# JOURNAL OF THE


**Issue No. 1, 1998**

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## FRONT COVER

Photograph taken by Marcus Elliott whilst in the Netherlands. It is of the railway station at the town of Goes...see Marcus for the pronunciation.

## STOP PRESS - PENNANT MINE

GOES were invited by the landowner over the last bank Holiday weekend to investigate the Pennant mine on his land at Rhuallt (SH 085 754). Galena and zinc blende were mined there until 1891. The mine was then closed but later re-opened in 1913 for the extraction of baryte and witherite, and was finally abandoned in 1920.

Two shafts were descended. The first being approximately 20 feet deep with an adit off it at the bottom. There were several animal skeletons littering the floor - probably rat or rabbit but the adit only continued for approximately 40 feet before it came to a dead end. The second shaft was about 25 feet in diameter and 80 feet deep. There was a waterfall cascading into it. At a depth of 60 feet two adits branched off. After lots of swinging about on the end of the rope one of the adits was reached. Safety bolts were put in place and the adits were explored by four GOES members. They discovered a small amount of further passage and also an internal shaft. This shaft couldn't be descended on this occasion as the surrounding area was unstable.

The landowners were pleased to know what lies beneath their land and now have more information with regards to capping the shafts in the future. There is a possibility of further exploration once water levels have been dropped through gradual digging of a nearby adit. Lots of slides were taken and may appear in the next journal, or at the next GOES dinner.

*Alison Walton, Llandudno, May 1998*

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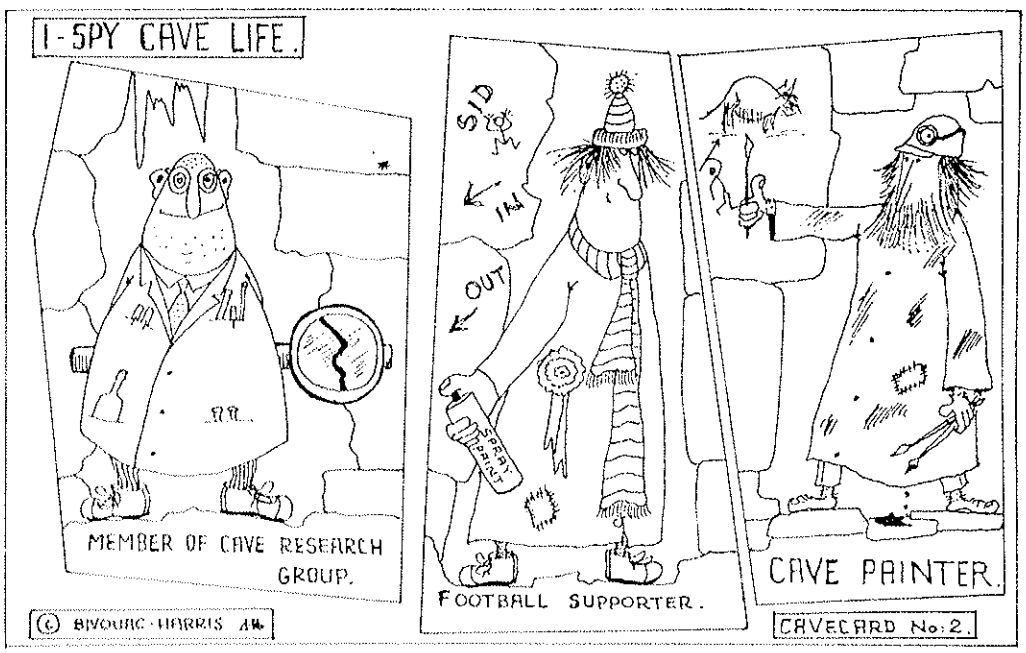


## 1997 GOES CHRISTMAS DINNER

The event - the GOES Christmas dinner.
The venue - the King's Head.

Arriving early, your Special Correspondent, had time to admire the lovely table decorations, and to realise the amount of time expended by our Hostess, Sylvia, and her staff, in preparing for our celebration. Thankyou from all of us and full marks for the tasty and imaginative meal. We especially appreciated the glass of punch offered to us on arrival, which was most welcome on a cold wet night in November.

Soon the members began to appear, in noisy, happy droves. This year, there were no peacocks, the most exotic attire being that of a Canadian gentleman in a Donald Duck tie, herinafter referred to as "D.D.T." (N.B... not Dichlorodiphenyltrichloroethane, the highly toxic insecticide). Our venerable archaeologist looked very fetching in his GOES sweatshirt - the only member to be suitably dressed for the occasion. Most of the ladies wore dark colours and long skirts. Unfortunately, the lady who last year put on a leg show, which the gentlemen found very appealing, was this year indisposed.

