

Mendip Caving Group Newsletter

DECEMBER 1980

NO 136



AN EXTRA ORDINARY YEAR

It started with a bang. Four year's effort destroyed last New Year's Eve. Since then the New Cottage has almost been rebuilt and the Club is now beginning to find its caving feet again. In fact rumour has it that the Club's Christmas present is to be the keys to the completed New Cottage! So here's to a Happy Christmas and an Active New Year for the M.C.G.

COTTAGE PROGRESS

The Cottage rebuilding is almost completed now. The builder expects to be out by Christmas. In the New Year Malcolm will be organising the painting team, so get your paint brushes out! The gas system is to be installed by Members and we also have to move all our equipment in, so January is going to be busy.

MEET PROGRAMME

27/28 December

MEMBERS WEEKEND

2/3 January

MEMBERS WEEKEND

14/15 March

South Wales O.F.D. & Dan Y Ogor

Meet Leader:- Denise Samuels.

Anyone wishing to become a Dan Y Ogor or O.F.D. Leader should submit their names to Denise as soon as possible.

Thrupe Lane

This trip due to be done on 6th December did not materialise. Pat's wife June has still got a bad back and has had to return to hospital. Pat was therefore unable to come to Mendip. Although leaderless several Members including Roger Wallington and Mike Lovel were still wishing to do the trip however there was insufficient tackle in the Cottage for the trip and none had been sent down from London either. They then thought there might be a chance on the Sunday if more tackle arrived. That was not to be however so the trip lapsed. When we get into the New Cottage it is to be hoped co ordination of Club Meets will be better.

COTTAGE FEES

There have been a number of instances of Cottage Fees being left for collection in the Cottage Bed Booking Book recently, and the fees staying there uncollected for a week or more! Would any Member collecting Cottage Fees please total up the amount collected on the top copy of the booking sheet sign it and forward the booking sheet and fees to Eric Dowley rather than leave them in the book in future. Thank you.

CAVE KEY DEPOSITS

The deposit on keys lent out by the M.C.G. has now been raised to £5 as some keys have not been returned recently. Details of the name and address of the borrower and his club should be taken together with details of his party and the duration of his trip. These should be entered in the Log Book and on the E.T.R. Board. The Member taking the deposit should enter the amount in the Log Book together with his name but should keep the money and not leave it out as has been the practice recently. When the key has been returned the deposit is to be returned and the time returned entered in the Log Book.

BROWN'S FOLLY AND SWAN MINE

Brown's Folly and Swan Mine are, or are about to be gated. The entrances are on land owned by Sir Charles Hobhouse and the Avon Wildlife Trust. The owners are concerned that the mines may be important breeding sites for the Greater Horseshoe Bat. Steps have already been taken to seal some of the entrances, leaving access for bats and ventilation.

LAMB LEER

The entrance ladder has recently been repaired, but some doubt exists as to the safety of the platform to the Main Pitch. This is in the course of a structural survey. In the meantime take care.

Incidentally, we still haven't received our own key yet.

FAIRY CAVE

Hobbs Quarry has applied for planning permission for a Recreation Centre and to develop Fairy Cave as a Show Cave having destroyed Balshes Cave.

SEVERN BARRAGE

The Government now considers the Severn Barrage to be a feasible proposition. Any decision to proceed could have profound consequences on and around Mendip. Further details of the scheme and its effects will be considered in a talk by T. Shaw at U.W.I.S.T. at 6.45 p.m. on 25th February 1981. Entry free.

AGGIE REOPENS

After some difficulties over locks C of Agen Allwedd is now open again. It is no longer of the self closing (self opening!) type.

ALUM POT

Alum Pot is up for sale. The C.N.C.C. and B.C.R.A. are looking into possibilities of purchase with permanent access.

WANTED!

The 3rd International Cave Film Festival held at La Chapelle was marred by the theft of the festival takings (about Fr 10,000). It is known that the money was taken by a Kevin Fisher possibly one-time Mendip Caver. He is aged 21, thin, about 5' 11" tall with fair hair. After gaining the confidence of his hosts he broke into their flat making off with the cash box, taking their car for his getaway.

