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Cover Design: P. MacNab

Obtainable from:

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Editorial:

With our 50 year jubilee fast approaching, perhaps it might be efficacious to ponder awhile on the club ‘ethic’, a topic very dear to me naturally, since I treat the GSG as being essentially of my fathering.

A club is no different from any other form of extended family, expecting certain loyalties and obligations of its individual members in exchange for comradeship, facilities, mutual support and visions of common purpose. If we ever arrive at a day when these faculties are absent, the club will dissolve, or worse, become dysfunctional through internal ‘political’ divisions that are probably irrelevant to the club’s long term health.

It has been said that in today’s fast changing society formal groups are no longer necessary, perhaps not even viable, when individuals can conduct all their business online and arrange caving trips without recourse to physical discussion - such is the case I understand for the Darkplaces ‘club’ which exists in cyberspace and only foregather at a cave entrance. I say this is unhealthy for the human condition. We have witnessed a breakdown in traditional family values in this country and it would be an optimist indeed who claims this to be a wholesome state of affairs. Humans need regular contact with each other. Man is a social animal. Basically clubs and societies are sophisticated versions of primitive tribal confederations, a coming together of people sharing a common interest because they subconsciously seek personal relationships. It is a natural state of affairs and not to be discarded lightly.

Our GSG has a rather novel hierarchical structure, having been governed by an almost perpetual oligarchy for the last few decades and while this results in ‘stable government’ yet it is also indicative of that most modern disease: apathy. Additionally it leads to an increasingly narrow approach to the centre, not helped by members failing to act upon requests published in the newsletters - in some cases I suspect by not reading the things at all!

My own particular gripe concerns club records. I acknowledge my personal invisibility on the internet - which is quite deliberate - but because I don’t join in peoples’ face books or blather a load of tripe on twitter, it does not mean I don’t believe in the net’s tremendous communication uses, the simplest of them being email. Many years ago I deliberately took a decision not to serve as an executive officer on the committee to avoid the Group falling into the trap of becoming, in effect, a monarchy. However I did arrange to remain in charge of our valuable library and its store of Scottish cave records and as such perform a clearly defined role on the committee that is no-one else’s responsibility. I am the Recorder, and all trips should be recorded by me so it pisses me off when I consistently receive emails second hand, instead of to me direct. It is rather insulting to be left out of the loop by one’s own club. All this despite frequent appeals by voice at AGMs and in print in the newsletter. Do people still not yet know how this club works? A glance at the constitution is in order if they don’t. Stuff is put into print for your information so please take it on board to avoid endless tautological diatribes by your truly.

But ‘ethic’ is a much deeper and wider concept. If membership of any body brings privileges and advantages then it must also be true, as Kennedy once said, to: “Ask not what your country can do for you...” etc. Over 50 years we have developed speleology in Scotland better than any other club. This should be a source of pride and being proud should lead to every member ‘selling’ the GSG in glowing terms when-ever the subject arises, be it in conversation, in print or through the media. Leave your ego at home and consider the Grampian’s record rather than treating the club as merely an opportunity to get underground for your own personal amusement.

Cultivating such an attitude engages you with other supportive requirements. If the Caving Secretary takes
the time to compose an interesting meets list for the year, then it would be appreciated if more members turned up for trips rather than relying on a tiny minority to report back on a Tuesday evening. For example, weekends (or day trips) to the Yorkshire Dales, once such a central element of our caving activity, would be greatly improved if a wider spectrum of members turned up at Bernie’s on a Saturday morning. It is not necessary for everyone to descend the same pothole - where there are difficult pots there are always easier caves nearby - and nobody would be censured for simply rambling over England’s most beautiful countryside, but gatherings such as these promote camaraderie. It is so much nicer to share an apres-meet pint or two with a crowd of friends than to be crowded into a corner by the populous merriment of other groups. Also, while encouraging individual investigations, I am sure it would be appreciated if more of the ‘private’ trips were advertised to other members: none of us need to operate in a vacuum.

Further to all this is a concern over recruitment. Caving clubs throughout the UK are witnessing a decline in the intake of younger people, resulting of course in the membership gradually getting older and older. It is time to pursue measures to deliberately redress this situation. Perhaps we should adopt a more radical approach as to how we introduce newcomers to cave exploration. If the desired end result is a cabal of new club members who plan and execute their own deep cave trips without recourse to ‘grey beards’ then maybe we should take cognizance of Fred Davies’s idea from the 1970s. Following a briefing, and checking that each person has provided their own light(s) and helmet (this latter to be one that actually fits properly!) the party is taken to a cave entrance - say Cnoc nan Uamh (Goatchurch in Fred’s case) - and told to get on with it, unescorted. Thus they are required to think things out for themselves from day one, how to assess and tackle obstacles (all the more cautiously because they are relying on their own skills) and receiving that precious feeling of exploring which is lost when meekly following an Intrepid Leader. In my opinion it’s an idea with merit, well worth trying.

This latter train of thought was stimulated by discovering that in the Edinburgh logbook, only 29 trips are recorded for the period 1st January to 7th June 2010. Compare that to 2009 when there were 76 for the same period. Clearly, persistent bad weather in the winter contributed to this low turn-out but it does seem a stiff injection of new blood and/or energy is well overdue!

So that is what you can do for your club: devote more attention to actively recruiting new members, giving them proper support but allowing them to make their own decisions, to discover their own ways of doing things - and making them feel wanted, not merely a bolt-on to your own agenda. Nurture, not force-feeding, is the best way of creating tomorrow’s tigers. One tremendous contribution mature members can make is to offer transport for newcomers to visit places they want to go to but lack the means. After all, shared costs is a big plus offered by the club model. I fully appreciate the difficulties placed in our way by officialdom with regard to children and young persons legislation drastically restricting our market place, but concentrating on the student-aged is perfectly feasible. I am quite sure there are many budding cavers out there who just need a nudge in the right direction and hopefully our jubilee will provide a good platform for us to proselytize to the great Scottish public.

At the same time, consider increasing the number of trips you personally make. The GSG exists as much to collect and collate information on Scottish caves as to promote caving as a sport. New sites are always worth documenting in detail ‘for the record’ no matter how insignificant they may seem compared to real systems such as Uamh an Claonaite and remember there are plenty of local places to visit that don’t demand expense or too much time but still provide sport or opportunities for original research. There is no such thing as a worthless cave (or mine), only cavers with no imagination. Think on.

Alan L. Jeffreys, Editor - AND Recorder.

Erratum: Probably everyone in the universe will have noticed my error in numbering the cover of the last issue as Vol.4 No.2 when it should have read No.3. Apologies to all cataloguing librarians. I am but human!
Born in 1671 by the banks of Loch Katrine, the third son of Donald Glas, a MacGregor chief, and named Roy or Ruadh because of his red hair, Rob was brought up in turbulent times with his clan supporting the Jacobite cause whilst the neighbouring Campbells, of which Margaret his mother was one, supported William of Orange. From the outset, he was taught to fight and became an expert swordsman. He was bilingual and literate in both English and Gaelic and was a skilled cattleman, drover and reiver. He and his brother Ian formed the Lennox Watch which offered protection and droving assistance to other clans. Those who declined help had their cattle stolen and by using this method Rob built up a good business and became a wealthy man with a good reputation and land at Inversnaid and Craigostan on Loch Lomondside. His droving business flourished until, in 1712, Rob sent his head drover, Duncan MacDonald, to collect a loan of £1000 and letters of credit from the Duke of Montrose in order to purchase cattle. However MacDonald absconded with the money and Rob, having been held responsible by Montrose was outlawed and eventually had his lands confiscated. During this time he began his caving career and used the rock shelter at Inversnaid as well as a cave at Loch Ard (NN480012 LR57) to hide in. He also used a cave on Creag an Taxman at Balquidder (NN516213 LR51) near the place where he would finally settle and where he died in 1734 and was buried after a life of adventure fighting the Jacobite cause before submitting to George I in 1725.

He continued to command the Lennox Watch from Balquidder near to the home of his cousin Douglas MacGregor who had been injured whilst fighting Rob at the Battle of Sheriffmuir and was now reduced to keeping hens rather than droving. Rob still wanted revenge on Duncan MacDonald and after numerous abortive attempts to steal Duncan's large herd, eventually managed to creep into his highland stronghold and poison the cattle. Returning to Balquidder he met his uncle, Robert Campbell of Glen Lyon, who was also going to try and steal Duncan’s cattle. When Rob heard of his intentions he said “Naw, MacDonald’s beef’s buggered but did ye ken Dougie fried chicken?”

(As far as I know, to this day his cave at Balquidder waits to be rediscovered by Jim Salvona).

AREA MEET REPORTS (to: 7.9.10)

Although there has been an interesting variation in meets since the winter, it appears the long cold spell has had a lasting effect of activity, with trip numbers well down on previous years.

ABERDEENSHIRE:

There was a digging trip into the White Cave of Slains in August in an attempt to regain historic territory. (See this issue).

AUSTRIA

In August, Roger and Annie Galloway visited the Totes Gebirge with Thomas Matthalm and enjoyed a couple of mammoth trips through the Schönberg Cave System. They also visited Bismark Höhle and Höhle Ohn Namen which is, conveniently, right behind a pub so is used as an overflow cellar!

ARGYLL

In April, Malcolm McConville paid a nostalgic visit to Glen Creran, site of previous triumphs. Lost Memory and Black Rift Caves were explored and, after an overnight stay in the Duror bothy, trips were made into Hibernian Hole and Draught Caledonian. In May Jim Salvona took a look at the gold mine at Cononish, finding it gated since his last visit. He also checked out the Eas Arie Mine adit, which also had a grille over its entrance.
CROATIA

During a sailing holiday in Croatia, Jackie and George Sutherland, Jamie Yuill and Lindsay Moss managed to get underground on a couple of occasions, first into a 2nd World War submarine pen and later on into Blue Cave near Vis, a beautiful sea cave entered by inflatable and lit naturally through an underwater arch.

DERBYSHIRE

Due to the restrictions of the credit crunch, someone came up with a bright idea - why not hold an expedition camp in Derbyshire? This was duly organised for June and Ross Davidson flew the flag for Scotland. Digs were pursued in Eldon Quarry Cave, where apart from removal of kibbles of spoil, four metres of railway were laid to the dig face. There was another trip from Speedwell Show Mine into Peak Cavern to rig a bolt climb beyond a siphoned sump (see this issue).

FIFE

Blebocraigs Limestone Mines near Coupar, Fife, were explored by a party of four members in May and in July some adits on the bank of the Lyne burn at Charlestown were explored, yielding some 15 metres of passage thought to be an Iron Mill Mine.

INVERNESS-SHIRE

Ritchie Simpson and David Morrison returned to Beinn na Caillich on Skye in March, managing to push another two metres of very tight passage in Scapula Cave. This was seen to continue in larger dimensions but a 1.5 metre drop was too committing (which means it’s impossible for real people!) Boundary Sink was also extended a little and in Upper Condyle Cave, ten metres of new passage were found, which ended at a very tight rift.

MIDLOTHIAN

Alex Latta has been attempting to locate the exact entrance site for the now lost limestone mine at Easthouses, once a playground for the GSG. In March he and Alan Jeffreys thrashed about in wasteland above the housing scheme where the entrance almost certainly used to be, and followed it up with an enjoyable crawl along a well-watered culvert some half a mile downhill, until very recent concrete pipes took the edge off exploration.

In May, Mark Stanford and Jim Salvona checked out a culvert and short mine tunnel in Bilston Glen, returning in June for a dig at the end of the latter. After excavation had gained about four metres, bad air signalled a retreat. This was repeated in August, but after 12 metres the gas alarm again forced a retreat. The same month two members paid a visit to the Gilmerton Cove, an historic sandstone labyrinth in Edinburgh.

An SCRO shout in early September saw three members assisting Tweed Valley MRT recover a casualty who had fallen down a cliff high on the summit.

MORAYSHIRE

In April, Jim Salvona visited Huntley’s Cave, just over four miles north of Granton on Spey. This is a fissure-type cave near the edge of a 16 metre high rock buttress. It lies at the top of the crag, and there is a small rock shelter at the bottom as well.
PERTHSHIRE

For many years, Jim Salvona has tried to establish the whereabouts of Dragon’s Hole Cave on Kinnoull Hill just south of Perth, but very dense vegetation on the steep slopes defeated most attempts. In March he took advantage of winter-ravaged undergrowth and with Mark Stanford successfully located the small cave in the crags there. It is some six metres deep and high, with an entrance some 2.5 metres wide. Some open cast workings at St Ninians were also visited.

RENFREWSHIRE

In July John Crae returned to check out Tinkers’/Fiddlers’ Cave near Gourock, finding a shallow hole with much evidence of fires and habitation - still used by local ‘yoof’.

ROSS AND CROMARTY

At the end of June, Bob and Rosemary Jones, joined by Sue Findlay (nee Taylor, who was a GSG member in the late 1970s) assisted in an archaeological dig at Caird’s Cave on the Black Isle. An interesting collection of artefacts was amassed, including stone tools and bone implements. Following the work, the cave was restored to its original condition and samples sent away for dating.

SELKIRKSHIRE

Although not in any way underground, in April, there was an SCRO shout to Scott’s View near Melrose, where a very steep 150 metre bank down to the River Tweed was checked for a missing person. A series of SRT forays clocked up in excess of 2,000 metres of descent/ascents through undergrowth and mature trees. The missing person was not located there, but Derek Pettiglio found a tiny ‘cave’.

SLOVENIA

In May, Dick and Anne Grindley were in Slovenia and after visiting the tunnels below Prejamski Castle, which include natural passages, managed a tourist visit to Skocjanske Jama, which was found to be less of a tourist trap than Postojnska Jama and extremely impressive.

SUTHERLAND

(Note: The Sutherland hut log material from the ‘Mendip Migration’ has been reported in Stu Lindsay’s article in this issue, so it is not itemised here.)

There was a surveying trip into Rana Hole in April, from sump 6b into Tibesti Chamber by Ross Davidson and Derek Pettiglio. This revealed that this series is actually heading toward Uamh an Claonaite 1 in the region of the start of Cavity Wall Passage. Further surveying was achieved in Concretehead.

Digging resumed in Campbell’s Cave in June, and with 140 kibbles of rubble removed, a void was revealed which appears to be the top of a chamber filled with moraine. Also in June, scaffolding was removed from the bottom of Rana Hole to be re-used at Campbell’s Cave where more clearance allowed access to over eight metres of down-sloping passage, much of which at present is trending uphill (ie away from the Claonaite drainage). Work continues. Derek Pettiglio went for a solo trip into ‘old’ Claonaite and managed to scrape a few more metres out of Dry Rot Passage where a distinct draught indicates more to be found. He also examined an area near Loch Urigill where an intriguing sink/rising system was found.

There was a tourist trip through Rana Hole and ANUS Cave in July and some investigation of two holes near Rana followed by a trip through the Bone Caves. Simultaneously digging parties at Campbell’s Cave exca
vated 129 kibbles of rubble and Ivan Young GPSd a large number of karst sites throughout the Allt nan Uamh Valley.

