cove Mine as stated on the meets card but will concentrate on Eagle Crag Mine, there being not enough time to take in the two sites plus a traverse of Helvellyn. Ian says that there are seven levels to examine at Eagle Crag, open stopes, plus lots of interesting surface features. It is still a good hike up to the mine so fell boots are an alternative to blisters. There is some vertical work for those who want it, plus the possibility of winning into new ground. Ladders will be provided for members not conversant with S.R.T.

Ian says there could be one or two easy digs on the cards, so members are advised to bring implements.

THE MINE EXPLORER, CAT Journal No.2, will be in the shops sometime in the spring, and every paid-up member will receive a free copy. The Treasurer has asked us to point out that members who have not forwarded their 1986 subs (£6) will be denied this highly enlightening and educational publication.

FOLLOWING THE ELECTIONS back in the December A.G.M., Cumbria Amenity Trust officers have been slightly reorganised. Dave Blundell is now the Secretary, succeeding Eric Holland who retired after six years in the post; Lindsay Harrison is Membership Secretary, taking part of the work-load from Maureen Stone who remains as Treasurer. Mike Mitchell remains Chairman and Alen McFadzean the Meets Secretary. Other posts are unchanged. Chris Jones remains Tackle Master, Journal Editor, and, along with McFadzean, Newsletter Editor.

RIO TINTO ZINC has sold its holding of 500,000 shares or just over 19% in Geevor Tin Mines. The buyer is Pioneer International Trust, represented by Mr Edward Nassas, a Swiss based entrepreneur who has been involved in the Nigerian tin industry. This sale of shares follows the recent disposal of an interest of 18.8% by South Africa's Gencor mining finance group to Mr A.H. Cutujian.

THE C.A.T. EXHIBITION, scheduled to be launched in Barrow Museum this coming May, is beginning to take shape. The organiser, Lindsay Harrison, would like anyone who is desperate to give him a hand to get in touch. Members who have artifacts, surveys, or old photographs they would like to lend, please ring Lindsay on 0229 62930.

CONTINUING THE SAGA of the disintegrated weighbridge cabin, the microwave oven, and the Maharishi Batahs Bhi, we bring you the sad news, following yet another exclusive interview with the celebrated guru, that the man himself (he of the painted belly - Kendo Sagginakker to his disciples) was made redundant on Friday the 13th of December and now spends his spare time deep in meditation under a bodhiru'ma tree on the banks of the Duddon estuary. No more do the aromatic scents of cumin, fenugreek, and coriander waft through the jewelled glades of Ghyll Scaur Quarry. "My being has alighted on a plain of heavenly tranquility," said Batahs Bhi to A. Mac Kumar your roving reporter, "My soul is laid before me like the silver waters of this holy river, my earthly body is a vessel, a stranger, a ferryman who bears my spirit to the hither shore. I sit here neath the bodhiru'ma tree and watch the seagulls, I become a seagull, I fly with wings white with feathers, eat fish, dream a seagull's dream. I see the glittering waters of Dhud Dhon, the blue ridge of moors, the mountains of Konis Tohn rising like far pavilions. I am at one with the universe and the proud owner of a second-hand photocopier. Om."

EXCLUSIVE

JUST AS WE WERE GOING TO PRESS Damian McCurdy sent us the latest news on Gwynfynydd gold mine, near Dolgellau.