MAGGIE'S VICTIM

A sad loss to sweet toothed fell walkers, and a bright day for dentists, is the news of the closure of the Kendal Mint Cake Factory. It is one of the many small firms to be forced out of business in the current recession.

N.C.A./B.C.R.A.

The closeness of these two bodies is viewed with some concern. In a recent meeting the C.S.C.C. agreed to resist any possible amalgamation should the situation arise.

LAND CONSERVATION

The Somerset Trust for Nature Conservation are believed to be leasing land on Mendip for conservation and recreation. They are believed to be interested in land around the Mineries!

HOW RIMSTONE POOLS ARE FORMED.....

Drips of water splashing into the pool push dust floating on the surface to the side. Here it sets to form the hard rim.
..... a new theory from B.B.C. Radio 4

A SENSE OF MAGNETISM

Experiments conducted by Dr. Robin Baker of the University of Manchester and published in the New Scientist, indicate that our species shares with other animals an ability to determine direction by means of the earth's magnetism. Experiments were conducted by taking students over tortuous routes for up to 50 kilometres and asking them to indicate the 4 points of the compass and their starting point. The percentage of correct answers given, especially with blindfolded people was remarkable. Fitting of a bar magnet or Helmholtz coil to a persons head nullified the sense.

I always thought compasses were superfluous. Ed.

DIVING ACCIDENT

Mike Woodhouse has been killed in a diving accident in Keld Head on 23 November. This tragedy is by no means the first that this system has claimed recently.

DAVE HILL

Friends of Dave Hill an old Member of the M.C.C. will be sorry to hear that his wife died recently of a brain tumour. The M.C.C. extends its condolences to Dave in his bereavement.

JUNE WAISH

June has sent me a letter which is reproduced below:-

Teddington Memorial Hospital,

15th November

Dear All,

Many thanks for your kind wishes for a speedy recovery. Unfortunately I have been told it's a lengthy process. I am also very sorry that I won't be able to help decorate the New Cottage this December.

Fats already complained about having to hamp his own paving slabs!

I'm feeling very well and being looked after and well fed, and spoilt!

Kindest regards to you all.

and hope you all have a

Merry Christmas and Happy New Year,

Love June.

I understand from Pat that although June has since left hospital her back has not shown much improvement and has had to be readmitted. Ed.

RICHARD WOJCIAGOFF

Richard one of our Original Members has been in contact with Tony Knibbs recently. Tony has told him all about our current activities and the New Cottage. He remembers many of our present Members as teenagers! Anyway Richard would like to be remembered to everyone and would love to be present at the Cottage Warming Party.

WETSUITS

The Editor is now putting the finishing touches to the one piece wetsuit he has made from the Club Purchase of double skinned neoprene. He had to make up a pattern himself so it took longer to make than expected. Should anyone wish to see the results he will be bringing it to The Beehive on 18th December.

HISTORY OF THE ENGLISH EARTHQUAKE

(Extracts from an article written by John Fletcher in 'UNDERCURRENTS' No.38)

On December 26 last year a small earthquake (Richter Scale 5) hit the Carlisle area which was felt as far south as Kendal and Cumbria. No one was hurt although considerable damage was done to property - reminding us that Britain is far from being safe from the caprices of nature. John Fletcher looks at the history of earthquakes in the U.K.

974 Earthquake felt all over England (1) Violent (4)

1048 In this year there was a severe earthquake far and wide in Britain (2) Worcester and Derby being especially mentioned (1) Wick (4)

1076 (1)

1080 Earthquake and terrible moans and groans from the bowels of the earth (1)

1081 Earthquake all over England (1) (2) A great earthquake terrified all England with a horrible spectacle; for all the buildings were lifted up, and then settled as before (3) (4)

1110 A great earthquake at Shrewsbury (4) Trent dry at Nottingham.

1119 A great earthquake was felt in some places in this country but it was most severe in Gloucestershire (2)

1132 (3) A great earthquake in many parts of England (4) (1)