In August, we played host to a group of Croatian cavers, there were descents of Rana into Claonaite and a trip taking in all of ANUS Cave. The same month, some further filming was carried out in ‘old’ Claonaite, but high water curtailed operations at Sump 3. Campbell’s Cave was also inspected.

In early September, Derek Pettiglio soloed his way to Tibesti Chamber, Claonaite 7 and after five hours digging opened a two metre blind tube. He also descended Storm Cave and took a look at Cuil Dubh dry entrance.

WEST LOTHIAN

Jim Salvona probed the entrance to Philpstoun No.6 Shale Mine in April but found water levels were too high for a dry trip along the gallery there. In May three members explored Beecraigs Limestone Mine and rounded off the day with a visit to Hilderston lead mine, and in the same month Alan Jeffreys soloed Hole 3 at Bowden Hill to check out side passages on the left which were theorised to connect with Hole 2. In one of four ‘inlets’ he encountered a strong cool draught beyond a tight choke which was not forced. Returning to the surface he checked Hole 2, finding a large penetrable choke at the end which seemed to promise further passage. He persuaded three others to accompanying him in June for a pushing trip but the choke in Hole 3 only yielded some 10 metres of new passage before choking up. The draught was considerably reduced on this occasion. Examining Hole 2, the terminal choke was found to be just that, with huge sandstone blocks effectively sealing the way on. However some side passages were explored, indicating that Holes 1-2 have more to offer than was remembered from 1964 (when Goon was last in them!)

Mark Stanford and John Crae examined a tunnel at Kinneil House in August, looking for connections between an ice house access and the exit tunnel down by the stream. Collapse currently obscures any through trip.

 YORKSHIRE

In early March a combined EUG/GSG team bottomed Lost John’s Cavern in fine conditions, and completed the weekend with a trip down Illusion Pot, noting that formations beyond the Expressway are now very dirty and obviously suffering from caver traffic.

In April, Ross Davidson joined two MCG members to bottom Meregill Hole. The next day he was joined by Julie and Eva Laird for a taster trip into Great Douk Cave.

Another EUG outing at the end of June provided an opportunity to explore White Scar Cave as far as Sleepwalker Series in low water conditions.

Three members enjoyed an excellent through trip in Easegill Caverns in July, navigating with bits of paper having no previous experience of much of the route taken. This was Fiona Ware’s first cave for some while - a welcome return to active duty! Also in July the club held its third ‘Founder’s Day’ meet, a party of six descending Sunset Hole on rope ladders forty-five years after the club’s first descent, replicating equipment and clothing. At the same time another group collected the usual batch of caves in the Calf Holes area.

August saw a Lancaster-Easegill through trip by three members, who the next day hosted a meet through various parts of Gaping Gill for visiting Croatian cavers. Flood Entrance, Stream Passage and Bar Pots were used (rigged due to the Craven winch meet) and greatly enjoyed by a party numbering 14.
## ADDITIONS TO THE LIBRARY (to: 19.9.10)

### 1. BOOKS.

Hanwell, J. D. Price and R. Witcombe (2010). *Wookey Hole. 75 Years of Cave Diving and Exploration*.  

### 3. CAVING JOURNALS

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<td>Bristol Exploration Club, Belfry Bulletin</td>
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<td>BCRA Transactions: Cave and Karst Science</td>
<td>Vol. 36 Nos.1,2,3 (2009)</td>
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<td>BCRA ‘Speleology’</td>
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<td>BCRA Cave Radio Group, Journal</td>
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<td>British Caving Association, Handbook</td>
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<td>Chelsea Spelaeological Society, Newsletter</td>
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<td>Craven Pothole Club, Record</td>
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<td>Orpheus Caving Club, Newsletter</td>
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<td>Red Rose Cave &amp; Pothole Club, Newsletter</td>
<td>Vol. 47 Nos.1,2,3 (2010)</td>
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<td>Scottish Mountain Rescue Committee, ‘Casbag’</td>
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<td>Shepton Mallet Caving Club, Journal</td>
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<td>South Wales Caving Club, Newsletter</td>
<td>Nos.1,2,3,5,7-29, 31,32,34-41,44,54-61, 68,86,89,90 (1953-1978)</td>
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<td>Sydney Speleological Society, Journal</td>
<td>Vol. 54 Nos.2,3,4,5,6,7,8 (2010)</td>
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<td>Wessex Cave Club, Journal</td>
<td>Nos. 320,321 (2010)</td>
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### 5. CAVE GUIDES, ABSTRACTS ETC.

No. 1237  
The island of Raasay was the destination for an exploratory caving trip this summer. Having read Jim Salvona’s booklet on the subject (A Guide to the Raasay Fissures, 2009), we decided to take a look. The fissures described were too large to explore without ropes etc, so instead we headed to the iron ore mine near the village of Inverarish about a mile east of NG 564 365. Unfortunately we found the entrance near the buildings gated. Digging under the gate was a possibility, however lack of a shovel prevented further progress. The main fan house entrance was also gated. We explored other areas of Raasay and found some interesting sites, although none were as large as those described in Jim’s book.

Carol Dickson
PLEASE SIR, CAN I HAVE SOME MORE?  
By Alan L. Jeffreys

Bowden Hill limestone mine near Linlithgow lies within the orbit of greater Edinburgh and undoubtedly provides the GSG with its most sporting locale, providing hours of fun for many members, past and present. Forty-six years have rolled by since the club first entered these wrecked workings, yet still no route has been found to link all six frontal entrances together into one coherent system.

Holes 1 and 2, which straddle the remains of lime kilns now greatly obscured by vegetation, were cursorily examined in 1964 by the writer and colleagues who, feeding an insatiable desire for underground sport, tore through the linked tunnels at high speed, discovering what they described as a rectangular route from one to the other but little else. With no downhill (that is, westerly) trending tunnels noticed, it appeared these two entrances offered little chance of connecting with the ‘main’ workings (holes 3-5) and were therefore of no interest, being ignored for forty odd years.

Following the massive breakout from Hole 4 in Spring 1965, Hole 3 was dug out from the inside, and extended known passages very much further eastwards - in fact only 40 or 50 metres from Hole 2. Still there was little indication of an underground continuation along the hill, although grassed-over entrance roads are visible on the surface between the two. Some investigation of three side passages on the left in Hole 3 adit was carried out, but so far as I can recall, all of them ended in solid chokes and were not pursued with any energy. It was about this time that regular Yorkshire trips increased exponentially and club focus moved away from Bowden Hill.

Nevertheless, the prospect of linking every entrance (except of course the isolated mine on top of the hill) nigged away at the back of my mind and led me, in May 2010, to re-visit the contending sites to assess possibilities of completing the ‘grand traverse’. On a solo expedition, I entered Hole 3 and paced my way up to the junction with Octopus Series, where the Fossil Cross-over departs on the right. Four small side passages were noted, progressively at 210, 235, 250 and 260 paces from daylight.

Working from the innermost back toward the entrance, I ascertained that No.4 (260 paces) was a virtual oxbow, connecting with Octopus via a void parallel to the main passage. Moving down to passage No.3 (250 paces in), I found a rubble crawl extending some 19.5 metres to a limestone boulder choke. This presented a triangular crawl, quite tight but probably navigable. By pushing some rock fragments forward I could see a further six-eight metres but being on my own, with a caplamp which kept going out when knocked, thanks to a rusted connection, I didn’t force my way through. However, what was exciting was a distinct cool draught blowing out of this passage. Clearly it connected to something beyond entrance 3. Next I examined passage 2 (235 paces in). Here again heavy falls of rubble extended for some 20 metres with what looked like a choke beyond a point where sufferance of my flickering light was driving me to distraction so no definite blockage was reached. There was no discernable draught here. Finally, passage 1 (210 paces in) was found to be too heavily choked for progress a metre or so in.

After surfacing, I walked up to Hole 2, which is set further back into the hillside. Going in, I was surprised to note a passage just inside the entrance running westwards. It seemed to choke after seven metres but a fallen flake across the entrance required to be disciplined with a hammer before entry. The main passage was paced out at 200 steps to a point where a right angle turn to the left marks the cross-over to Hole 1. However, continuing straight ahead at this point there is an entic-
ing eyehole through a boulder choke which was not forced. This needs to travel a little further into the hill before lining up with my draughting passage in Hole 3 but it appeared there was more to Hole 2 than I had appreciated (or long since forgotten in the intervening 46 years!)

Buoyed up by my findings, on 19th June I persuaded three others to accompany me on a connection attempt. We went first to Hole 2, passing the eyehole at the end to discover a small chamber with a truly massive sandstone collapse completely filling the direct way on. Boulders are so big that digging is not even a possibility. Turning left however led to more passage which communicated with the cross-over to Hole 1. There is a very slight chance that other ways on along the right hand side may have existed once, but without extensive clearance nothing is going to be achieved. Back at the entrance we crawled under the flake into the short passage just inside the entrance, but found it well and truly blocked after ten metres. Along with Ivan Young, the other two, Alex Latta and Carol Dickson, then investigated a wide passage opposite which ran parallel with the slope of the hill outside. This led to a couple of hundred metres of new passage with ways on for the connoisseur. Clearly, Holes 1 and 2 contained more potential in themselves than my memory indicated, but as for a connection with the main mine - no luck.

Back at the draughting passage in Hole 3, I was disappointed to discover the cool breeze at the choke to be largely gone, and only a barely perceptible air current remained to encourage us. Alex and Carol thrutched through the triangular boulder fall and gained a further ten metres of rubbly going with the roof gradually lowering to a blockage. This was unexpected, given the air movements, but probably confirmed findings made in 1965-66 when the ‘inlets’ were first examined.

So that is where matters presently rest. I am still convinced there will be a connection between Holes 2 and 3 somewhere - my cool draught must have some source; so maybe some digging is required. I do not intend to let my ‘niggle’ continue for another forty years so - watch this space.

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THE EXPLORATION OF KREM MAN KREM

By Ross Davidson

One of the highlights of this year’s Meghalaya Expedition was the exploration of Krem Man Krem, a task which took up the entire of the two and a bit weeks that we were present at the Um Khrypong camp. The entrance, an opening in the side of the escarpment that dominates the skyline to the north of the village, had been located on a previous expedition, so caving there began in earnest from day one. A seasonal stream runs through the village and is used by the locals for laundry, among other things, with the downstream end disappearing into the cave. At this time of year (February) the water is more or less stagnant, which made for a rather unpleasant first few trips, as it involved wading up to chest deep. Apart from the odour, the passage is quite fine, around five metres wide and between one and fifteen metres in height, with some decorations, calcite flows from side passages, lots of spiders and crickets and even a (hardy) fish. Thankfully, after about a kilometre the stream reaches a section with a couple of sumps and numerous gours which gradually filter out most of the unpleasantness.

For the first four or five trips Ross Davidson was accompanied by three members of the Indian Navy. On the second trip, after a few hours of continuing the stream survey, the team decided to start surveying a side pas-
sage for some relief from the water. This inlet turned out to be reasonably complex and occupied us for several days. A new entrance was found from the inside, which meant that the more polluted initial section of the streamway could now be bypassed for most subsequent trips, a diversion for which we were unanimously grateful. The main route between the stream and the new entrance was named Millipede Passage, after its residents, clusters of which could be seen feeding on what we assume is bat guano. Near the new entrance, in the upper level of Millipede Passage, the top part of a human skull was found. Most of those who visited the find felt that it was relatively recent, probably less than a hundred years old, as it was quite close to the outside and showed no signs of decay, although there were no more scientific means with which to back up this belief. Evidence on how it got there was also woefully lacking, although Roger Galloway thought he could detect evidence of gnawing marks on one edge. No accompanying bones were found. Although the expedition kitchen was somewhat short of crockery, Brian Kharpran Daly’s suggestion for putting it to use as a soup bowl was opted against, and it was left in place.

Exploration of the upper section of the cave around Millipede Passage continued for a few more trips yielding several impressive sections of cave, including the utterly stomping ‘Scotland Street Tunnel’ and ‘Bneng Inlet’, a short but beautifully decorated side passage of Scotland Street Tunnel which would have been missed if it weren’t for Derek Pettiglio’s keen eyes. Meanwhile another entrance adjoining that at the start of Millipede Passage warranted extra manpower. Mark Tringham led a second team in through this entrance and explored a section of dry cave which led back down to the stream. In this part of the cave there were a couple of rather impressively large chambers, and the team made good progress in surveying both the dry and wet sections, heading upstream in the latter to rejoin the surveys at the start of the side passage where our team had left the water. Continuing upstream, the cave passes over a number of gour dams, which require teamwork on the way back out due to their height and the depth of water beneath, as well as through a two metre duck. In places here the streamway is quite complex, although eventually the side passages reduce in number and a sump is reached.

After a two day hiatus, the only days in the expedition that Ross didn’t spend in Krem Man Krem, he rejoined Mark to push a small tunnel to one side of the sump, which had some promise of yielding a bypass. It was clear that water flowed through this tunnel, or had in the past, from the gour dams that were spaced every few metres along it. These often appeared to be stal constrictions, until a closer inspection showed that it was possible to perform a right-angle squeeze over the top and down into the gap below, from where it was again possible to see that the tunnel continued. Equally challenging were the razor sharp crystals that lined every surface of the tunnel, resulting in it being named ‘The Shredder’. Progressing along it, the gour drops eventually increase in size, up to the point where a couple were fairly challenging free climbs, one featuring a side tunnel that emerged in a pulpit half way up the wall of the main passage. After some perseverance, The Shredder was passed, and our suspicions were confirmed when we emerged back in the streamway on the other side of the sump (‘Streamway Regained’). In the downstream direction the passage gradually increased in size and beauty, until it reached a point where it split to form three adjacent windows looking down onto a large and very well decorated gour chamber, requiring a ladder to obtain access.

From this chamber tentative progress prevented too much damage to the calcite floor, and it was possible to continue down the now slightly flowing stream, until eventually a point was reached where the passage performs an unexpected doubling back on itself. Where the passage doubles back another even larger void was
entered, also very well decorated. This was given the name Victoria Chamber. An initial poke about concluded that the passage was choked, and an end to the cave was declared. The water, however, was still disappearing among the calcited rocks and, asking myself what J-Rat would do, I promptly started attacking a small hole with a bolting hammer. Beyond the hole the sound of flowing water and the presence of a draught was clear. Realising that progress was too slow, and that the others were probably bored of taking photos and ready to head out, I gave up on the dig and started to make my way to catch up with them. At this point I noticed another hole a short distance away which was only blocked by a lump of loose stal. Removing this, a calcite slope could be descended into a pool, with an intimidating duck ahead and sumpy sounds left and right. The air coming through the duck could only be described as a gale. Beyond the duck a small boulder filled chamber yielded no obvious way on, and being on my own where others were unlikely to find me, I opted to turn around. This was Mark’s last day, and had been something of a high note to leave on.