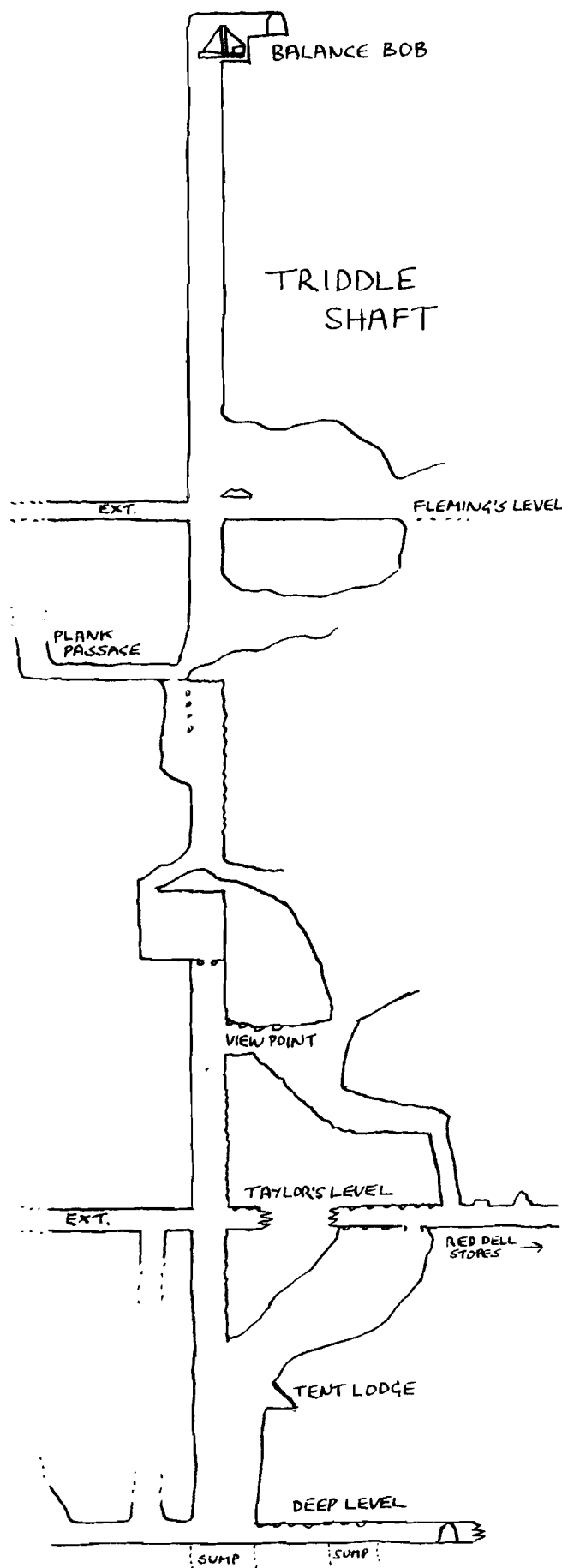
"On the 26th of January I visited Gwynfynydd Mine. I had expected to see signs of abandonment since it had been reported that the workforce had been given redundancy notices just before Christmas. However, on arrival, I could see that there was considerable activity at the mine even though it was Sunday. There was also posted up a Town and Country Planning Act 1971 notice under section 26(3)"

Damian goes on to say that the planning application, for permission to ~~increase~~ production by the introduction of a three-shift system, the extension of underground workings and waste rock disposal areas, installation of effluent settlement tanks, toilet accommodation and the erection of a jigback ropeway system, was made by Mark Aubrey Weinberg trading as Gwynfynydd Mine

STOP PRESS. Spotted by Battersby in Evening Mail, page 12, 5.3.86. - "Thieves kicked a hole in the door of a portacabin in a Millom quarry and stole a Sharpe microwave oven worth £200." Ahh... may those cursed sons of jackals drown in the urine of Vishnu!

Meets Review

by McF



For those of you who would appreciate reading something new and tantalizingly exciting about the Coniston Copper Mines, this could be your lucky day. Since the last Newsletter burst upon an unsuspecting world back in the autumn, we have enjoyed three highly successful meets up at Coniston, new ground was broken on each occasion, new discoveries made, one or two mysteries solved and, as always, and in direct proportion, three or four fresh mysteries were created. So this is a Coniston Copper Mines bumper Meets Review, the latest news from Red Dell and Paddy End, all you wanted to know about local chalcopryite workings but were afraid to ask.

On the 24th of November fourteen members met at the youth hostel for an attempt to bottom the Triddle Shaft direct, a verticle distance of five-hundred feet. A CAT team had reached the bottom of Triddle Shaft in June 1981, though the route taken was a devious back-door assault from Fleming's Level, through Taylor's Level, and down the stopes to Deep Level. In November 1982 a direct attempt was made, a team descending three-hunderd-and-fifty feet to the View Point (familiar ground, previously reached from Fleming's Level, and an ideal place to pack up and go home), locating the lost extension of Fleming's Level on the way and an intermediatery level christened Plank Passage by its discoverers (presumably in celebration of a plank crossing a hole in the floor - thus suggesting there are indeed bounds to the imagination, a fallacy this column has sought relentlessly to shatter at every opportunity). The remaining 150' of shaft had never been attempted by CAT, though two of our members, Mark Wickenden and Martin Prior, abseiled a further sixty feet a few weeks later to land on the lost continuation of Taylor's Level, where Mark photographed the mineral formation which appeared on the cover of the Mine Explorer.