1142 Three rumbles at Lincoln(1)

1158 Earthquake in many parts of England. Thames ran dry at London (1)

1165 Earthquake in many parts of England(1)

1179 At Darlington in Durham the ground rose up and then crashed down. (1)

1185 Earthquake in North of England. Church at Lincoln shattered (1) (4)

1199 Earthquake in Somerset several people thrown to the ground (1)

1246 So great an earthquake in England as has ever been felt (1) Several churches fell in Kent.

1247 Earthquakes in many parts of England, especially in London by the banks of the Thames, where several houses fell down (1) (4)

1248 Earthquake in Somerset damage to Wells Cathedral (1)

1250 Earthquake at St Albans (1)

1278 Earthquake in Somerset. Church on Glastonbury Tor and part of Glastonbury Abbey thrown down.

1316 A great quake in England (1)

1382 A general earthquake in England much damage (1)

1385 Two earthquakes felt throughout England (1)

1426 Earthquakes felt in several parts of England. (1)

1551 Earthquake in Peigate, Croydon, and Dorking, so that pots and pans moved (1)

1574 Earthquake felt at York, Worcester, Gloucester, Bristol, Hereford.

1580 (6th April) Earthquake felt in London and the rest of England. Bells in churches rang by themselves. The gentlemen in the Temple (lawyers) being at supper, were so much scared by the shock that they ran from their tables and out of the Hall with the knives in their hands. (1)

1580 (1st May) Earthquake in Kent caused people to rush to churches to pray (1)

1665 Small earthquake near Oxford (1)

1667 Earthquake in Staffordshire (1)

1678 Earthquake in Staffordshire (1)

1681 Earthquake shook houses in Somerset at Bridgewater, Taunton, Wells and other places (5)

1683 Sept 17th Earthquake in Oxfordshire (1)

Oct 19th Earthquake in Staffordshire and surrounding counties. (1)

1687 Earthquake in many parts of Britain (7)

1690 Earthquake at Bedford, Barnstable, Holyhead, Northamptonshire. (7)

1703 Earthquake felt throughout the North

1731 Earthquake in Northamptonshire.

1734 Earthquake in Sussex.

1748 Earthquake in Somerset and Devon. Many in Taunton rose from their beds terrified, and spent nights in gardens. Many walking at the time of quake found great difficulty in staying upright. Many areas of the quake seem to have been from the South (English) Channel to the Severn, travelling roughly from the South East to the North West of Taunton, being felt also in Exeter and Crewkerne. (1)

1750 8th February. Earthquake in London. Several houses demolished. Terror widespread.

8th March Earthquake at Chester, Liverpool and Manchester (1)

1755 Possible earthquake at Whiston Cliffs in Black Hamilton Mountains in Yorkshire (6)

1771 Possible earthquake near sources of Tees, Wear, and Tyne. (6)

1773 Possible earthquake - Substantial earth tremor led to River Severn diverting its course at Madeley/Buildwas on Severn (6)

1884 Colchester earthquake. 4 killed.

1926 Hereford, large quake but below 5 on Richter Scale

(There are also references to earth tremors in the Mendips (Somerset) in 1890's and 1976)

REFERENCES

- (1) Zachary Grey. A Chronological and Historical Account of Earthquakes
- (2) Anglo Saxon Chronicle
- (3) William of Malmesbury
- (4) Florence of Worcester's Chronicle
- (5) Andrew Paschal, vector of Chedzoy in letter to John Aubrey
- (6) John Wesley's Journal.
- (7) Diary of John Evelyn.

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WEEKLY MEETINGS These are held every Thursday Evening at the BEEHIVE HOTEL
227 High Street, Brentford, Middlesex.

CAVING ACCOMMODATION M.C.G. COTTAGE, The Stirrup Cup,
Nardrach on Mendip, Blagden, Somerset.
N.G.R. ST55/5150.5605

29 beds available. Guest Bookings to be made with the Cottage Warden.



DECEMBER 1980

No 136

TECHNICAL SUPPLEMENT

THE MAINTENANCE OF ALKALINE CAPLAMPS

TONY KNIBBS

The veritable flood of cheap alkaline caplamps, which the National Coal Board made redundant many years ago in favour of standardising on lead acid lamps, has ceased long since. New alkaline caplamps are now only obtainable from overseas sources and spares for the ageing lamps of British origin are getting scarcer. The need to preserve those venerable survivors becomes more acute with each passing year.