Myself, Roger Galloway, Annie Audsley and Henry Bennet of the BEC returned to survey the upstream section from the base of The Shredder, together with a couple of side passages (‘Patriotic Chocolate Crawl’ and the ‘Late Lunch Series’, owing to the amount of time taken to get to that point). At a rather late hour we returned to the dig site. Beyond the duck a large and glaringly obvious side passage made me extremely grateful that we hadn’t made the tempting decision given the hour to head out on the assumption that the extension I’d found the previous day was finished. This side passage swung round to enter yet another well decorated chamber just above the boulder filled chamber.

Our last day’s caving in Meghalaya was with us all too soon, and this saw myself and Roger going back with another member of the Indian Navy to push the far reaches we’d entered on the previous day. Following a series of narrow perpendicular zigzag passages of varying height, we passed a number of possible leads, continuing to reach a final chamber. This had a large sump pool at its base, but backtracking, another chamber with a passage on the far side was entered, which we decided to leave as a promising lead for next year.

At the end of the expedition Krem Man Krem stood at 4.6 km, containing some stunning passages, varied and challenging cave and good prospects for continuation. The name ‘Krem Man Krem’ means something along the lines of ‘Not quite a proper cave’ - given our discoveries so far I’d beg to differ!
THE 2010 MENDIP MIGRATION

By Stu Lindsay

2010 was to see a fairly large Mendip Migration to Assynt with a number of first timers making the trip. Besides digging (“Isn’t that what it is mostly about?”), some touristy caving also took place. First to arrive were Duncan Butler and Stu Lindsay in the wee small hours of Friday 23rd April, finally getting to bed about 0500 hours.

Later that day, Duncan finally coaxed StuL through a bitterly cold wind accompanied by occasional driving squalls of snowy sleet up and along the top of the left side of the Allt nan Uamh Valley and above the Fuaran Rising. En route many small depressions were looked at and the odd one or two prodded to reveal depths of a metre or so lurking below the peat/infill. Our destination was finally arrived at: three depressions, Daddy, Mummy and Baby as Duncan would have it, lying on the north flank of the valley along a presumed drainage line from Allt nan Uamh Stream Cave. A short discussion warranting the digging of one of them ensued, the guide lines being to determine the infill, its type and layering and maybe finding solid rock by about three metres, but making progress without any, or too much, engineering. Our first effort was to about half a metre with no tools. Peat, large quartzite boulders and other odd rock types were removed. The same day a party consisting of Norman, Mark, Roger, Annie, Kate, Fraser and Julian made themselves busy in Rana and managed to ferry odd bits of hardware to Campbell’s Cave. Around 70 kibbles came up the Rana shaft—was this the last dig in Rana main shaft?

On the 24th, as others arrived at the hut, the intrepid pair set off and added another metre or so to ‘Mummy’ (NC 26524 17385), digging down through rock strewn gravely layers of grey then yellowish silt. An area about 1.3-1.5 metres down yielded a rocky layer with clean voids underneath, before continuing in a yellowish sandy gravelly mix. Having destroyed a number of rocks and a drill bit by capping (quartzite versus an SDS drill loses but not without cost) the top of the hole began to look a tad loose, so play for the day was declared over. We would return with some light shoring, our mission not yet accomplished.

Tav, along with Matt, Mandy and Derek Guy removed about 40 skips from Toll Radain, using a new lightweight dexion A-frame/tripod engineered by Tav. Tony B. obliged with the destruction of a large boulder, and an early finish was not wasted as the rest of the day was spent coming back down the valley taking GPS readings of a number of potential sites.

25th: The day of rest! This saw even more activity spread over a number of projects with most of the party in attendance. Duncan and StuL shored up the lip area of Mummy, and gained a few more feet, taking the depth to about -two metres. Whilst Stu was taking his turn a gentle tap on the back heralded a slump from the side. Stu, standing up in this near vertical coffin, had a couple more small lumps land at his feet. Duncan witnessed more lumps involuntarily leaving the sides so Stu was out of the hole in one!! To assist decision making - and the slumping (which would have filled a small bucket) having abated - Stu went back in to investigate and take a photo. The problem seemed to be at the -1.3 m level. On opposite sides of the shaft a ‘water-way’ seems to have passed through the hole. We had dissected it on the way down, this being the area that had readily given up rocks and pebbles with shallow, clean voids underneath. Our decision was - noth
ing else to prove so mission accomplished because further effort would require scaffold and other engineering and Norman was busy. The pair headed off up to see what the river was doing near ANUSC. It was sinking much higher up, leaving Stu’s riverbed cave dry so about four or five skips of winter infill were removed from just inside the entrance. There was no sign of the three large stones left across the entrance to slow the flow during the winter ... have they been washed further in? Or has someone simply removed them? Being in a hurry to get back down the valley, Stu later discovered he had unwittingly left his helmet just inside the entrance....ooops!

Paul Brock and Caroline along with StuG and Hels managed a tourist trip to ANUSC taking in as much of it as possible. Another proposed 2010 migration ‘dig’ - Estelle’s Dry Crack - alas was for the moment no longer dry; indeed water flowed out from it! This in itself is quite interesting as when it was left last year, the left fork seemed to indicate it would possibly go under the surface stream, whilst the right would go to the streamway, which is a fair bit lower. Norman and Mark did some fine tuning at Campbell’s Cave and eventually the first historic kibble was eased up to the surface. A few more adjustments and soon, to the tune of “We will lift 500 kibbles” echoing across the moor, a new cave was born!

Monday 26th saw most of the week’s diggers now at the hut and basically two teams had good projects to follow, Toll Radain and Campbell’s Cave. StuL’s river bed dig was never really going to be an option with such inclement weather; indeed the entrance was heavily flooded and access was only gained twice in the whole nine days. Another non-starter would be Estelle’s Dry Crack in ANUSC which was also flooded and now rechristened Estelle’s Wet Crack.

This day saw Tav, Derek Guy, the Voyseys and StuL remove 100 loads from Toll Radain, all but Stu doing a session underground. With rotational help from the others Stu dispatched most of the boulders littering the top of the dig to a sink hole some 15 metres down-slope. Then to keep warm (it was cold, wet and bitter), Stu did a bit of gardening, transplanting clumps of heather and flora onto the bare spoil tip while the rest toiled with a glutinous black mix of peat, mud and rock interspersed with an occasional deer bone. A highlight was three eagles circling around for an hour or so.

Over at Campbell’s Cave the good work was continuing. Today Paul and Caroline reported for duty along with Norman and Mark Brown. It was all coming together after the successful first ‘test’ kibble the day before. With Caroline stepping out well up and down the five metre ladder, Paul and Norman digging and Mark doing the tipping, 50 more kibbles reached the spoil heap. The system used is quite ingenious. By climbing the ladder and stepping off, the resulting climber’s body weight through a near 2:1 ratio hauling drum raises the kibble to where it is manually transferred to a hook on a scaffold runner (‘monorail’) whence it is gently pushed to the tip end where a wheelbarrow patiently waits. A chain is clipped to the bottom of the kibble so that when it reaches the end, a bar hits a trigger, the bucket tips - but is held up by the chain - and its contents fill the wheelbarrow. Each kibble can be c. 40 kgs or more. Larger rocks are lifted by a sling and do not use the monorail. Instead these are hauled to the platform and dragged back to the spoil area.

On the 27th Tav led a party consisting of Derek G., Matt and Mandy Voysey, StuG and Hels Warren, DuncanB and StuL on a trek to the moors beyond Traligill and Cnockers in search of Storm Cave. A horrible walk over peat bogs dodging around a myriad of sinks and shakeholes soon had us at Storm Cave. Leaving some of our gear here we then trudged off on a kilometre or so walk taking in the delights of massive depressions, treacherous peaty streams cut deep into the peat and arrived at Cuil Dubh, the feeder for Storm Cave. Pool Cave was sumped so battling more
peaty streams, accomplishing death defying leaps whilst nearly filling welly boots full of cold glutinous peat, we were soon back at Storm Cave. The entrance is in one end of a bank collapse that had revealed its secret entrance. How many more of these are there up here?!

Down through a brief boulder ruckle, then a hands and knees crawl, takes you to a short drop onto a peat mud covered slope, and what is the first thing you notice? Is your light losing its power? No, everything here is coated in BLACK peat. It reflects little light with even the most expensive lamp appearing dim! Negotiating to the bottom can be a trifle tricky until reaching a river which is visible for a short stretch before it nips round a small outcrop to a point where the brave, wet-suited or otherwise dressed for the occasion, can wade around to a murky black sump. Partway up the slope on the right hand side as you make your way out, it is possible to gain access down into the stream again. The short drop encountered on the way down needs care on the way up as it is a bit slippery, and depending on the route taken after this point it is possible to do a micro round trip. This entails a flat out crawl over small annoying rocks and joins the entrance passage some 3-4 metres up from the climb. An impressively proportioned cave in a very mucky environment but worth the trip to it, and in the timescale of Scots exploration will be a dig in about 2063.

Still not done, the intrepid party of wet and mucky individ-
uals headed off down to Cnockers, where Derek and StuL decided on a visit to the pretties and drier area whilst the rest did the trip to the worm sump via the cascade. The cave was very sporting with plenty of water down the cascade. The journey back to the cars was via Lower Traligill, Birthday, Tree and Disappointment caves (looking at, not doing) and finally past Traligill Rising where we spooked a small herd of deer. What spoilt the day? Annoying short bursts of rain and drizzle, but sadistically it was quite rewarding.

On the 28th Duncan and StuL took a spade up to the middle depression, ‘Mummy’ and filled it in. It took ten minutes to fill after over six hours labour digging it out! A couple more metres will probably reach down to solid rock and possibly cave!! Grabbing the grille we made our way up to Campbell’s Cave via the still flooded stream bed, helmet still lost. Eventually we arrived as reinforcements at Campbell’s and joined Norman, Mark, Paul and Caroline. For a first visit the tip of the tower is a welcome sight; from a couple of hundred metres away it is a point to home in on. In the future it will be easier to locate with or without the tower raised as the spoil heap rises. On site Caroline was busy on the ladder, Paul and Norman were digging and Mark was on the monorail. Duncan took over the ladder, Stu did turfing duties and barrel tipping whilst Mark stayed on the monorail. After a short break, and with six people now working for the common good, the kibbles soon mounted up. 200 was to be the target but soon became 212. Amidst the fervour of activity a private helicopter flew overhead. To quote Mark from the log “Was it press? Government? Jackie Stewart?”

A party consisting of Tav, Matt and Mandy, StuG and Hels, Derek, Tony, Vern and Rosie descended Rana to the GNTM and Legless Highway. The stream was too high for Twin Falls so whilst some did the through trip of Duelling Pianos to Edward Concretehead, Tav soloed to Tibesti Chamber. Matt and Mandy carried on last year’s mission to create a link to bypass sump 6b. Indeed progress in tight conditions added a further twelve metres! Tony B. hopefully made short work of the **********.
Pete Rose and his intrepid little band of puffin hunters, tried to thwart all that nature could throw at them, and conquer Ben Klibreck. They failed, defeated within fifty feet of the summit, a bitter pill to swallow after fighting through bloody rain, gale force winds and a tornado. It was a pestilence of Biblical proportions that finally defeated them. Still a couple of pints and a Trevor special, shot last week, probably compensated and - Hey, one for next year.

29th was Thursday, curry night at the Alt. During the day StuL watched Duncan’s bubbles navigate the near shore of the loch outside the Alt, retrieving a broken plate, cup and a couple of interesting bottles. In the time honoured way he offered them to the landlord who didn’t seem impressed and declined ownership. Tav, Matt, Mandy, StuG and Hels went off to Balnakeil and Smoo. After a lovely swim to the sea cave they were lucky to find the back chamber open so were able to view the gours. Smoo was in full spate, so the end of a grand day was spent having a ‘quiet’ drink with Colin Coventry in the Smoo Cave Hotel. Tony assisted in granulating a couple of boulders and a flake in Toll Radain under the watchful eye of a pair of eagles. Pete Rose, Trevor and Jesse went puffin spotting and visited Smoo.

On the 30th Campbell’s Cave was the main attraction, following a quiet time the day before. Norman, Mark, Paul, Caroline, Eddie and StuL were the team. A few problems were encountered early on trying to sort out the retaining wall, due to inclement weather encouraging a liberal flow of water down it. In true diggers’ fashion the effort was deemed to be as safe as possible (50/50 it stays there!) and with reinforcements having arrived digging ensued. Always looking to better the total, an easy 214 kibbles were lifted, leaving an interesting area at the bottom of the shaft - a sloping rift to the south with a small airspace at its apex, and to the west, copious amounts of large and small rocks leaving clean washed voids under foot in a silt filled chamber: just some of the delights to welcome the next foray. As Mark put it, a sterling effort from all concerned and a few pints were the just reward for all endeavours, the Inch being the favoured venue.

Meanwhile across the valley the last session of the 2010 Migration saw Tav, Matt, Mandy and Derek encourage Toll Radain down to -6m with the final push realising another 100 skips, bringing the total to 310 for 2010. The ‘A’ Frame was dismantled and its accoutrements, minus the pulley, stored in the depths, A very good Migration effort, mused Tav, especially being watched over for most of the week by local eagles, which are now probably quite used to the changing topography and weirdly dressed beings tramping around their moors!!

1st May - were there to be celebrations? Basically this was the last day of digging as various members had to depart to far flung southern areas: almost everywhere from Assynt is south. With Toll Radain now under wraps, Campbell’s Cave was again the target. Mark was joined by Ivan and Ross and together they gingerly set about restabilising the north end, which looks good but is dodgy! With Eddie, Nick Williams and Tony B. joining them it was possible to commence digging and after 20 or so kibbles had been liberated StuL and Duncan joined the fray after a quick session at the hole in the now dry river bed. Tav had liberated Stu’s helmet the day before when water still flowed in, and from now on maybe it should be called Uamh nan Clogaid a Bha Air Chall - UNCABAC (thanks Dick).

In the best weather of the week - no rain all day - 94 kibbles reached the top (What stopped the 100?). Ivan, who was following the rift down, had Stu behind him sending up the kibbles with Tony B concentrating on
the west side. A rather large boulder lay atop another, which, although not holding up the north end, had been gradually exposed by StuL filling the odd kibble whilst waiting. I guess over-excitement failed to stem thoughts of danger when a couple of loud shrieks from Tony and Stu heralded the beast’s sudden move down toward where Ivan had moments before been ensconced. It didn’t actually move far or fast, about half a metre, and a steadying hand from Stu arrested its downward progress (didn’t have much choice, it was me or the rock!)

Now as luck would have it, two x 36v drills, some 40 gram det. cord and a couple of 5 sec delay dets were to hand. The big rock, along with several others, were drilled. With a keen audience looking on came...FIRE.. 1 sec..2..3..4..5 boom (det. one)..6 boom (det. 2), not exactly five seconds but did the job. One quartzite boulder split, the rest granulated. Okay, it’s near the surface, with exposed 40g cord and lots of smoke, but the air was clear in a couple of minutes.. Is there a draught, or is it just the open air?

The headgear was dismantled and laid to rest, a few pictures taken and odd bits of debris carried back to the hut and with the lure of something potentially “special” in the offing, the 2010 Migration came to an end. 571 kibbles in three and a half days was a good effort. At around 40 kgs each that’s about 25 tonnes already and the cave is a good metre or so deeper. The weather left a bit to be desired with only one day free of rain - the last! - but made me happy after 36 consecutive days north of the border getting rained on...! Good fun, good company, good food, good progress, good tradition and, as the man said... “Keep on digging”. You bet we will!