So the remaining ninety feet of Triddle Shaft had never been examined. November's attempt was to be the first all out descent, CAT's deepest abseiling trip.

The first pitch, a free-hanger (technical abseiling jargon describing a situation where no matter how violently you thrash your arms and legs the nearest salvatory rock is just out of reach), was a hundred-and-forty feet from the balance bob at the head of the shaft to the crumbling false

floor of Fleming's Level. The balance bob is a huge timber frame at the head of the shaft, designed for transposing the horizontal motion of reciprocating pump rods to a vertical motion. The rods were connected to a crank on the New Engine Shaft waterwheel down in Red Dell and powered the pumps in the sump of Triddle Shaft, two or three hundred feet below Deep Level. The first hundred feet of Triddle had been mined vertically through country rock, intersecting the Triddle vein forty feet above Fleming's Level from where it followed the dip in a westerly direction and at an angle of 5° from the perpendicular. Most members had a quick look through the Fleming's Level extension, Peter Fleming (who is not a relative of the original mine entrepreneur, despite his age) taking photographs of a powder cask he discovered on the first visit.

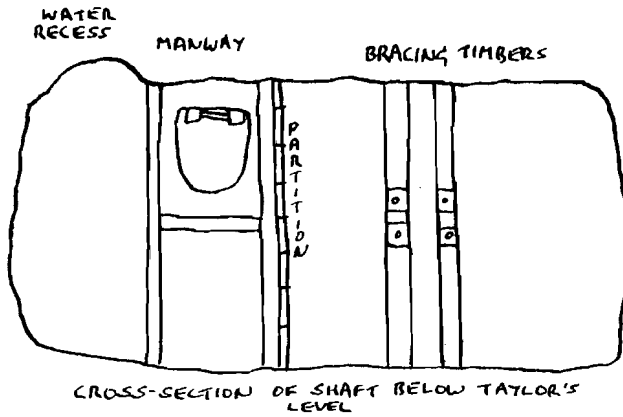
The next pitch, about seventy feet, dropped to the horizon of the intermediatary level known as Plank Passage. Here the shaft is blocked with debris and the route onwards is down the old manway, once equipped with ladders for the miners but now a confusion of stemples, boulder slopes, and wooden platforms. We had a quick look along Plank Passage, some members taking photographs of the remains of a wheelbarrow suspended in a pool of turquoise water. It was on this level that one of our group had a nasty shock. Ian Mathieson, while shuffling over the famous plank spanning the manway, heard a disturbing cracking noise which appeared to coincide with his unexpected change of direction, his forward progression assuming an alarming downwards plunge. With the reflexes of a badger cornered in a dyke, Ian dived onto the nearest ledge, screeching noises echoing through the workings as his fingernails clawed into the rock. As I've said before on numerous occasions, some folk will do anything to get a mention in the Newsletter.

The third pitch descended the manway and re-entered the main shaft about thirty feet down. From this point it was possible to examine the blockage up at Plank Passage. The entire shaft had been timbered over, the only gap being a square aperture, now blocked with rocks, through which had passed the reciprocating rods, signal wire, and the haulage rope which raised the kibbles of ore from the shaft bottom up to Deep Level. The aperture was about three foot square and adequate enough, for the kibbles would never have been raised this high, ore from the workings above Deep Level being trammed out along Taylor's, Fleming's, or Deep Level itself. A similar structure had at one time existed on Fleming's Level, though this collapsed to form the debris heap on Plank Passage.

The third pitch was interesting. There were some splendid examples of walling to be seen. Vast areas of the shaft had been stoped away and built up again with deads. Some of the bracing timbers which held the roller guides for the pump rods were still in position, spanning the shaft in pairs, huge square-set baulks with iron roller seats still bolted to them. These bracing timbers were set into the rock with an internal gap of about eight inches between each brace; this suggests that the pump rods were unusually narrow, far lighter than those still to be seen in the upper reaches of the Old Engine Shaft.