Almost immune, as they are to the frequent knocks of caving, and able to withstand overcharging and overdischarging, alkaline lamps have the ability to outlast many caver's active careers unless neglected and abused on an almost daily basis.

Maintenance of these lamps is extremely simple and inexpensive; a few minutes of attention at regular intervals will rejuvenate and prolong the life of even the grottiest rechargeable mining alkaline lamp of whatever manufacture. NIFE and EDISON caplamps probably survive in the greatest numbers and one example of each manufacturer's range is dealt with below) the NIFE NC113C and the EDISON Model L. The former has a battery of three nickel cadmium cells; the latter employs three nickel-iron cells. It is assumed that the reader has overcome the various locking devices normally fitted to mining lamps.

CAUTION Alkaline electrolyte solution contains potassium hydroxide (caustic potash) and is highly corrosive; contact with the skin will cause burns and it will destroy clothing. Wash off hands and any other contaminated skin areas immediately with water. Burns should afterwards be treated with a weak acid such as vinegar (acetic acid). Eyes should be treated with a solution of boric acid after copious washing.

When mixing new electrolyte solution always add the potassium hydroxide crystals to the distilled water - never the other way round - and stir the solution constantly.

Avoid contaminating an alkaline battery with any form of acid.

Mining caplamps are designed for daily use. These lamps are underworked by most cavers and they tend to become sluggish in light output - both in duration and intensity. It will positively benefit alkaline caplamps to be given a charge/discharge cycle each week. There is a rejuvenation procedure laid down for EDISON lamps which are underworked; it can be taken to have an implication for owners of NIFE caplamps, but no specific instructions are available.

NIFE NC1130 CAPLAMP

CHARGING The three - cell nickel - cadmium battery is rated at 10 ampere -hours capacity, and gives a nominal voltage of 1.25 volts per cell when fully charged. The recommended charging rate is 1.75 amperes for 8 hours. After electrolyte renewal, the battery should be charged at 1.75 amperes for 16 hours.

In a Wessex Cave Club Journal of the late 1960's, Bob Picknett described experiments which indicated that ageing NIFE batteries needed increased charging to achieve their full capacity. The following combinations of rates and times were found to give good results:

- 0.5 ampere for 40 hours
- 0.9 ampere for 22 hours
- 0.75 ampere for 11.5 hours

Higher currents and longer charging times gave no additional benefit. Of particular interest is the fact that, contrary to popular belief, comparatively low 'trickle' charge currents can be used to achieve effective charging. It is reasonable to assume that other types of ageing alkaline battery may similarly benefit from extended charging times. Neither nickel - cadmium nor nickel - iron cells are adversely affected by moderate overcharging at or below the recommended rates; surplus electrical energy is dissipated as heat, and as continued gassing. However, a watchful eye must be kept on electrolyte level.

A charging voltage within the range 4.2 - 5.6 volts is recommended for the NC1130 battery. For those who, like the author, use a car battery charger, this indicates that the 6 volt setting is more than adequate for the job, so long as it has an ammeter and some means of current adjustment.

The cell vent screws should not be removed during the charging process. Cells will gas quite harmlessly past the rubber vent sleeves as the charge progresses, and will continue to do so for several hours afterwards. Leave the battery to stand upright for about 24 hours after charging, then wash off any exuded electrolyte with clean water before replacing the battery lid.

TOPPING UP During charging, electrolysis liberates oxygen and hydrogen from the water content of the electrolyte as gassing takes place, thus reducing the electrolyte level. Battery performance will begin to suffer as the electrolyte level falls significantly below the level of the top of the cell plates - a common symptom of this is a dimming of the lamp if the battery is turned horizontal or inverted during use.

Early instructions for the NIFE NC113C recommend an electrolyte level $3/4$ inch above the plates; a later instruction suggests a level 'just above the plates'. A sensible compromise would be to maintain a level about $1/4$ inch above the plates and observe the makers recommendation to check the level every fourth cycle of charge / discharge. A short length of glass tube may be used for this purpose, inserting it into the cell until it touches the plates, then placing a finger over the top end and withdrawing it to see the height of liquid held. The liquid is then released back into the cell.