Cast of characters: Norman, Mark, Duncan, Paul, Caroline, Pete, Trevor, Jesse, Tav, Matt, Mandy, Derek, StuG, Hels, Faye, Tim, Ivan, Tony, Jayne, Nick, Eddie, Ross, Roger, Annie, Fraser, Kate, Vern, Rosie, anyone I forgot, and StuL.

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Meet Note:                   DRAGON’S HOLE, KINNOULL HILL, PERTH

This cave was mentioned by Jim Salvona in GSG Bulletin 4th Series Vol.1 No.2 (2002), p.12, and he has at various times resolved to search the steep wooded territory below the prominent cliffs of Kinnoull to locate it. The cave received its name due to its occupancy by a dragon, a tale dating back to the Pictish era. This creature so terrorised the neighbourhood in the 6th century that the inhabitants asked a local Christian man, St Serf of Dunning, to rid them of it. The worthy saint advanced on the cave armed with but a staff and slew the dragon. For nearly a thousand years a festival of Beltain was held to honour this dragon, which had been thought to have been worshipped by druids. This practice was rudely stopped at the time of the Reformation. Among others, William Wallace is also said to have occasionally hidden in the cave.

On Sunday 21st March 2010, accompanied by Mark Stanford, Jim took advantage of died-off vegetation to traverse along some exceptionally steep slopes some 100 metres in height. They successfully located the ‘cave’ at NGR: NO 132 224 at the top of a seven metre climb. It measures six metres in depth and height and at the start is 2.5 metres wide, reducing to 2 metres high and 1.5 metres wide at the back.

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AN ITINERANT SCOTTISH CAVER’S BOOKSHELF

By Martin Mills

“I have a low opinion of books; they are but piles of stones set up to show coming travellers where other minds have been, or at best a signal smoke to call attention.”

Introduction

It is perhaps wholly appropriate that I head this account with one of my favourite quotes from John Muir (1834-1914), and I make no apologies for using it again. He, of course, was a Scotsman from Dunbar and father-figure of the U.S. National Parks. He was also for me one of the great revelations of a 3½ month caving trip round the U.S. in 1974. He was an original thinker (see National Geographic Magazine, April 1973) and he lived in an earlier era when not much was written/printed. It is altogether very different nowadays and I guess not many will agree with his view now.

As a Sassenach I first made it in my mini over Shap and north of the border on Saturday 29th February 1970 en route to the Glencoe School of Winter Climbing run by Ian Clough and Hamish MacInnes and based at the Claghaig Inn. The surroundings were stunning, particularly when doing the Aonach Eogach Ridge. The following July I spent a fortnight on St Kilda amongst some of Scotland’s most dramatic scenery. On Friday 19th November 1971, I finally made it (with Butch) through snowdrifts to Sutherland to attend the GSG 10th Anniversary Dinner, in fact the club’s third dinner. (Incidentally we had both been at the second one the previous year in the Hill Inn, Yorkshire). This confirmed to me that the further one goes north in Scotland, in my view, the more impressive the landscape and scenery becomes. Since that first visit I have been hooked on Assynt with its magnificent remote, dramatic and wild landscape: the mountains distinctive in their splendid isolation rising spectacularly from the peat-covered, lochan-strewn moors; the shape of the mountains have an almost hypnotic quality, classic landforms and geology indeed. The underground scenery, I should say, is no less sensational. I regard this as God’s own country and eagerly await my next visit.

This will perhaps sound very familiar: all original cave exploration should be written down for at least the record. From such writings their publication and books flow. I have previously written at length about col-
lecting caving books and probable addiction (see ‘Speleobookeering’ in SMCC Journal, Series 10, No.6, pp 151-161 (Autumn 1999)). The excuse given was that I need to know; the quest for knowledge. I have never been content to just go down a cave; I want to know the history of its exploration and all about it. Along the way one learns all manner of obscure interesting facts. Many years later maybe more associated facts will be found. It is rather like doing a lifetime jigsaw. For example about 15 years ago I came across an article “The Caves of Staffa” by Cope Whitehouse in the Scottish Geographical Magazine of October 1887 which after considering amongst other things the similarity of cave size, orientation etc., put forward some very unconventional views and concluded the caves had been excavated by the Phoenicians to house their galleys! (See GSG Bulletin, Third Series Vol.4 No.1, pp. 17-21 (October 1996)).

The Grampian Connection

Now we get to the GSG. As a member of over 30 years I value highly my membership. You will not be surprised that I have a complete run of Bulletins, having recently managed to acquire originals of the early volumes, from the four-page hand-typed No.1, dated May-June 1963, price 3d to date. Wow, what a transformation to the present format! What a wealth of information and all, of course, indexed which is a great benefit when researching (e.g. this article).

Apart from a glitch in the numbering of the Second Series Vol.3 and the September 1981 issue, it continues to regularly appear twice a year - without doubt a mega single-handed test of dedication. In the mid 1970s J-Rat and I would encounter each other in The Hunter’s and wax lyrical about the contents of the latest Bulletin that had dropped through our letterboxes, containing as it did, and still does, a staple diet of all things associated with Scottish caving, and in those days at the price of 10p! Humour abounds, especially in titles. I don’t need to mention the authors of “The Hut Harmonium - Or How to Care for Your Organ” and “Dicking About in the Desert, or Never Mind the Kalashnikov, What About the Pomegranate Stains” - they will know who they are. My own contributions small and large since 1972 have been some four dozen items totalling nearly three Bulletins at current size.

However our run of Newsletters and enclosures only start at No.16 in 1976 to date. In addition I have Occasional Publications from No.1 “A Bibliography of Technical Articles” (1970) and a couple of my favourites, No.2 “The Caves of Assynt” (1972) price 40p; No.3 “The Caving Songs of Mendip” (April, 1976) at which I was present at its launch on Mendip, onwards to the present; at least four volumes of Hut Logs 1977-2006, a couple of Library Catalogues, 1991 and 1998; Limestone Caves of Scotland Volumes 4 and 6 and a couple of Special Publications. Did you know all this GSG output takes up 0.5m of shelves and weighs in at slightly under 20 kg?
Other Resources

As a result of the addiction mentioned earlier I have accumulated over 160 **guidebooks, leaflets, and off prints** from all manner of publications and journals. Staffa and Sutherland/Assynt predominate, but there is a sprinkling of other sites, including six guidebooks to the Wemyss Caves. The earliest is, thanks to Tony Boycott alerting me to this, a digitised copy of ‘Description of The Spar Cave lately discovered in the Isle of Skye’ by K. Macleay, dated 1811, followed by Dr J. MacCulloch on Staffa from the Geological Society Transactions for 1814. Decades of rummaging in bookshops and attending second-hand book fairs have provided many interesting finds including originals of the Sheffield University Mountaineering Club Cave Research Bulletins No.1 [from 1950 on Sutherland caves generally] and No.2 [n.d. c. 1952] both original accounts of cave exploration. Among the other interesting items is a photo-copy of the twenty-two pages + map, hand-typed booklet [n.d.] by Albert Mitchell on Smoo Cave in the Craven Pothole Club library.

In early 1997 I obtained a collection of over 50 Scottish cave-related old **press-cuttings** (possibly ex Gerald Platten and British Caver) covering the period 1822-1960, including such exotic regular reads as the Mombasa Times and the Trinidad Guardian together with “An Early Survey of Cnoc nan Uamh” by F.M. Jones and A. Gardner dated August 1953 (see GSG Bulletin, Fourth Series Vol.4 No.2, p.14 (October 2009)). To these can be added around 30 modern press cuttings, including four relating to the proposed Staffa sale in 1978 and a series of three articles on Smoo Cave in the Caithness Courier in August 1981.

Now we get to one of my current distractions, **engravings**. It has to be observed that Fingal’s/Staffa predominates but not entirely. What if Fingal’s had been more accessible, or even more remote. What number of visitors would have beaten a path to it? Whilst Joseph Banks (later Sir) having been advised locally by a Mr Leach about Fingal’s may have ‘discovered’ the cave on 13th August 1772 and revealed it to the world it was undoubtedly known to locals and other passing boats, not to mention the Vikings. The Western Isles were under Norse (Viking) rule from about 890 until

1266. Staffa the name itself is derived from the old Norse words *stafr* meaning ‘pillar’ or ‘post’ and *ey* meaning ‘island’, hence ‘pillar isle’.

I have over 30 originals of Fingal’s, Clamshell, McKinnon’s, Smoo, Glen Croe, Whiten Head, Rob Roy’s (Loch Lomond) and even underground at Gilmerton Quarry.

J-Rat and I discussed a dream of one day producing a “Cave Illustrations of Scotland” but alas that is unfortunately not now to be. Currently I have details of engravings of 21 different Scottish caves (five being on Staffa). Also I hold a 22 page typed, but unfinished, MS “Pre 1900 Illustrations of the Caves of Staffa” jointly authored by Tony and myself. Trevor Shaw in his BSA Monograph “Cave Illustrations Before 1900, a catalogue of non-photographic illustrations of caves” published in 1967 detailed 43 for Scotland, including not less than 38 for Staffa. My ongoing quest for Staffa cave illustrations currently totals around 175 and rising (almost daily). Since the advent of lithograph illustrations the numbers appear almost legion.

Then there are the nearly 150 extracts from *The Scots Magazine* from 1950 to date used in my regular series, originally started by Pete Dowswell who went back to 1957, “Bibliography of Articles in the Scots Magazine” published in the GSG Bulletins.

Fortunately I have never got hooked like some on old postcards. I merely have a modest accumulation of over 30 modern ones, with one exception, of Smoo or Staffa, together with a couple of George Washington Wilson historical photographs. However amongst the postcards there is this curiosity (right) which only goes to illustrate where obscure interesting facts may take you...

-----oOo-----
A Saturday in June 1964 and a small party of GSG members departed from the Hill Inn layby and trekked across to Sunset Hole. There were four of us - Murray Haston, Ivor Hendrikson, Joe Holiday and myself. Burdened with lifelines and newly made rope ladders we plunged into this fine little pothole and descended to the Main Chamber (no viable extensions in those days) in average wet conditions. One of the first all-Grampian trips to the Yorkshire Dales.

A Saturday in July 2010 and a small party of GSG members departed from the Hill Inn layby and trekked across to Sunset Hole. There were six of us - Martin Mills, Carol Dickson, Bob Sommerville, Ross Davidson, Ivan Young and myself. Burdened with lifelines and newly made rope ladders we plunged into this fine little pothole and descended to the Main Chamber (none of the extensions visited today) in average wet conditions. One of the latest Grampian trips to the Yorkshire Dales.

Apart from one yellow-clad offender who shall not be revealed, the intrepid potholers on both trips looked remarkably similar, uniform navy blue boiler suits, leather boots, pulp helmets, old woollen clothes - the traditional way to go caving. “Founders’ Day” attempts to re-create, once a year, what it was like to explore caves before modern technology effectively stifled much of the free-rolling, romantic approach to speleology. Using the kind of tackle employed for the conquest of virtually all of Yorkshire’s great classics, this descent demonstrated how to reach the ‘final sump’ in perfect safety, but using possibly a little more energy and muscle power. Nothing wrong with that. Bulk might be anathema to today’s lightweight cavers but generates perhaps a slightly greater sense of achievement and teamwork. For sure there is no sacrifice of safety, merely a thinning down from today’s overkill standards.

Old habits die hard. After an interval of 46 years, at least one of us was feeling the effects of crumbling knees and consequently clumsy legs, but the freedom of movement, un-encumbered by harnesses and metalware, married to the simplicity of quickly dangling a ladder down obstacles thought to be a little silly to free climb, was highly enjoyable. Apart from a reliable form of cap lamp, our personal equipment cost virtually nothing, being sourced from domestic jumble.

It is amusing (for old salts) to observe how quickly the world has evolved. We met a group of cavers as they emerged from Sunset and the amazed look on their faces when we revealed our
plans, their disbelief at our wood and rope ladders and nylon lifelines, demonstrated just how much experience will be lost to our caving culture if it is not kept alive by trips like these. Why? Well, apart from simply having a laugh and wallowing in nostalgia (something I overdose on), I happen to think it is important that the achievements of our pioneers be remembered by fully understanding how they did what they did. The reading of classic texts: “Underground Adventure”, “Caving”, “Moors, Caves and Crags of the High Peak” and others, is less than universal and I would like to think newcomers can relate to and appreciate a lost era where mobile phones, computers, even televisions were but sci-fi dreams, but working men and women still managed to bottom the likes of Car Pot, Penyghent Pot and Juniper Gulf just as we did Sunset Hole - and thought nothing of it! Let’s hear it for living history!

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From the Archives: (August 1963) -

PERTH AREA

By George Alden

While on holiday in Perthshire I determined to further club interests by investigating all caves, potholes, mines and rabbit holes - everything in fact which ‘went’ and into which my body would fit. Tackling the job with this proper attitude of mind, I scanned an O.S. map of north Perthshire. Almost the first word I saw was ‘caves’ indicated in a wooded area north of Dunkeld. Next day found me climbing a narrow track equipped with a 50 foot rope, rubber torch and camera. Behind me plodded a protesting wife.

Half a mile along the track we found a sign post “TO THE ROCKING STONE AND QUEEN CHARLOTTE’S COVE”. We pressed on, the ground becoming steeper and steeper. At last through the trees, I caught a glimpse of a sheer rock face at least 200 feet high.

“Come on”, I shouted. “That’s where the caves will be”.

A panting wife, somewhere in the rear, followed dutifully on.

How wrong can one be? Reaching the cliff, my experienced eyes searched for any sign of caves or fissures. There was nothing.

“There must be caves somewhere”, I shouted. “The map says so”. I plunged on, a gasping wife in my wake. I was flummoxed. I was convinced my bearings were right. It was then that I heard the waterfall. Where there was a waterfall there could be caves. I scrambled down the slope, heedless of thorns and nettles. The noise of the water got louder. As I rounded a large boulder there it was - the waterfall. Right beside it was a superb cave entrance at least seven feet high.

“I’ve found a cave”, I cried.

The almost dead wife was some distance away.

I scrambled up the rough hewn steps wondering what bottomless pitches awaited me, how many wonderful knee-wrecking crawls I would encounter. I reached the entrance. My eyes gradually became accustomed to the gloom. Then I saw, affixed to the wall, a sign which read... “QUEEN CHARLOTTE’S COVE”.

Sitting on the stone table, my back to the fireplace, I eyed my ‘cave’ sourly - all 15 by 10 feet of it.

“And now”, murmured my expiring wife..."Now...can we go home?"


-----oOo-----
CAVES AND MINES OF ORKNEY

By Phil Hendy

(Editor’s note: That there are a great number of sea caves and souterrains on Orkney is well known, but visits and assessments by active cavers are rare. A very large number of references in Oldham’s ‘Caves of Scotland’ consist of geographical or archaeological comments which, while interesting, do not dwell on the sporting aspects. This small piece is reproduced from the Severn Valley Caving Club newsletter No.9 (1973) for readers’ interest. I am grateful to Tony Oldham for providing a copy of this and to Phil Hendy for providing the accompanying photograph.)