Naturally there was much hilarity during the course of the evening, with many witty remarks and entertaining displays. However, your Special Correspondent cannot help but think that much of this was specially contrived in order that it would be included in her report! There is also the little matter of the Law of Libel, and I would not wish our Editor to suffer the same fate as that enjoyed by the editor of Private Eye. I will merely mention the more innocent events, such as the flicking of a plastic frog into the mustard by our Hon. Editor and – dare I mention such and ignoble deed – the attempt by our Hon. Scribe to make our Hon. Editor inebriated. With what wicked motive, one wonders?

Before the feast came the crackers and streamers. Many vulgar jokes were heard on the subject of 'pulling crackers'. Everyone found small plastic animals in their crackers, and soon were wearing colourful paper hats, of which a few were miraculously still in place by the end of the evening. The streamers were the cause of some chaos, with many gentlemen and, I regret to say, not a few ladies attempting to lasso members of the opposite sex. Our Hon. Editor was discovered wrapping the Canadian gentleman, with the D.D.T., in festoons of colourful streamers. The consort of your Special Correspondent enjoyed himself, and displayed much skill in demonstrating sailors' knots with the streamers – not the easiest thing to do. Our Hon. Treasurer, on one occasion, disappeared in the direction of the loo, wearing streamers in his hair. Evidently, this must have caused some hilarity amongst the general public in the bar, because, when the said gentleman returned, the streamers were neatly stuffed into his pockets and he had a red face.

I should mention, at this stage, that our party was seated at two long tables. Most of the action so far described, occurred at your Special Correspondents' table. The more respectable members of GOES, including our Hon. President, were seated at the other table. Consequently, the occupants were, on the whole, very sedate and well behaved. However there was also an unruly element. Included in this group was a certain red haired lady, herinafter referred to as The Cochan, who appeared to be suffering from a bad case of 'the fallings over'. This was early in the evening, and alcohol was unlikely to have been the cause. The Cochan, when pulling a cracker, would have fallen over backwards in her chair, such was her enthusiasm, had not a kind gentleman saved her. As the evening progressed, the Cochan told a very doubtful story about a schoolboy behind a wall.


Other interesting things which occurred at the sedate table were flower arranging and conversations on the subjects of sharks and schoolboys, not necessarily to be considered together, although it makes an interesting thought!

By 9.30pm things had come to such a pass that our Hon. Scribe was attempting to hypnotise a plastic frog by stroking its chest, and his consort knocked over the Hon. Editors' glass of punch.

After we had finished the meal, our Hon. Vice Chairman produced a magic lantern. Whilst he prepared his slides, the members entertained themselves by making shadow bunnies, doggies and various unmentionables, on the screen. The slides and the presentation were excellent, in spite of showing certain criminal acts, carried out in the Reservoir under the happy Valley. One supposes that graffiti in a reservoir is a criminal act. This polished performance was followed by an ad hoc exhibition of some hot off the press slides produced by the Cochan. Sadly the slide projection, by an old chap, who was obviously inexperienced in such matters, fell far below the standard demanded by such outstanding material.

He seemed to be quite oblivious of Up, Down, Sideways and Back to Front.
The evening in the Kings Head ended, when our Venerable Archaeologist started to go home in his paper crown. Luckily, this was pointed out to him, and it was mentioned that his neighbours might think him a bit odd.

The party continued for some of the members at the home of our Hon. Editor and her Consort, with wine and entertainments by the animals of the aforementioned pair. Woody, the cat, decided to sit on the knee of Mountain Man. This caused the latter to be a very timorous mountain Man. looking scared and tense he explained that she was into heavy kneading and wanted to know if she was in the habit of 'piddling' on peoples' knees. At this stage, your Special Correspondent decided that enough was enough, whipped the first taxi and took her drunken Consort home.

As Samuel Pepys would say, "And so to bed".

*Eve Parry, Great Orme, January 1998*

## DEATH OF A PIONEER MINE EXPLORER

Dave Jones. 1946 – 1997.

Christmas day saw the sad and untimely death of one of the pioneers of mine exploration in Llandudno.
Dave Jones, after a long and painful struggle, succumbed to MS at the Royal Alexandra Hospital, Rhyl.

During the sixties Dave in company with his brother Keith, Duncan James, Billy Davies, and Keith Griffiths began the exploration of the old copper mines of the Great Orme. Undoubtedly their work laid the foundations for the formation of GOES despite the fact that only Billy Davies actually joined the new organisation.

The group also carried out many investigations in the Conwy Valley and Flintshire and organised many caving trips to Derbyshire.

The stream passage in Elephant's Cave was named after Dave's, then seven year old daughter, Brenda.