Regular topping up must be done using pure distilled water - not with rainwater, and certainly not with tapwater. A convenient way to add distilled water is by using a clean hyperdermic syringe; modern medicine seems to provide suitable plastic syringes as a waste product!

Reduction in electrolyte level due to accidental spillage should be made good by adding fresh electrolyte solution, not distilled water.

ELECTROLYTE In common with other alkaline mining caplamp batteries, the NIFE NC113C uses a mixture of potassium hydroxide and lithium hydroxide (in a 14:1 ratio for this battery) added to pure distilled water to a Specific Gravity of 1.200 maximum.

After prolonged use, the Specific Gravity of the electrolyte (measured with a clean hydrometer) tends to fall. The minimum permissible S.G. reading is 1.160; below this figure, the electrolyte must be renewed. Failure to do this will result in loss of battery capacity and consequent reduction in light duration.

ELECTROLYTE RENEWAL Discharge the battery, remove the cell vent screws and empty out the old electrolyte. Allow the cells to drain for a few minutes, then straightaway refill with new electrolyte solution of S.G. 1.200 to a level $1/4$ inch above the plates. Refilling the MC1130 battery requires about 65 cc of solution per cell.

Following this operation, recharge the battery at 1.75 amperes for 16 hours

GENERAL BATTERY CARE Cleanliness and freedom from corrosion are the key requirements. If the battery is immersed during use open the battery lid soon afterwards, then drain out all water and wipe away any remaining mud and moisture. Cell tops should be kept clean and well smeared with vaseline. Battery contacts and terminal posts must also be regularly cleaned - but not with abrasives - and smeared with vaseline.

Every six months or so, the cells and their rubber jackets should be removed from the battery case. Separate the jackets from the cells, wash and dry them both before dressing the rubber jackets with french chalk and reassembling.

The fuse and its spring contacts should be occasionally cleaned and greased with vaseline. A blown fuse usually indicates trouble elsewhere and this should be traced before fuse replacement. It is unwise to replace a blown fuse with heavy gauge wire or a bent nail! The fuse is there to protect the caplamp from the possibly dire effects of an internal short circuit, i.e. a cooked cable or overheated cells.

From time to time the rubber vent sleeves and seating washers should be examined and replaced if cracked or deformed. If the battery cells are fitted with white nylon vent screws, these should be replaced by steel vent screws.

In very old batteries self - discharging may occur due to an internal resistive short circuit being created at, or near, the soldered cable connections within the lid. Dismantling the lid assembly to trace the fault will probably reveal a lot of crud, perished cable covering and corroded wire. A pair of long nosed pliers will undo the small nuts - three retaining the contact assembly (recessed in rubber buffers) and two, with spring washers, retaining the cable end fittings. Withdraw the contact assembly and plastic insulating sheet below it, and remove the rubber sealing disc through which the cable end fittings

protrude. Unsolder these two threaded end fittings. Carefully prise open the clip securing the rubber cable sleeve and remove the sleeve. Unscrew the cable gland fitting, noting the presence of a rubber sealing / anchor ring: this may be withdrawn as the cable is pulled through the lid fitting, or it may have to be picked out of the lid fitting after removing the cable.

If the wires are not badly corroded, it should be possible to cut a couple of inches off the end of the cable and then to resolder the end fittings, but it is rare to have such luck. Ideally, a new NIFE cable assembly should be fitted as replacement - it comes complete with end fittings, cable sleeve and clip, and the rubber sealing / anchor ring.

For simple cable replacement, the genuine short lay cable is best. Having said that, there is no reason why a tough, rubber - covered domestic cable should not be used; ideally it should be of the same diameter as the original to fit the glands at the battery lid and headpiece.

HEADPIECE The standard main bulb is krypton filled and rated at 3.6 volts 1.0 amp and the pilot bulb is rated at 4.0 volts 0.3 amp. Use clean fingers to remove and replace bulbs to avoid damaging the reflector. The reflector has a special aluminium oxid coating: do not use abrasives or metal polish to clean it - a soft cloth is adequate.

Normally, maintenance is merely a matter of keeping the interior of the headpiece - particularly the switch contacts and bulb holders - clean and dry. The assembly is reasonably watertight, but it is wise to open the headpiece after an immersion to inspect it and allow any moisture to dry out. Occasionally examine the reflector washer and replace it if it is broken or deformed.