The fourth pitch commenced from the View Point and was a leisurely abseil down to the extension of Taylor's Level. Here again, massive timbers betrayed the one-time existence of another platform. Both the shaft side and the eastern branch of Taylor's Level were heavily timbered, battens holding back incalculable tons of deads - extremely impressive though a trifle unnerving. And as for the north-western extension, a veritable wonderland of colour, secondary mineralization as we'd never seen it before, Wickenden's Wonder and a host of other vivid formations adorning the tunnel roof, walls, and floor for hundreds of feet into the mountain.

The remaining ninety feet to Deep Level was rather unremarkable but having said that there was one small feature that caught my eye. A cast-iron pipe, hardly noticable amongst the mud and the stones, jutted out several inches from the floor of the Taylor's Level extension into the portion of the shaft that had once housed the manway - Triddle Shaft in its lower reaches being divided by a wooden partition (now disintegrated save for a few battens and stemples) separating the access ladders from the pump rods and haulage rope. The pipe allowed water from the extension to pour down the manway, in a recess blasted from the footwall of the shaft, to where it collected on Deep Level and flowed out to daylight with



the water pumped from the sump.

And so we arrived on Deep Level, all fourteen of us, smiling and happy, and not in the least concerned as to how we were to get out again. As it happened (devilishly cunning trick) Mitchell and Jones had rigged Armageddon Pitch (who names these places?) in the Red Dell stopes, so the majority exited by the back door, a route requiring only 240' of prussicking. Chris Moore very nearly didn't make it to the top, having lost the use of his legs halfway up. However, help came from the young doctor Merrin

who said that if he didn't hurry himself up he would make Chris sit in the Crown in one of his garish and incredibly tasteless Hawaiian shirts. That did the trick. It also put the wind up the rest of the team and the mine emptied in double-quick time. And just for the record, the five-hundred feet of abseiling rope hanging in the Triddle Shaft was removed by three volunteers (damned decent chaps if you ask me) who prussicked all the way back up to the balance bob, gear coiled about them, sweat cascading from their brows.

Boxing Day was unbearably cold - well, perhaps not quite unbearably, but for naked members chipping ice and frozen mildew from overalls and wetsuits while the wind rattled the slates of Mr Johnston's country cottage (I've heard he's naming it La Phoenix), it was cold enough. About fifteen members turned out, of various sexes, credes and colours, to make the descent through the Red Dell workings to the fabled Cobblers' Hole, arguably one of the largest stopes in the Coniston Copper Mines.

Reluctantly, we waded through the water at the entrance of Taylor's Level, your valiant reporter ensconcing himself at the rear of the column to rescue flounders and prod deserters in the eye with a length of frozen rope (actually I was clinging desperately to my theory of heat displacement which is based on the assumption that fourteen pairs of legs, when immersed in cold water, should raise the temperature for a fifteenth pair). In the underground stopes of Taylor's Level we all sat around for ages and argued about who was responsible for bringing the ropes, which, it appeared, had not accompanied us on the journey. After some heated discussion, and the fruitless return of a lone searcher who had wandered out to the surface and back again, the missing articles turned up in a corner. More heated discussion ensued, the lone searcher featuring very prominently at this juncture.

Ropes and ladders in position we descended seventy-five feet down a stope to a boulder slope which dropped us onto an isolated area of Deep Level. A short walk eastwards, through a heavily timbered passage, led to a gap in the roof from where it was possible to clamber into Cobblers' Hole. The roof of this gigantic stope was barely visible, in fact in one or two places it was out of sight altogether. Chris Moore, who had by this time regained the use of his legs, found a splendid mineral specimen while examining some of the debris that had dropped from the darkness above - a rock encrusted with copper sulphate crystals, too fragile to remove from the mine but an excellent subject for some close-up photography.

At the other end of Deep Level, where this impressive main artery of the Coniston Copper Mines drops unexpectedly into the blue and staggeringly deep water of the Red Dell stopes, some original exploration was about to commence - and dare-devil stuff it was too. There was, though, an air of incredibility surrounding the whole affair, probably due to the fact that the explorers were your humble and consistantly inaccurate editors, Jones and McFadzean, who, when it comes to original exploration, are usually dithering in the background eating sandwiches or formulating excuses as to why someone else should go first. Between us we had planned a hideously cunning amphibious attack on the Missing Link, the portion of Deep Level that had once connected Red Dell to Paddy End in the next valley. We knew that the way into the Missing Link lay a few yards beyond the New Engine Shaft;

we also knew (for we'd been there before along with Mark Wickenden and Martin Maher) that the New Engine Shaft lay beyond the flooded stopes, which were, according to the old plans, somewhere in the region of two-hundred-and-five fathoms deep.