Much of what I shall write below is, of necessity, second-hand information, since my primary purpose in visiting the Islands of the Orcs (wild boars) was to make a photographic portfolio of the stone age villages and burial chambers, paying special attention to the runic inscriptions left by Viking looters. Furthermore, I was totally unprepared for the inaccessibility of the great majority of features of speleological interest (caves). However, this article may stimulate the reader to include a rope and light in his kit, should he ever stray that far north.

The Orkney archipelago comprises some 65 islands, stretching for 50 miles at their longest. They are 6½ miles north of Caithness, and 50 miles from Shetland. The islands present a gently rolling, tree-less landscape, intensively cultivated in the valleys and around the coast, and with peat-bog and heather moor on the hills. The highest hill on the mainland (the largest island) is 881 feet, although Ward Hill on Hoy reaches 1565 feet. Glaciation has caused the smoothness of contour, rounding the islands which are the remnant of a plain now sloping gently from south west to north east.

The predominant rock is Old Red Sandstone, although there is an igneous outcrop near Stromness, and there are a few occurrences of basaltic lava. There are over 200 known volcanic dykes. The sandstone is generally thinly bedded; nowhere does this show better than on the cliffs. The jointing is extremely regular, and the rock easily splits into rectangular flags, a feature which was made use of by the Stone Age builders, as indeed it is today.

The caves, of which there must be several hundreds, are all situated at the feet of the cliffs, which range from about 80 to 250 feet high on the mainland, although on Hoy they reach to over 1,000 feet, the highest in the British Isles. Most cliffs are on the west coast, where the Atlantic breakers meet their first obstacle since leaving America. Winds are generally very high here, and wave pressure has been calculated to be about ¼ ton/sq.in. in summer, and 1 ton/sq.in. in winter. The sea is rarely calm; it surges into the cracks and crevices, and spray and water can be seen squirting out of the cliffs under pressure as the waves recede. Some cliffs have caves all along their length, and these are frequently interconnected. Oblique waves may be seen, first to enter the first of a row of caves, and then the others, only to cause increasing confusion as the water going into the farther cave meets that coming out.

These caves are frequently formed on joints, and vertical chimneys reach to the cliff-top. Occasionally, a dyke of harder igneous rock will form a vertical side to the cave. One such cave, the Hole o’Rowe, is formed between two dykes.

The softness of the rock means that these cliff features are constantly being eroded by waves and by wind. A cave piercing a headland will enlarge until eventually a navigable ‘gloup’ is formed. This eventually forms an arch, and finally the bridge collapses to leave a ‘castle’ or stack, a rocky pinnacle rising from the sea to
The A-frame at work over Toll Radain, Assynt, April, 2010.
Photo: Stu Lindsay

The new Grotto in Cave of Knives, Skye, August 2010
Photo: David Morrison
Sea Cave at North Roe, Shetland Mainland. September 2009.

Photo: Chris Warwick

Derek Pettiglio in Bneng Inlet, Krem Man Krem, Meghalaya.
February 2010.

Photo: Mark Tringham
L-R: Ross Davidson, Martin Mills, Carol Dickson, Alan Jeffreys, Bob Sommerville.
Photo: Ivan Young

A Visit to the Gilmerton Cove, Edinburgh, August 2010.
L-R. Jim Salvona, Mark Stanford.
Photo: Mark Stanford

Jim Salvona looking into the White Cave of Slains, Aberdeenshire, August 2010.
Photo: Ivan Young
Members of Croatian Caving Clubs Speleološki klub Samobor and Speleological section Velebit visit Rana Hole, August 2010.
L.-R. Julian Walford (GSG), Krešimir Motočić, Hugh Penney (GSG), Tatjana Vujnović, Morena Želle, Tea Selaković, Ivana Ilijaš, Darko Henc, Andy Peggie (GSG)
Photo: Ivan Young

Chamber at the rear of Hole 2,
Bowden Hill Limestone Mine, West Lothian, June 2010.
L.-R. Alex Latta, Alan Jeffreys, Carol Dickson.
Photo: Ivan Young
cliff-top height. Perhaps the most famous of all these stacks is the Old Man of Hoy, sitting on a volcanic pedestal and rising vertically for 450 feet (for comparison, Cheddar cliffs are 441 feet in height).

Access is, of course, the big problem. I am reasonably sure that all but the most easily accessible have never been entered. The logical way of getting in is by boat, but the heaviness of the sea makes this an exercise very much controlled by the elements. Even when there are no breakers, there is a heavy swell, and the best means of entry would seem to be by swimming, with lifeline attached, from a boat hove-to away from the cliffs.

Another means of entry would be from the cliff-top. The thin beds seem to offer ample holds, although plenty of overhangs must be anticipated. The rock would also appear to be quite fragile, so that ladders or jumars might be wiser than conventional rock climbing techniques. A good lifeliner is essential, as a fall into the oggin could mean being bashed around quite a bit. As a beginners’ trip I would recommend a cleft in the rocks on the north side of Mar Wick at HY 226244, which is in a 40ft cliff, and accessible from the foot of the cliffs. A four foot wide cleft, with good traverse routes on either side, goes along a joint, and into the cliffs
and darkness.

Possibilities? Well, I would think that 50ft would be about the maximum length of any individual cave. What they are like inside, I have no idea. As sea caves, unexplored, and of difficult physical (as opposed to political) access to boot, I consider them to be challenging enough without them having great length.

Mines

Oddly enough, since the predominant rock is sandstone, there have been commercial mines in operation on the Orkneys. Lead has been mined on South Ronaldsay, Graemsay, Hoy and at Warbeth near Stromness. The entrance to this latter, at least, was a horizontal tunnel. All of these workings were closed before 1800.

Copper was extracted in the early 18th century at Wha Taing (Burray) and the filled-in shafts of trial workings may be found in Rousay. Minor deposits of copper minerals have also been found at Yesnaby.

Iron and manganese was worked in the late 1700s on Hoy. The manganese ore body was situated 200 feet from the top of a 900 foot cliff! There are no mines left in operation on Orkney, although a recent survey has shown the presence of low-grade uranium ore under the islands. The inhabitants seem to be thankful that, at least for the present, the ore is of too low a grade to make extraction a profitable exercise.

Finally, Orkney has much more to offer than caves. Ancient monuments are three to the square mile, and entry to some of the burial cairns is a minor caving achievement in itself! Loch fishing (trout and sea trout) is free, local foods, porridge, cheese, kippers, bere-bread, baps etc, are great and cheap. There are two distilleries making a very acceptable ‘drap o’ the cratur’. Bird fanciers will, however, find little of interest, as the winter nights are very long, and school girls seem to leave school and go straight to the altar.

MEET NOTE

CANA

By Carol Dickson

Following a visit to Raasay in August I returned to Skye and took part in the ongoing archaeological dig being run by Steve Birch at High Pasture Cave. I also explored the cave only as far as the duck although the conditions were quite dry. During other times off I explored a few caves in the Coille Gairellach area. The most interesting of these was the Cave of the Skulls which also has an ongoing archaeological dig.

On Canna I explored a few sites of caving interest. I found a culvert which runs through what was the township (NG 2695 0560) of A’Chill. This was built to take water from a burn to a mill, a distance of approximately 200 metres. It is shown on an estate map of 1805. There is also a narrow cave in an outcrop above the burial grounds. According to RCAMS website this was used to store long poles used for carrying coffins. Also I found a small rock shelter nearby. Two souterrains I crawled into were small and muddy, but still worth a look. They lie at NG 2444 0625.

Culvert at A’Chill, Canna. Photo: Carol Dickson
THE MINES OF AUCHENC caRN

Visits to these workings near Barlocco, Dumfries and Galloway, were recorded in GSG Bulletin, 4th Series Vol.2 No.2 p.36. In their newsletters, members of the Auchencairn History Society have recently published a series of articles about the mines which expand on a paper written by W.T. Shaw in Memoir of the Northern Cavern and Mine Research Society, Vol.2 No.4 (1974) pp. 163-174. This material is reproduced here with permission to provide further information for GSG members. Ed.


The Mines of Auchencairn.

By Dennis Burns

1. Barlocco Mine

Recently we have obtained an article written by W.T. Shaw in the Transactions of the Northern Cavern and Mine Research Society in 1974 called The Mines of Auchencairn. Mining in this area, for a variety of minerals, has been going on for centuries. Unfortunately, Shaw only refers to the three successful mines in this locality, Aucheneleck, Auchencairn and Barlocco.

He does not refer to the copper mine on Hestan which exported copper ore to England, nor the shafts along Rascarrel Bay where coal was found. Disappointingly, there were not sufficient quantities to warrant continued mining. Barytes was also sought in two mine openings on Airds Farm, and some of this was extracted.

The earliest successful mine was Aucheneleck which had rich veins of Haematite, and this was exported to England for smelting. Auchencairn Mine (along the cliff path you can still see the pit heads housing the winding gear), produced copper and barytes which was also processed commercially.

Barlocco Mine “was quite busy for many years but closed in 1862 and by then was almost worked out above adit level. During this period of working the crude barytes was carted to Auchencairn where it was washed and ground in a water-powered mill beside the Collin Burn. The ground material was dried and packed in 1cwt kegs and dispatched by sailing ship from the nearby bay.

“The vein at Barlocco runs east-west through the Wenlock rocks and dips steeply south. The barytes is of a good white colour and is mostly of the dense platey variety. It occurs in one ore shoot about 250 feet in length which dips steeply towards the east. It has been followed for some 500 feet below the outcrop and was still continuing. The thickness of the barytes varied considerably, reaching as much as nine feet of pure mineral. The vein outcrops in the field besides Airyhill cottage which stands 297 feet above sea level although only a quarter of a mile from the sea shore.

“The original workings appear to have been the large open stopes beside the old cart track to Auchencairn, some four miles away. Later the Top Level at 265 ft O.D. was driven along the course of the vein and then the Middle Level at 232 ft O.D. This is a crosscut 1290 feet to the vein which it cuts about the Eastern Fault. These workings are very old and several thousand tons of barytes have been won from them.

“In 1914 the late F.J. Rylands took up the property and formed the Barlocco Mining Co. Ltd. The Deep Level was cleared and a dressing and grinding mill set up near the level mouth. Motive power was supplied by a suction gas engine. The ground barytes was bagged and hauled the eleven miles to Dalbeattie Station by a steam tractor. Work continued steadily until 1920 when the slump in price of barytes brought the venture to an end.

“In 1946 the Barlocco Co. Ltd was formed and the mine re-opened. A dressing plant driven by a diesel engine was set on the site of the 1914 mill. At first some ore was obtained from a patch of narrower ground left by previous workers, it being too poor to mine by hand drilling.”
In the earlier explorations the crude ore would be dressed and ground alongside the mine and then loaded into large carts and towed by a steam traction engine. It would gradually climb the glen until it reached the stony track going east-west. This is believed to be part of the route the monks from Dundrennan Abbey would take to reach Eastholm Island (Hestan) to tend their crops and flocks. It would then turn right and climb the hill to the top and turn left, down through Nether Hazelfield and Drungan farms until it reached what is now the A711. It would then turn right and head for Dalbeattie Station. In the 1946 venture the "ore won from the mine was taken by tipper lorry the seven miles to the Auchencairn Mine to be dressed and after all worthwhile barytes had been won the mine was abandoned."


**The Mines of Auchencairn**

In the last newsletter there was an article on the three main mines of Auchencairn as discussed by W.T. Shaw in his article in the Transactions of the Northern Cavern and Mine Research Society. Innes MacLeod has discovered earlier articles in the Memoirs of the Geological Survey, Scotland: Special Reports on the Mineral Resources of Great Britain. The Lead, Zinc, Copper and Nickel Ores of Scotland Vols. 1 and 2 (1921 and 1922) The Auchencairn sections of these reports are included below.

**Hestan Island Mines (abandoned)**

Proprietor: Mr Houston, Dumfries.

The old mines occur near the north end of the rocky island of Hestan, which is situated about half a mile south of Almorness Point, at the mouth of Auchencairn Bay. They were being worked by an English company in 1845 and the ore raised was shipped to Swansea.

The vein trends north-east, hades east at about 80º, and is associated with a line of crush along a dyke of felsites. A few strings of calcite and malachite are to be seen. On the west side of the island two levels have been driven from points about 15 yards apart and just above sea level. The entrance to the northern one is now filled up, but the southern one is open, and the level has been driven about 70 yards. About 30 feet higher up there is another level which is about three fathoms long, and a cross-cut has been driven about one fathom on its east side. Still further up the cliff, and on the grassy slope, the sites of two old levels or shafts can be made out. A level has been driven a short distance in an east-west direction along a felsite dyke on the other side of the island.

**Rascarrel Mine (abandoned)**

The old mine is situated about 100 yards from the coast, and one-quarter of a mile south-west from Airds.

The direction of the vein could not be ascertained. From the material on the dump the infilling consists mainly of broken country-rock (reddish grits), together with a little barytes and quartz, which occasionally show malachite staining. The workings are only small, but a shaft has been sunk, and an adit-level cross-cut driven from the foot of the sea cliff towards the shaft.

**Barlocco Mine (idle)**

The mine is situated on the west side of the Barlocco Burn, and about 200 yards north of Barlocco Farm. The nearest railway station is Kirkcudbright some seven miles away to the W.N.W. Of this distance the road is good for about five miles and fairly good for the remainder.

The occurrence of veins of barytes at this locality has been long known. On the shore near Portmary there...
is a natural arch made of this material, which goes locally by the name of the Hangit Man. The mine was
opened before 1856 and the output from that time till 1862, year by year, was 72 tons, 72, 125, n/a, 150, 175
and 150 tons.

During this period the barytes was carted a distance of five miles to a dressing plant at Auchencairn. Soon
after 1862 the mine was closed and it remained abandoned until about 1914, when it was reopened and
prospected.

In 1916 it was taken over by the Barlocco Mining Company. A new dressing plant was erected, and the fin-
ished product was taken to Kirkcudbright by motor. The output for this last period of working, 1916 - 72 tons,
then 559 tons, 450 tons and in 1920, 282 tons.

The country rock consists of Silurian slate. The parallel veins about 100 yards apart, trend W. 8° N and dip
southwards at high angles. The more southerly is seen at the mouth of a level on the roadside, about 200
yards from the farm house. It is three feet wide at the surface but expands to eight feet in the working, which
is small and consists only of a short level. The bulk of the barytes is pink, but occasional patches are of clear
white material A small quantity of the pink variety was wrought and sold. The main operations have been on
the more northerly vein, which varies from one and a half feet to seven feet in thickness. The infilling cons-
sists principally of white barytes which is often spoilt by numerous fragments of country-rock, or by green
staining due to ores of copper.