Dave Jones left Llandudno in the early seventies and travelled extensively in Europe, Russia and India. He is survived by his parents, brother Keith and daughter Brenda.

Dave kept a journal describing many of the mine exploration trips and it makes fascinating reading.
Keith Jones has kindly consented to allow the material to be copied for the GOES archives.

The work is hand written and the journal contains many photographs and diagrams. It certainly conveys the atmosphere of the early underground trips.

A trip into Roman's on Sunday 31st March 1974 is described thus :-

"Today at 11o'clock we descended the 90ft shaft behind the halfway tram station on the Orme. I was the first to descend to the bottom on the ladders. The rest of the party then followed without incident except that when I descended a large stone about 2x1 fell from the bottom layer of the ginging and crashed to the bottom. I froze on the ladder but nothing else fell. The rest of the party consisted of Terry, Liz, from Matlock, Duncan and Keith. A school teacher from St. David's College (!), Pete Smith and three climbing friends of his. The surface team consisted of Bill Allan (Engine Driver), Billy Davies and Melvyn Davies.

We traversed the workings to the level (Tram road) which runs out into the 400ft shaft at a point about 120ft from the surface. From here Terry abseiled down about 50ft to see if there were any more levels further down for us to explore. He said there was one on the opposite wall, so we changed over tackle to clog back up, but got into difficulty when the clogs slipped on the wet rope, and we were forced to haul him up on the lifeline!

We then did a bit of solitary exploration with people dashing in and out of crawls everywhere. Then the main party left and I was left with Terry and Duncan. We then went to look for a shaft to ladder that I had found on the last trip, but we could not find it. Duncan found a flooded level that we decided to push, but Terry was getting a bit knackered. Duncan told me to wait while he took Terry to join the main party. After waiting for a long time, I got fed up and decided to push on and join them. I found Duncan and Terry wandering about looking for the way out obviously lost, and lost we were. We went into this tunnel and that tunnel and down this hole and up that hole until all sense of direction was lost. I eventually after about an hour found the way which was only about 4 mins from where we were. I ascended the ladder followed by Terry then Duncan in that order. It was about 4.30 when I hit surface and the sun was very warm. When the party eventually disbanded Duncan and myself climbed a few ridges looking for new caves but found nothing of importance, so we made our way to my house."

The journal contains descriptions of many trips both on the Orme and at other locations. It is a unique contribution to the history of local mine exploration, and mine explorers. Sadly, it is one that can never be repeated.

*Tom Parry, Great Orme, April 1998*

## THE HUNTER - AN IMAGINARY TALE - CONTINUED FROM THE LAST JOURNAL

Many generations later the name of 'Tor' was still regarded with reverence and our new friend in this age of the 'New Farmers' could be called 'TorII'. He was a natural leader, as was his ancestor, so when people speaking a strange language arrived he soon came to understand them. They came from another land and were looking for a rock that contained another rock that ran like water when put in a very hot fire.

According to the newcomers the hill Tor lived on contained this rock, and they asked could they please stay to look for it? On being given permission they told Tor and his friends that they would show them what to do if they found it, and teach them many things.

They did find their rock, quantities of it, but had to ask Tor and his tribe for help to peck it from rock crevices and certain caves. True to their word they showed Tor and his friends how to melt it out of the rock and how, when it was cold and solid, to beat it into various shapes such as arrowheads and knife blades. Only one thing upset all this new information...this metal was too soft to keep an edge for any length of time, and by the time a method of making it hard enough to keep a sharp edge, or stand hard work, Tor and his tribe were long gone.

Tor's descendants still lived in the cave overlooking the marsh, but by now the higher edges of the marsh leading to the hill were drying out. Tracks were firmer and well delineated and also more people were using them. However, the sea was rising, invading the lower parts of the marshy land, and a small wood near the centre was slowly being submerged. At least it had the advantage of making the fishing easier, as with the increased population meat was becoming scarce. Families on the other side of the disappearing marsh were using large quantities of shellfish even though they had a larger hunting area. Apart from the cattle that the new farmers introduced to them, their main source of meat was roe deer, and the larger red deer. The wild horse was almost extinct. Sheep and goat were present but were too important to be killed for meat as they supplied milk and wool. As living became easier, their hunting skills became less. They were not as tough as their forefathers were and eventually when raiders came, they had a hard time defending themselves.