The cable is held firmly in the headpiece with a gland nut, backing washer, and a rubber sealing / anchor ring. Connection to the terminal screws is by means of solder tags. It is unusual for the head piece to suffer corrosion to the same extent as the battery lid, hence dismantling is rarely required.

EDISON MODEL 'L' CAPLAMP

Much of what has been said about the NIFE caplamp operation and maintenance is also applicable to the EDISON MODEL 'L' caplamp. The following comments are chiefly aimed at describing the differences.

CHARGING The battery is a 13 ampere - hour nickel - iron type and, fully charged it will read a no - load voltage of from 4.0 to 4.5 volts, but such a voltage reading does not indicate the state of charge.

From a discharged state, the battery should be charged at 2.0 amperes for 9 hours. After electrolyte renewal the next charge time should be extended to 12 hours. An infrequently used battery should be discharged and charged once each week or given a monthly discharge and then a recharge at the normal 2.0 ampere rate for 12 hours. The battery is best stored for long periods by fully discharging it, correctly topping it up, then short circuiting it across the terminal posts and storing in a cold dry place.

A spring - loaded plunger valve is fitted to each cell and opens automatically to release gas pressure during charging. After charging, let the battery stand for at least one hour before replacing the lid which reseals the valves.

TOPPING UP The plunger valves must be removed to check the electrolyte level. Top up with pure distilled water to a level $11/16$ inch above the plates.

ELECTROLYTE The electrolyte solution is a mixture of potassium hydroxide and lithium hydroxide in pure distilled water. The minimum permissible Specific Gravity is 1.160. When this figure is reached, the electrolyte must be renewed with fresh solution of 1.230 S.G. followed by recharging at 2.0 amperes for 12 hours.

GENERAL BATTERY CARE The need to keep the cell tops and the inside of the battery lid clean, and the need to grease the contacts with vaseline are the same as for the NIFE caplamp.

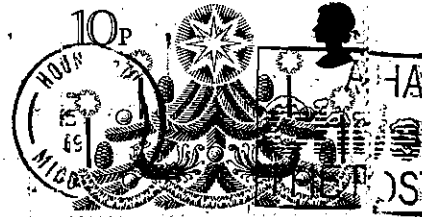
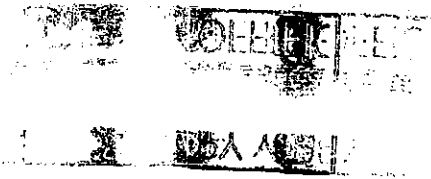
The plunger valves can be released from their bayonet fittings by careful use of a pair of pliers, gripping against the ends of the protruding pins and turning the valve anticlockwise. You may be lucky enough to own the special tool made to do this job easily. If not, a suitable implement can be made from a metal tube, 2 to 3 inches long, of which the inside diameter allows it to

slip over the top of the valve seating neck but not over the pins. Two diagonally opposed $1/8$ inch, $1/4$ inch deep slots should be made in ~~one~~ end to engage the valve pins; at the opposite end, a hole is drilled through the tube to take a 3 inch nail for use as a tommy bar.

These plunger valves should be occasionally soaked in warm water to remove any crystalline deposit; the plunger should be checked for freedom of movement before refitting the valve to the cell.

If a battery fails to hold its charge, gives reduced light output or has been out of use for three months or more, a rejuvenation procedure is recommended. Discharge the battery to zero volts, then charge for 12 hours at 2.0 amperes. Discharge again to zero. If it gives at least 9 hours light output, recharge again for 12 hours and use in the normal way. If less than 9 hours light is achieved, charge again for 12 hours and check the light duration once more. If the duration is still less than 9 hours, momentarily short - circuit the battery across the terminals and then read the voltage across each cell; a cell showing less than 1 volt should be regarded as time expired.

HEADPIECE Two types of headpiece are associated with EDISON caplamps: one has no switch, the other has a switch and a focussing device operated by a special screw at the rear, visible through an aperture in the bracket tongue. Both types are fitted with a double filament Krypton - filled bulb of 3.6 or 3.75 volt 1.0 / 0.5 ampere rating.



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