Three levels have been driven along the vein. The top one is about 70 feet above the adit, and practically all
the workable ground between adit level and the surface has been removed. The adit level has been taken a
distance of 700 feet. About 600 feet in a winze has been sunk to a depth of 90 feet in barytes, and from the
bottom a level driven back under the adit level for a distance of 170 feet. At the foot of the shaft and for 40
feet along the level the barytes varied from three and a half to six and a half feet in thickness. The water from
the low level was pumped to adit by means of a pulsometer.

After mining the clean barytes was hand-picked; the mixed material containing a good deal of country-rock
was crushed and passed through two jigs which separated a further quantity of barytes. This material was
first ground by means of a pair of vertical scotch mills and then finished in horizontal mills. A bleaching vat
and drying kiln to treat three tons were also used.

**Auchencairn Mine (idle)**

The old mine is situated about a quarter of a mile S.S.W. of the farm of Airds and 120 yards from the coast.
A good road exists from a pier at Auchencairns to Airds, but from there to the mine there is only a cart track.

The mine appears to have opened about 60 years ago (in 1922), and 700 tons of barytes are said to have been
taken out of one pocket.

The country-rock consists of hard reddish grit of Calciferous Sandstone age. The vein trends E.N.E. and dips
to the north. About two feet of barytes can be seen at the surface, but the thickness increases in the mine.
About 1915 the old workings were re-examined and a few tons of good platy, pinkish-white barytes were
raised, but little else was done. A few hundred yards to the west there is an old copper mine, which is drained
by an adit extending to the sea coast. A small quantity of barytes lies on the dump at the mouth of the adit.
In all probability it was obtained from the westerly extension of the Auchencairn vein when it was cut in the
adit.

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UNFINISHED BUSINESS AT SLAINS

For fifteen years Jim Salvona had nurtured an ambition to return to a cave site we searched for in 1995, but only realised we’d found it after we’d left. The saga started in 1995 when Tony Jarratt found a 1770 illustration of an extremely imposing cavern, Dropping Cave, near the castle of Slains north of Aberdeen and asked if it still existed. (ref 1). The very next issue of the Bulletin (ref 2) reported that both Tony and Martin Mills had found further references to the same cave. One was published in 1799 with a slightly less incredible illustration - the figures in it are now three times the size, and another was an account of a visit to it in 1760 where its alternative name - the White Cave of Slains - was given.

After some research by Jim, in June 1996 we confidently drove to the ruined Slains Castle and walked north along the shore. We were disappointed. We found three caves, none of which in any way matched the description: no enormous caverns, no ten metre high stalagmite columns or walls encrusted with gleaming white flowstone. (ref 3). After our return to Edinburgh Jim eventually found a 1874 Ordnance Survey map of the area which named the cave and even had a dotted line showing its extent. If correct it was 30m long. Its location also coincided with a short cave we’d found with a large mound of rock almost filling the entrance. The obvious assumption was made that the entrance had collapsed and the debris had sealed the cave. Ever since then Jim has wanted to return and see if it might be possible to dig our way through the blockage.

Jim’s persistence eventually paid off. In August 2010 my car again whirled its way northwards round innumerable roundabouts to park once more by the old Slains Castle. This was blown up by order of James VI in 1594, the owner having severely annoyed him by rebelling. This is to distinguish it from the new Slains Castle built a few miles to the north circa 1597. This time we had reinforcements - Derek Pettiglio and Mark Stanford - and several crowbars of various sizes.

The cave is about 700m north of the castle ruins and a narrow track leads along the top of the steep slopes that run down to the sea. This plus a few fence and stream crossings soon led us to a gully leading down to sea level and the cave. The entrance is almost hidden behind the rock fall and it ends after 8m at a vertical wall. Inside there are many areas covered in thin flowstone with embryonic curtains on the sloping roof and a few short straws in the low section that lies up and to the left. With most calcite now covered in algae or moss it isn’t a white cave, but enough evidence remains that the presently inaccessible deeper and larger chambers were quite possibly well enough decorated to justify the name. However we were there to dig and not to speculate.

We started digging on both sides at the back of the cave. I’d expected to be digging sand, but instead it was a mix of sticky mud and rocks. Very quickly Derek found that on the left the end wall was undercut only a few inches down and horizontal progress was possible. We soon excavated a trench stacking the spoil behind us. After only a metre a void could be seen ahead and Derek’s 2m long crowbar could be pushed all the way...
into it.

Full of confidence we concentrated on that side hoping to find ourselves sliding down into the vast cavern promised by the 18th century accounts. It was not to be. The void turned into a low crawl several metres long, and while the roof was rising so was the floor. With more work it is likely that we would be able to crawl along it, but there was no sign that a large open chamber waited ahead. It seems that we have found a low section to the left of the main passage just as there is to the left of the present cave. The main section of passage appears to have been filled to the roof and while that perhaps rises again we didn’t have the time to excavate further.

The fate of the White Cave must be the result of the entrance collapsing 50 to 100 or more years ago. This would have formed the rock pile at the entrance. I can hypothesize that a large volume of earth followed the rock and high tides and easterly gales flushed much of it into the cave where it filled the passage to the roof. The flat floor possibly indicates that enough sea water entered the cave to liquify the contents and allow it to find its own level. If so the blockage is likely to extend for some distance and it’s not going to be a quick job to dig it out.

The present status is that we’ve tried and failed to make a quick breakthrough. If it were nearer Edinburgh we’d undoubtedly return and continue digging. The 280 mile round trip discourages us from that, so we invite any readers living in the Aberdeen area to continue digging. We only ask that you keep us informed of progress, and when you succeed to please send an account to the editor of the GSG Bulletin so the story can be told.

References:


Explanation of the plate
A The entrance
B The firft ftellactick pillar
C A congelation forming from the floor
DD The appearance of the pillar from above
E The enlarged bafe of the moft perfect of all the pillars
FF Cavities in the fides of the rock
G The congelations as they are forming on the pillar
In June I attended the Credit Crunch Caving Expedition in the Peak District. This event was similar in spirit to the Mendip Migration, with an open invitation to all to come and take part in a two week push at some of the digs in the Peak District, with the traditional helping of mirth and revelry in the evenings. A very well appointed camp was set up in a field owned by Nick Williams (GSG/TSG), with excellent food provided for a recession-busting five pounds a day. (A special mention must be given to Wendy Noble of the Eldon Pothole Club for the food, much of which she had prepared at home and delivered to the camp with no work required from the hungry cavers!)

The weather smiled on us, and while many people were making hay, we were making holes. I spent the first two day’s digging in Eldon Quarry Cave. Here Jim Alder (EPC) and others have been digging a low tunnel which heads into the corner of the quarry, running parallel to its back wall which shows clear water erosion. At the start of my stay the tunnel was about 25 metres long, 0.7m high and 1m wide, with a few small fissures in the roof bringing in just enough of a drip of water to liquefy the top layer of the mud floor. Spoil is removed by a trolley running on angle rails with a rope on either end, providing a fast and efficient service which should put UK passenger rail services to shame - in fact the trolley did take passengers, and riding it in and out saved a great deal of wallowing in the gloop! Over the two days we dug about five metres of passage, with about 190 kibbles removed. The prospects for this cave are looking superb, with a strong draught and some voids visible at roof level - good luck to all involved.

My last evening was spent at a fair in the village of Litton, where one or two pints of very fine ale were consumed, topped off with a stomach churning fairground ride, leaving me foaming at the ears. Any delicacy felt the next day was soon washed off by a visit to an area of Peak Cavern being pushed by Henry Rockliff (SUSS) and others. Access to the system was gained through the Speedwell show cave/mine - a boat ride down a blasted lead mine tunnel which eventually meets the natural cave. The presence of three groggy looking cavers carrying various bits of pipe, drills and SRT gear seemed to add greatly to the tourists’ experience. Once away from the show cave, a few sections of wading and clambering over boulders brought us to the bottom of JH overengine mine, where we paused to examine the vertical boulder choke which has been recently on the move (see Descent 214). Further into the cave we reached the fixed ropes which lead up about 60m to the area where we were working. Here, Henry is bolt climbing an aven on the other side of a 5m long sump, access through which is gained by siphoning out all the water and sending it down the pitches we’d just climbed up. Even with a 65mm diameter pipe flowing at a substantial pressure, this takes a surprisingly long time - anyone unlucky enough to be passing through the system below when the siphon starts up must get a bit of a fright. With the sump drained we were able to pass through for a quick look, while Henry got to work putting a couple of extra bolts in place, preparing the way for banging an obstruction to a horizontal passage leading off from the top of the aven. With this done it was back out via the boat ride, and on my way back to Scotland.

This was a thoroughly enjoyable few days that I only wish could have been longer. Word is that they are organising it again next year, in which case I would strongly advise anyone with an interest in digging to get
themselves down there for whatever time they can manage. Once again caving has triumphed, laughing in the face of a global financial crisis and managing to have a damn good time regardless. Many thanks to all involved.

-----oOo-----

DIVING IN APPIN

Members may have seen an item on the BBC Adventure Show recently which depicted attempts on sumps in Uamh nan Claig-ionn and Uamh an Tobhair Dhuibh (its resurgence). These were the work of a non-aligned cave diver, Andy Torbet, who had previously contacted the Group for information and, following the broadcast, sent this short report, reproduced here for information:

"Gentlemen,

After a rather unsuccessful trip in February I went back in June to try and push on through Uamh nan Claig-ionn. I got as far as the second sump but could not get much further than a metre or two. The sump was much more of a squeeze than I’d anticipated and I had to spend quite a bit of time digging out the low crawl before it too. I think the sediment levels may have risen, making any way on from sump 2 an impossibility at least for the foreseeable future. I’ll probably pop back in a couple of years to see if there has been any change since a reduction may allow someone to get further on.

Likewise at Black Well I don’t think I got any further than previous attempts and faced the same problems so I can’t add much to the current knowledge base. I intend to go back next year as I investigated, but didn’t get a chance to dive, Long Drop and I think the further sump has potential.

Finally an apology. Myself and a friend filmed these dives and I gave the footage to a friend at the Adventure Show who cut it into a six minute short. I’ve just seen the edited version on i-player and the narrator says the underwater passages have never been explored. This is not what I said. I’m writing an article for Dive Magazine and will clarify there that all the passages I dived had been previously explored by the GSG and name the people involved. This wasn’t the only error in their version but it’s the one most likely to piss people off!

Thank you very much for your help and if anything comes of any future trips I make, I’ll pass on any information (assuming, unlike this one, I have something new.)

-----oOo-----

Note: The prospects at Long Drop are good. It presumably drains to Roaring Waters and is a significant distance away from same. Whether there is any airspace cave in between is moot, but well worth examining.

-Ed.

-----oOo-----
After a couple of late evening sherries (medicinal) last September, the other half (Chris Warwick) got it in his head that a canoeing trip to Shetland would be a good ruse. The ‘medicine’ was shared and soon, I decided that this was probably the best idea he’d had. Ever. So, a few phone calls later, the ferry was booked for ourselves and a (very) random bunch of takers.

Never being ones to miss an ‘opporchancity’, we packed the car to the gunwales with all toys aquatic, including double and single sea kayaks and a double Sevylor - our trusty five metre long, triple-laminate skinned, inflatable canoe. As it turned out these are the very thing for bouncing into sea caves. Which should have been my clue. This wasn’t actually a canoe trip as such, but a sea caving trip. The kind of “here there could be dragons” kind of places trip. No one told me that. I’m claustrophobic and scared of the dark. And possibly dragons.

Our white-washed cottage, home for the next two weeks, was situated at West Burra, one of a string of three long islands lying off the west side of the mainland. Perhaps a little out of the way for travelling every day, but with an enticing white sand voe (a small bay) for crimson summer sunsets to sink into practically on our doorstep, we couldn’t complain.

One of our first outings was in relatively ‘bouncy’ but easily do-able sea conditions at North Roe. The bar was set high at the outset as Shetland’s rugged and alluring coastline fairly bulges with caves secreted amongst dozens of stunning stacks and arches. Pounded by the sea for millennia, the stacks stand like sentinels. Beneath the pallid blue of the sky, the rich clay colour of the red granite rock makes for a stunning contrast.

Twenty minutes in, our companions in fibreglass and plastic sea kayaks backed off quicker than an interrupted and cantankerous sleeping seal and ditched the trip in favour of keeping their canoes - and themselves - whole.

Our travels also took us to St. Ninian’s Isle. Not really an island, it’s joined to the mainland by a perfect, white sand tombolo beach. The swell was working gently on either side of the tombolo, allowing us to portage our canoe across easily to circumnavigate. There are a significant amount of stacks and caves to explore here and several passages exist - finding them is the trick.

Noss, a Natural Nature Reserve, is an uninhabited island lying off Bressay. This gannetry sports almost 8,500 gannets - well worth visiting if you can tear yourself away from Cradle Holm, an impressive stack, once joined to the mainland by a rope bridge, but now adrift after landslides.

We paddled around Vementry, with its First World War guns prominent on the skyline to distract us from the cave-fest, and Muckle Roe (nine hours at sea - discounting the two lunch stops on pebble beaches to drink in the surroundings and the beer), with its glorious natural arches, savage-looking stacks and caves with side passages leading into smaller sub-passages - chambers rarely visited. We paddled from Redarey to Westerwick, from Westerwick to Walls. Each trip offered caves of all shapes and sizes, with and without seals, one with a lazy otter, basking on a sun-drenched rock, and each with its own treasures above and below the waterline.
I couldn’t help noticing that the water in caves is usually remarkably clear and we were regularly afforded the most dramatic and striking view of more sea urchins than we had ever encountered, star fish hanging like peeled banana skins, clinging onto the rock with often just one arm and the most prolific and sizeable ‘dead man’s fingers’ (anemonies) spreading over the rock. The crystal clear water served to amplify the profusion of purple, green and yellow ochres. A hefty mackerel shoal boiled near the surface of one cave. We paddled around it, taking beautifully defined underwater camera shots.

The caves came in copious amounts and varied in size. Sometimes they contained flowstone formations (which made himself “Ooh” and “Aah”). Occasional stalactites stained with iron ore, clung to ceilings. As the swell rose and fell, richly coloured purple rocks often broke surface (possibly covered in an algae or bacteria to give them their magenta hue?) Each cave was investigated until constriction won - or I lost my bottle. The two usually occurred in quick succession!

A ‘Must do’ while visiting Shetland is the island of Mousa, lying off the east side of the south mainland. It boasts a 13m high Iron Age tower - a broch - which claims to be the best preserved in Britain. The swell allowed us to circumnavigate the island - only 13 km - and dip in and out of small caves en route. On our return, we watched a camera-shy Minke whale breach the surface, its glossy black back catching the late summer sun.

The many through routes we encountered were captivating, the velvet blackness of the passages being barely broken by the futile 150 lumens of our head torches, slowly overtaken by slits of daylight up ahead. Often boat-scrappingly narrow, the reward was suddenly being plunged into the welcome warmth and light of the sun. We would find ourselves gliding over aquamarine, clear water, often with vertical rock towering over us.

And so the trip continued, every day - an over abundance of caves, often entered by a duck into inconspicuous, gloomy little black holes that initially held not much hope but would reveal a cave with a massively spacious interior. Sometimes we had an easy paddle into vast entrances leading to colossal caverns with vaulted ceilings, our voices echoing into the gloom.