And there was Jonesy with the accommodative blue and yellow inflatable dinghy he had borrowed from his neighbour, and me standing dejected with a Land Rover innertube. After some gentlemanly persuasion, and threats that I'd tell the readership about his involvement with the Grand Order of Grey Druids (actually, the antlers are a dead give-away), he agreed to let me share his craft providing he had unlimited access to the innertube in the likely event of the dinghy foundering. So off we went, paddling timidly along the stopes, dragging the hissing dinghy (for it had developed a puncture on contact with the water) over submerged stem-ples and under obstructive timbers that hindered our progress. At one point the stope narrowed to a mere two feet in width, and here we were obliged to bridge our way above the water, pushing the dinghy sideways along the rock face, where it developed another puncture. Soon we were standing safely on the rock pile at the foot of the New Engine Shaft, emptying our lungs into this writhing mass of blue and yellow rubber that made a sound like a whoopee cushion every time you prodded it. Then it was back in the water and sailing west, searching for Deep Level which should have been about twenty-five feet above us. We saw rails sticking out of a partially collapsed level and the stope continuing above a large boulder slope - Deep Level was out of reach for the stope ended at a sheer wall, the way on was beyond our grasp.

We returned to the main party in our submersible dinghy - just the bow and the stern were visible above the waves, Jonesy and I up to our chests in water that had not been subjected to the heat displacement test. Then Ian Mathieson said he'd like to have a go. We reinflated the craft and off he went, kneeling amidships like Hiawatha hunting beaver, and just to get another mention in the Newsletter.

We were back at Coniston on the 16th of February, this time for an easy excursion along Grey Crag Level. The original plan was to descend a newly-discovered ladderway which we hoped would lead us to a new area of Deep Level, but in the event there was so much rubble and timber to shift - in order that the shaft would be safe to descend - time beat us and we were forced to call it a day. As usual there was a good turn out, two members driving from as far afield as Lowestoft.

The shaft had been discovered by the rescue team on the previous Sunday, who, having turned up for an exercise and forgotten to bring the gear, started to rummage around for want of something better to do. By some incredible coincidence, or perhaps it was design, they started digging in a place where Peter Fleming had once heard water dripping through the floor of the level. Soon they had unearthed a ladder, then a black hole down which another ladder, made completely of iron, could be seen diving into the darkness.

So on the 16th CAT turned up with lots of wood and scaffolding poles to try and hold back the huge pile of rubble that was threatening to engulf the shaft. This work was largely completed though there remains some tidying up to do. Some original exploration was carried out by Merrin, Mathieson, and Fleming, who, with the aid of a short maypole, scaled some dangerous boulders above Grey Crag Level. Merrin managed to reach the top of the chamber but found the way on blocked by timber. For his pains he received a rap on the shin from a mobile slab. Damn good job he's a doctor.

In all it was a reasonable day. For the benefit of new members we had a tour of the Grey Crag workings, paying special attention to the miners' clog prints and secondary mineralization in Hospital Shaft and Paddy End Shaft. More recent formations included spectacular icicles along the initial few hundred feet of Hospital Level. And the water wasn't warm there, either.

It is with considerable regret that I have to report the tragic death of Mark Wickenden in a motor accident on the 20th February.

Mark began his underground exploration earlier than most while still at school in his early teens. With several friends he would cycle round exploring the mines and potholes of his native Furness. It was at this time he began the project with which he continued for the rest of his life, the Mineshaft in Martin known as 'Ding-Dong'. He was the guiding light behind the removal of the scrapped cars that filled it and the subsequent work of making it safe. I was lucky enough to be at the top of the shaft on the day that his voice shouting "I'm through" came drifting up from below.

He joined C.A.T. not long after it was formed and quickly became an indispensable member of any meet or exploration that was going on. He was always at the front when there was anything to be done and there are a great many mines all over this country and abroad that would have remained unexplored were it not for his infectious enthusiasm. He was always willing to have a 'crack' at anything new.

Wherever he went he made friends and there are many members of C.A.T. who will have a fund of stories of times spent with 'Wickers', not only underground, but in pubs and on campsites everywhere. As a companion he was second to none, an achievement any of us would be proud of.

Chris Jones