Shetland afforded some of the most stunning coastline we had ever encountered - and more sea caves than we had ever entered. In all, we visited over three hundred sea caves - less than five of them accessible by dry land. Our tour took us over 215 kms at sea and entailed a drive of almost 900 miles on land. But it was worth it. In the end, we saw one more camera-shy Minke whale, so - remarkably - more whales than otters. Not sure if we saw any dragons though...
MORE INTERNET CAVING  
By Alex Latta

[Note: These internet links will be made available on the GSG Facebook ‘info’ page at the same time as the publication of this latest GSG Bulletin- http://www.facebook.com/group.php?gid=1033845596679&ref=ts#/group.php?gid=1033845596679&v=info&ref=ts - A.L.]

Some Links from Italy:

A find in Italy may be the original Romulus and Remus Cave

Caving trip into Buco del Castello
http://www.metacafe.com/watch/yt-LXjQ18YhNA/buco_del_castello/

Grotte di Frasassi (Italy) Short show cave clip (slideshow)
http://www.youtube.com/watch?v=rs9uYUCLZX50&feature=related

Caving trip into the same cave system, lots of impressive formations (slideshow)
http://www.youtube.com/watch?v=x0TheTT7uE0&feature=related

Nice footage, loads of tight muddy squeezes, acetylene lamps...
http://www.youtube.com/watch?v=8FfUH7JIyic

Slideshow of Italian cave features showing the installation of siphons
http://www.youtube.com/watch?v=XUXa16fxyXc&feature=related

Speleo per tutti - part 1. Slideshow, good formations, various caves and underground features
http://www.youtube.com/watch?v=SX7qdmXbc&feature=related

Speleo per tutti - part 2 Slideshow, various caves, good formations, gour pools and river terminal
http://www.youtube.com/watch?v=POzmNIPAuw8&feature=related

Abandoned mine exploration slideshow
http://www.metacafe.com/watch/yt-Z2h5SSReKQw/speleologia_urbana_la_miniera_abbandonata_urban_exploration_abandoned_mine/

Italian mine exploration video series 1km into the tunnels... animal footprints on part 2
http://www.youtube.com/watch?v=Md9Q17h1FKg&feature=related

Miscellaneous discoveries

A host of interesting internet links to look at:  http://www.cavediggers.com/


Cave formations in Cuba
Yarrito: The Crystal Garden Parts 1 and 2:  http://www.metacafe.com/watch/yt-4ggP1DkHp6w/yarrito_the_cristals_garden_part_1/
http://www.metacafe.com/watch/yt-gSMuYd7A-IA/yarrito_the_cristals_garden_part_2/
NEW FINDS, EXTENSIONS AND SURVEYS FROM SKYE AND LOCHALSH
By David Morrison

Beinn na Caillich

Flood Cave
This small cave is found uphill from Shelter Cave. It gives four metres of flat crawl to a narrowing that needs chipped. The low passage continues for at least three metres then can’t be seen. The cave was dry when found on 13.3.2010 but seems to have been flooded ever since. Grid ref: NG 621 241.

Scapula Cave

This has been pushed for five or six metres and is still going. The continuing passage is low with a cobble floor. Ref. GSG Bulletin 4th Series Vol.2 No.3 (March 2005) p.38.

Boundary Sink Cave
At the end of this cave a hole in the floor shows a chamber which could possibly be entered if some capping were done. Ref. GSG Bulletin 4th Series, Vol. 2 No.3 (March 2005) p. 35.

Upper Condyle Cave
Has been extended by pushing the small passage at the former end and is a flat-out crawl for five-six metres, then slowly rises after a dogleg. After 1.4 metres a small chamber is entered with a hole to the surface and continuing tight passage that may be worth digging. Ref. GSG Bulletin, 4th Series Vol.3 No.1 (October 2006) p. 40.

Coille Gaireallach

Cave of the Seed
All digging gear has been removed from the new passage which is now ten metres long but very full of silt. Fresh diggers welcome. Ref. Caves of Skye (C.o.S.) p.35.

Ivy Hole
Toby Speight has dug into the chamber near the sump but found that it goes nowhere. He has also had several southern cavers on the through trip. Ref. C.o.S. p.32.

Razor Rift
The lower section of this cave has also had several through trips. Ref. GSG Bulletin, 4th Series Vol.4 No.3 (March 2010) p.37.

Dry Cave
This has been extended by 12+ metres by a crawl through some loose blocks (these may now be stable after an incident with a boulder). A three metre drop down a pot gives access to a narrow rift heading west for ten
metres. East is choked by boulders from spoil when digging into the pot but could be cleared. Ref. GSG Bulletin 4th Series Vol.2 No.5 (March 2006) pp.18 and 23.

Cave of the Woods (Upper Cave)
This has been pushed for several metres to a boulder blocking progress. Ref. C.o.S. p.35.

Lochalsh

Ruarach Cave
This cave shows signs of more passage. Two local teenagers found a shaft just inside the entrance chamber that swallowed a glow stick. About half way down the crag, below the cave, a small hole was entered and leads to a vertical shaft which may be the same as the glow stick shaft although no sign of it was found. The cave was not pushed due to a lack of gear. Ref. Caves of Applecross and Kishorn, p.46.

LIMESTONE WORKINGS IN THE STRAITON AREA

[Note: This article was obtained by Alex Latta from a local Loanhead library several years ago. It came in the form of an un-attributable set of photo-copies. No author or source has been identified. Ed.]

Old records make mention of the great limestone quarries at Burdiehouse and today the old limestone kilns which stand silent and abandoned, bear witness to a once thriving industry supplying the needs of agriculture, iron and steel foundries, stone masons and builders.

Initially lime was used as an ingredient of mortar and also used in large quantities to whitewash farm buildings and outhouses. In iron works it was used as a flux in the smelting process. Nowadays however dolomite is favoured for agricultural use and the raw material is transported from Durham.

In 1884 the Midlothian Oil Shale Company began to mine limestone from their shale mine at Straiton where it was raised to the surface in No.3 shaft which was 50 fathoms deep. This was the start of 77 years of limestone mining at Straiton Pit. Burdiehouse limestone kilns appear to have been in operation around 1892. A map of the area at that time shows a railway line which runs parallel to Lang Loan road on its north side and terminating at Mortonhall Pit near the lime kilns.

In 1921 the Shotts Iron Company purchased Clippens Limeworks at Straiton for £50,000. The limestone workings extended on either side of the shaft in the direction of Pentland and Straiton and an air shaft was situated on the west side of the Edinburgh Road, behind Mid Straiton Cottages.

Matthew MacDonald from Penicuik stayed in Straiton Cottages during the 1930s and he recalls that the air shaft was approximately 35 fathoms deep and was fitted with iron ladders. It descended through old workings and through constant usage had worn into the shape of steps and an incline led down
into the main winding shaft. It was not unusual at that time for the miners to come up the pit during their shift by means of several exits or openings from the workings below which led up to the old sand pits on the surface. ‘Matt’ recalls during such unofficial tea breaks, telling his wife that he was “away back down to fill a couple of hutches”.

Straiton Pit worked the limestone by a method known as stoop n’room or pillar and stall. The roadways were 21 feet wide and 28 to 30 feet in height and driven in the limestone leaving a square pillar of limestone 21 feet square to support the roof which was of hard flint rock. The limestone was worked in several layers, the top band was three feet thick and was termed ‘Coven’. Immediately below this was a five feet layer of blue flake or limestone and below this again was a six foot layer of grey limestone while near the pavement or floor was a further bed of limestone.

Work was carried out in the form of steps. The Coven was worked first and the floor was drilled and blasted. The loose limestone was hand loaded by means of ‘graips’ or forks into hutches of 10 hundred-weight capacity, while the small pieces were left to form a covering for the floor. The largest pieces of limestone, which were too big to lift into the hutches, had to be broken up and this required a special skill. The ‘luggers’ or miners who carried out this task used a ‘mell’ or 16 lb hammer which had a square shaped face, whose edges had been forged by the pit blacksmith at an angle of 90 degrees. The lugger looked for a corner or a lug of the stone which had broken off and by using the sharp edges of his mell, split the stone along its grain. The miners used carbide lamps to illuminate the workings. The explosives were of the gelignite and aluminite variety which were ignited by a strum gunpowder fuse attached to a detonator.

Initially the hutches of limestone were pushed to the bottom by ‘drawers’ and when the Burghlee Pit had haulages installed, pit ponies were transferred to the limestone pit and the hutches, which were coupled together in ‘rakes’ of eight or nine, were pulled by ponies to the shaft bottom. As the workings developed, haulages were installed, the rakes of hutches were increased to 30 and hauled to the pit bottom. Two ‘dooks’ or inclines were later opened up in the Pentland side of the workings at a distance of 400 yards and 1000 yards and about 70 men were employed at the pit on a two shift basis.

The limestone which was reckoned to be of the best quality was burned at the pit head in four kilns and after loaded into wagons and shunted by the pug engine over the level crossing on the Loanhead to Straiton road and down to the railway sidings, which were known as Straiton Sidings, behind the works of the Eldin Company for transportation to its ultimate destination.

The manager of Straiton Limestone Mine and Ramsay Pit was a Mr Young, affectionately known as ‘Mabel’ and it was not uncommon at that time for the miners to change pits on a regular basis. The output of limestone at that time was about 25 hutches per day by every two men who worked the piece work system.

Latterly the limestone was mostly worked in the Pentland or Clippens area and on the east side of the Edinburgh road a drift mine was formerly situated, but this no doubt has been long since filled over. When the mines were nationalised in 1947, Straiton Limestone Pit was sold to Bairds and Scottish Steels. Today there is still evidence of old sand quarries which became abandoned as they subsided into the old workings. This was caused by the roof of the underlying shale giving way and the sandstone rock above collapsing.

Throughout the operation of the lime works, no record can be found of any of the workmen contracting silicosis or similar ailments. A theory has been put forward that this was due to the fact that the working places were of such a large area and there was a good supply of air.

One note of interest is that in the 1890s, beds of mushrooms were planted by enterprising workmen in some of the old roads in the pit and were described as ‘looking at rows of graves’. The wives of the miners utilised the mushroom crop to make such favourites as mushroom ketchup. In 1961 when the limestone pit at Straiton closed, another chapter in the annals of mining finally came to an end.
As we had attended the 2008 XIIIth International Symposium on Vulcanospeleology, Jeju Island, South Korea and had such a great time (see GSG Bulletin, 4th Series Vol.4 No.1 (2009) pp 24,29-34), we decided we would attend the XIV Symposium, this time in Australia. The dates were 7th-11th August for the field trips which were held in Western Victoria and 12th-17th August for the actual symposium, held at Undara, Northern Queensland. We decided to add a week on at the beginning and visit Tasmania and a few days at the end, staying in Northern Queensland.

Cave visited

**Tasmania:**
Mole Creek Caves: King Solomon’s Cave, Marakoopa Cave.
Gunns Plains Cave - these three are all show caves.
Tasman Peninsula: Tasman Arch, Remarkable Cave - both sea caves/rock arches.
Hastings National Park - Newdeagate Cave, *aka* Hastings Cave - show cave.

We flew back to Melbourne and from there were collected and taken out to the town of Hamilton which was our base for the symposium field trips.

**Western Victoria:**
On the way to Hamilton, Mount Hamilton Lava Cave.
In Mount Eccles National Park - Carmichael Cave (several sections), Pudding Cave, H53 (all entrances have numbers but not all have names), North Pole Cave, Natural Arch and Tunnel Cave.
Byaduk Caves - Theatre Cave, The Turk, Flower Pot, Fern Cave (just looked into the entrance), Bridge Cave, Church Cave through to Church Arch, Harman 2, looked at the entrance - and Harman! All of these caves are part of the same tube system.
Skipton Cave *aka* Mt Widderin cave, famous for its mineralogy.
Back to Melbourne and then on to Cairns and out to Undara.

**Northern Queensland**
On the way out to Undara we visited various volcanic features, including Lake Barrine and the crater at Mount Hypipeamee.
Caves in the Undara flows visited:
Arch Complex - Arch Cave, Stephenson’s Cave and Wewamin Cave - all part of the same system.
Wind Tunnel Complex - Misplaced Arch Cave, Mikoshi Cave and Wind Tunnel.
Pinwill Cave - visited in place of Bayliss as CO₂ levels were too high there.
Barker’s Cave.
Road Cave - this cave is wheelchair friendly and has a ramp down to the entrance and then a stair lift to take people down to the level walkway up the passage.

This was the last trip of the Symposium and the following morning we were transported back to Cairns.
We decided to stay a few days longer to do a bit of sightseeing, including the Great Barrier Reef and then we went out to the limestone tower karst area of Chillagoe.
Caves visited at Chillagoe:
Royal Arch Cave - show cave.
The Archways - a self-guided complex of rock arches, passages, large chambers and roofless chambers. On the way back we also visited a rock shelter with Aboriginal art in the entrance.
Donna Cave - show cave.
Pompeii Cave - short self guided trip.
Bauhinia Cave - even shorter self-guided trip.
Trezkinn Cave - show cave.
Having made the odd short caving film for Youtube, Ritchie and I decided it was time to make another and Cave of Knives was chosen as we thought people would like the sporty sections. The filming began very professionally with the camera setup on the opposite side of the burn on a tripod. This allowed me to turn it on and run down to my mark from where I pretended to be going into the cave entrance with Ritchie following.

This professionalism slowly deteriorated the further through the cave we crawled and by the time we climbed out of the top entrance for the second time (ran out of filming time on the first take), we were fed up with cameras and fed up with filming.

Back at Ritchie’s house the film was transferred to his computer. All went well until he began editing the shots. Things either wouldn’t work, froze or crashed the computer totally. Definitely time to stop making films.

A day or two later I was back in the cave by myself to look at a small opening that seemed to show continuing passage which I had spotted when we began to make our film. Armed with a hammer and chisel I started widening the opening. A few bits of moonmilk were sacrificed to enlarge the slot and eventually, having removed my helmet and belt and clutching a hand torch I squeezed through to enter a crouching size chamber with a clear pool in the floor and a section of roof heavily decorated with straws and helictites. The pool and some lower passage continued to a right turn where it looked like the way on was a low crawl for about 7-8 metres to a possible left turn. Bits of the crawl looked tight and being alone on the far side of a squeeze I decided to retreat and come back with support.

Five days later Ritchie and I were back and leaving Ritchie on the daylight side of the squeeze I went for a look at the continuing passage. The size of the passage was a shock. It was a lot lower than it seemed as the still water lying on the floor reflected the surrounding passage making it appear higher. Removing my helmet I forced my way to the left turn. Lying in the cold water I could just wriggle far enough to see the passage continuing in a tight rift heading uphill. I then came back and told Ritchie to go for a look but not before handing him the tape and compass so he could measure what had been found so far. This was named the DNA Crawl (because of the bits of hair and flesh left behind) and finding thankfully it measured five metres and not the assumed 7-8 metres we then took some photos before calling it a day.

A week later we were back and this time I was more confident as I pushed round the wet corner (duck) and then through a squeeze which leads to a more rifty passage. This was well decorated on the left side and after a couple of steps up the passage turned right and got very tight. On the way in we started digging the floor in the chamber below the upper entrance. This connects with the inlet series and a through trip seemed possible but a large jammed stone had stopped us. I was all dug out and as Ritchie didn’t fancy the squeeze we went home.
The next day we were back again and Ritchie had no trouble passing the corner (duck) and the squeeze. I followed on until we stopped at the tight sideways passage and Ritchie started hammering. During one of his breaks I heard a noise from far behind us; there were other people in the cave. I met Rob Burrell and Craig Huggle coming down from the top entrance. We had told Rob about the new passage and he had said that he might come for a look so here he was. I popped back into the first chamber and Rob squeezed in after me. He then went on up the crawl to the corner (duck) but Craig couldn’t fit through the squeeze so he went to look at the dig Ritchie and I had started the day before. I then went to see how Rob was getting on and was greeted with mutterings of something about masochists. He then told me he was coming back. He also said Ritchie wanted me to go to the front, so after changing places, which involved clinging to the roof as Ritchie passed under me, I took off my helmet and pushed through the widened slot. I landed in a small chamber with a round two foot pool in it and a hole into a bigger looking chamber. After some lumps were knocked off with the hammer I was in.

It was much bigger than I expected and I paced it out at ten metres and guessed about two and a half wide and the same, if not more, in height. I shouted through to Ritchie, trying not to sound too chuffed. Just above where I came in was a beautiful grotto decorated with straws, flowstone and helictites. At the end of the chamber the cave continued to another standing size chamber about two and a half metres wide and a hole in its wall showed a third chamber. I went back to see how Ritchie was doing...he was still on the wrong side of the squeeze and I took great delight telling him what was just a couple of metres away from him. Eventually I managed to widen the sideways squeeze enough for him to join me and we headed off to my limit. Here Ritchie pushed through to the third chamber which was about five metres long and at the far end I wriggled round an S-bend and thought I had come to the end of the cave but looking up there was a hole so up I went into a low, wide(ish) chamber formed in breakdown. On the way back down I noticed a slot that was very tight but showed more wide, low passage beyond that would require more hammer and chisel work but that would be left for now as we wanted to return and survey all new passages.

On our way out we met up with Craig who told us they had made a connection with the inlet series from the upper entrance dig but had not managed a through trip yet. Surfacing, we said out goodbyes and left him to go back underground to find Rob.

Two weeks passed before we got back to fully survey the extension. This proved to be very awkward for the first 15 metres or so, but after reaching the present end of the cave we packed up the survey gear and started back out. Looking about I saw a hole that looked like it could be made bigger. Sure enough, after removing some boulders, three metres of loose crawling passage was found with another three metres more but it is too tight and unstable looking to push. Happy with our results, we went home and I drew up the survey. The new passage seems to be heading for Waterslide Cave. This seems likely as there is a strong draught in the S-bend from the slot at the end of the chamber. Also an ancient D type battery was found on the floor and whilst telling Rob Burrell about this he said he remembered seeing D type batteries at the end of Waterslide Cave a few years back.

So, all we have to do is make the connection!

-----oOo-----
In the last Bulletin I reported on the carbon dating results for five bone samples from Uamh an Claonaite Seven. They were analysed by SUERC (Scottish Universities Environmental Research Unit, East Kilbride) for us with funding by Scottish Natural Heritage. Each date determination supplied more than just an age calculated from the amount of $^{14}$C in the sample. Also measured and supplied was the amount of $^{13}$C relative to a standard of which more later. This result, though primarily used for calibration, can give useful information about the owner of the bone. I'll first explain why knowledge of the $^{13}$C content is crucial to radiocarbon dating and then what other information can be inferred from it.

The two naturally occurring stable isotopes of carbon have atomic weights 12 and 13 - $^{12}$C and $^{13}$C. The ratio of these isotopes in the atmosphere is uniform with about 1.1% of carbon atoms being the heavier $^{13}$C isotope. Various biological and other processes cause what is called isotopic fractionation. That is a preferential selection of either the heavier or the lighter isotope. For example, photosynthesis selects the lighter carbon isotope reducing the fractional amount of the heavier $^{13}$C in plant tissue by 1.8% compared to its ratio in the atmosphere. Other processes can increase it. An example is that the inorganic content in sea water has a $^{13}$C concentration raised by 0.7% compared to the atmosphere (ref 1).

The carbon thirteen concentration is important when dating because whenever its concentration is changed by a process, there is approximately double that change in the heavier $^{14}$C content because of that same process. From the $^{13}$C measurement a correction is made to the amount of $^{14}$C still in the sample to compensate for any isotopic fractionation. It is only because $^{13}$C exists as a stable carbon isotope that carbon dating has reached the present state of accuracy. If $^{13}$C didn't exist the error bands for carbon dating would widen by perhaps 200 years. The $^{13}$C content reported by laboratories is with reference to a standard and its deviation from the standard is reported in parts per thousand (ppt) or per mille or ‰:

$$\delta^{13}C = \left( \frac{\left( \frac{^{13}C}{^{12}C} \right)_{\text{sample}}}{\left( \frac{^{13}C}{^{12}C} \right)_{\text{standard}}} - 1 \right) \times 1000 \frac{\text{‰}}{}$$

The standard first used was a Cretaceous belemnite formation at Peedee in South Carolina, USA. This material had an unusually high $^{13}$C/$^{12}$C ratio, higher than almost all other natural carbon-based substances. This was assigned a delta $^{13}$C value of zero, so nearly all samples should give a negative delta value. The original fossil sample no longer exists, so a Vienna laboratory produced a reference sample calibrated to that original fossil. This has given us the Vienna PeeDee Belemnite or VPDB standard.

Samples being carbon dated are adjusted or normalised by the radiocarbon laboratory to -25‰ with respect to VPDB. This value was chosen because early carbon dates were calibrated to wood from bristlecone pines, bog oak et cetera which have a delta $^{13}$C value of -25‰ wrt VPDB. (for the rest of this article I'll drop the 'delta $^{13}$C ' and 'wrt VPDB', but you can assume they are still there) All subsequent measurements now normalise to that value of -25‰.

The $^{13}$C measurement of collagen from a bone has value for another reason. We can gain some insight into what the owner of that bone ate or where it lived when it was alive. As already mentioned vegetation has a lower $^{13}$C content than the atmosphere. When plants are eaten by herbivores there is a further degree of selection that slightly increases the $^{13}$C content, and when they in turn become food for carnivores there is a third selection again slightly increasing the $^{13}$C content. If that is all there was it wouldn't give much information, but remember that 0.7% uplift in oceanic $^{13}$C mentioned earlier. That makes marine vegetation 7‰ higher in $^{13}$C than terrestrial and the same change is carried on through the food chain, so a marine diet can be easily distinguished from a terrestrial diet - most of the time. There is a complication. Some terrestrial plants have evolved a more efficient method of using carbon dioxide.
Most vegetation uses what is called normal or "C3" photosynthesis because of a molecule with three carbon atoms that plays a crucial role. This evolved when the atmospheric had a much higher carbon dioxide and a low oxygen content, and plants using this for photosynthesis are referred to as C3 plants. They include trees, shrubs, flowering plants and temperate zone grasses (ref 2). Rice and wheat are C3 plants. Comparatively recently some plants have added another stage before this C3 process that effectively concentrates the carbon dioxide for the old process. This new stage involves a molecule with four carbon atoms so plants using it are referred to as C4 plants. Examples are tropical grasses, maize, cane sugar, and some types of millet, sorghums, amaranths and chenopods (ref 2). C4 plants tolerate higher temperatures much better than C3 plants so they now dominate tropical grasslands. Fortunately for our bear story there are no C4 plants in colder climates.

Starting with atmospheric carbon dioxide, the carbon in it is about -9‰ (All figures quoted are average values). Carbon in vegetation of the C3 variety is about 1.8% different at -27‰ and is converted by herbivores to flesh at about -26‰. Another +1‰ change happens when a carnivore feasts on its prey, and if they in turn were eaten there’d be another change of the same magnitude. This is for the flesh of the animal. What is extracted from bone for dating purposes is collagen and this is about +6‰ compared to flesh. For the oceans the carbon content is about -2‰ so marine plants are about -20‰. There are similar changes along the food chain as in the terrestrial case except the marine food chain can be longer and provide more stages of isotopic fractionation. Table 1 lists the average values of delta 13C for a variety of diets and what would be expected from measurements on bone collagen for the consumer of that diet.

<table>
<thead>
<tr>
<th>Diet</th>
<th>Average d13C relative to VPDB ‰</th>
<th>Expected Consumer Ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>C3 plants only</td>
<td>-26.5</td>
<td>-21.5</td>
</tr>
<tr>
<td>Meat from C3 herbivores</td>
<td>-25.5</td>
<td>-20.5</td>
</tr>
<tr>
<td>C4 plants only</td>
<td>-12.5</td>
<td>-7.5</td>
</tr>
<tr>
<td>Meat from C4 herbivores</td>
<td>-11.5</td>
<td>-6.5</td>
</tr>
<tr>
<td>Marine Plankton only</td>
<td>-19.5</td>
<td>-14.5</td>
</tr>
<tr>
<td>Meat from Marine Herbivores</td>
<td>-18.5</td>
<td>-13.5</td>
</tr>
<tr>
<td>Meat from Marine Carnivores</td>
<td>-17.5</td>
<td>-12.5</td>
</tr>
</tbody>
</table>

Table 1: Diet and resulting consumer fossils 13C content (from ref 2)

I have copied a table from ref 1 at the end of this article. Table 3 lists the values and ranges of isotopic fractionation for different substances in nature.

Table 2 lists the five results from the Claonaite Seven samples. What is noticeable is that though the horse and reindeer have a 13C content typical of terrestrial herbivores, all three bears have the higher 13C content typical of marine animals. This shows that their diet must have been largely marine in origin.

<table>
<thead>
<tr>
<th>Claonaite Seven Samples</th>
<th>Calibrated BP</th>
<th>d13C relative to VPDB ‰</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number</td>
<td>Description and Location</td>
<td>28,395 +/- 186</td>
</tr>
<tr>
<td>SUERC-25560</td>
<td>Bear ribs, Portobello Promenade</td>
<td>13,950 +/- 72</td>
</tr>
<tr>
<td>SUERC-26398</td>
<td>Reindeer antler, Antler Chamber</td>
<td>48,185 +/- 1,127</td>
</tr>
<tr>
<td>SUERC-26400</td>
<td>Bear humerus, Antler Chamber</td>
<td>13,474 +/- 95</td>
</tr>
<tr>
<td>SUERC-26401</td>
<td>Wild horse mandible, Antler Ch.</td>
<td>13,416 +/- 68</td>
</tr>
</tbody>
</table>

Table 2 - The five Claonaite results from SUERC with thanks to SNH for funding them.
Searching the Internet led me to a report which included results on fossils from SE Alaska (ref 3) which is probably not too dissimilar in climate to Sutherland at the time our bears were alive. The Alaskan results were from fossils of various ages plus some from modern bears in the same region. Diagram 1 is copied from ref 3 and shows the large overlap between herbivores and carnivores living in the same environment. It also shows the clear separation between those living on an exclusively terrestrial and those on a marine diet. Animals with a mixed diet lie between the two main groups.

Diagram 1 - Delta $^{13}$C values for SE Alaska from ref 3, SUERC for Claonaite and ref 4

I've added the results from the Claonaite samples to the chart and also some results obtained from the Bone Caves and quoted in reference 4. This shows that the Assynt bears' diet was predominantly marine, and far more so than the Alaskan brown bears. The reindeer result on the other hand lies in the range of the Alaskan caribou which is the North American name for the same species. Of interest are the human results from Alaska. These have an even higher $^{13}$C content that the Claonaite bears and their diet must have been almost exclusively marine, as opposed to the human bones from the Bone Caves whose owners were very obviously living on a terrestrial diet.

This has been a quick and simplified account of $^{13}$C isotopic fractionation and the result of several hours
trawling the Internet for clarification. The enquiring reader is advised to read the references for a more complete view of what is a complex subject with many other environmental factors, unmentioned here, influencing the results.

References:

1. Higham T; 2002; Waikato Radiocarbon Dating Laboratory, University of Waikato, New Zealand web site - http://www.c14dating.com/

2. Connors-Millard D; Diet and Dentition- A Chemical Analysis; EMuseum Minnesota State University, Mankato web site http://www.mnsu.edu/emuseum/biology/forensics/diet_and_dentition.html

3. Heaton T H 2002; Ice Age Paleontology of Southeast Alaska, Research Results, Stable Isotopes; University of South Dakota web site - http://orgs.usd.edu/esci/alaska/index.html


<table>
<thead>
<tr>
<th>Material</th>
<th>Delta C-13 (per mille)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Marine HCO₃</td>
<td>-1±2</td>
</tr>
<tr>
<td>Marine CO₃</td>
<td>0±2</td>
</tr>
<tr>
<td><strong>PDB dC13 standard</strong></td>
<td>0</td>
</tr>
<tr>
<td>Soil CO₂ and secondary bone carbonate</td>
<td>-5±3</td>
</tr>
<tr>
<td>Speleothems</td>
<td>-9±3</td>
</tr>
<tr>
<td>Atmospheric CO₂</td>
<td>-9±2</td>
</tr>
<tr>
<td>Bone apatite and original carbonate</td>
<td>-12±3</td>
</tr>
<tr>
<td>Grains, seeds, maize and millet (C-4 plants)</td>
<td>-10±2</td>
</tr>
<tr>
<td><strong>ANU (Australian National University) sucrose C14 standard</strong></td>
<td>-11±0.5</td>
</tr>
<tr>
<td>Freshwater plants (submerged)</td>
<td>-16±4</td>
</tr>
<tr>
<td>Grasses arid zone, sedges</td>
<td>-13±3</td>
</tr>
<tr>
<td>Straw, flax</td>
<td>-14±3</td>
</tr>
<tr>
<td>Marine organisms (organic)</td>
<td>-15±3</td>
</tr>
<tr>
<td>Freshwater plants (submerged)</td>
<td>-16±4</td>
</tr>
<tr>
<td>Succulents (Cactus, pineapple, etc)</td>
<td>-17±2</td>
</tr>
<tr>
<td><strong>Oxalic acid 2 C14 standard</strong></td>
<td>-17±2</td>
</tr>
<tr>
<td>Bone collagen (C3 diet), wood cellulose</td>
<td>-20±2</td>
</tr>
<tr>
<td>C3 plants, Grains (wheat, etc). Graphite, coal</td>
<td>-23±3</td>
</tr>
<tr>
<td>Fossil wood, charcoal</td>
<td>-24±3</td>
</tr>
<tr>
<td>Recent wood, charcoal</td>
<td>-25±3</td>
</tr>
<tr>
<td>Tree leaves, Wheat, straw etc.</td>
<td>-27±2</td>
</tr>
<tr>
<td>Peat, humus</td>
<td>-27±3</td>
</tr>
</tbody>
</table>

Table 3 Isotopic fractionation of substances in nature (from ref 1)