Many years later when the Tor families and tribes were but memories, a new metal was discovered. It was iron. Easy to work and harder than bronze, it changed the lives of many people as it was capable of being made into the sort of weapons that the bronze age folk would not have thought possible. It was not long before people heard rumours of strange men in the river valley. Some were dressed in leather jackets with iron helmets on their heads, carrying spears, short swords and strange shields. They were led by men on horseback, dressed in resplendent cloaks over some form of iron plate on their bodies. It was said they were building a large timber hut on the river bank, and also a road over the mountains towards the island that was visible on the skyline from our fiends hill. A short time later the hill people had a visitor who came dressed in fine coloured linen and who said he represented these strangers. He spoke to the hill people in their own tongue, telling them that the strangers came from far away and were called 'Romans'. As the hill people had rock containing copper he asked if they would trade it to his companions, hinting at the same time that if they did not, these strangers were capable of taking it. They would pay for the copper in money, which could be traded for goods. Iron tools would be provided to help in extracting the rock as part of the bargain. This was agreed mainly because they had no option, the timber hut being a fortress containing many hundreds of fighting men. They also agreed to have a man, a non-Roman called a supervisor, living with them. He would be responsible for paying them this money. No Roman would be living near our friends, the hill being occupied and no Roman liked being overlooked by strangers.

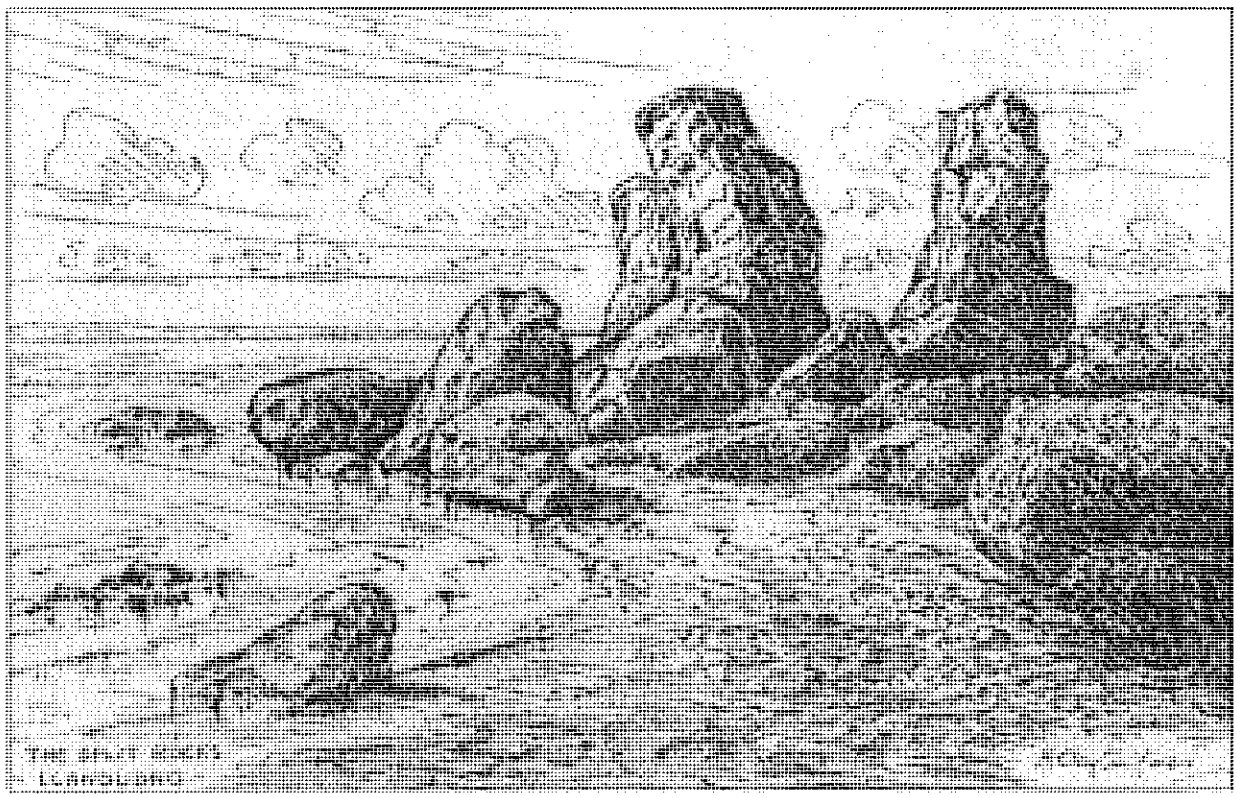
All went well until one day the Roman agent was ambushed on the track coming down into the marsh area. The attack was in the valley on top of the high ground facing the marsh. All the money was stolen and never recovered, suspicion was placed on the occupants of the cave facing the hill people, but nothing was proved. There must have been other incidents because the timber fort by the river was replaced by a stone one and called by the Romans 'Kanoviam'. High on the hill behind the fort was a tribal fort in commanding position, its presence probably annoyed the Roman intruders, as attack it as they may, they could not take it. A steep slope on one side protected it from surprise, a shallow slop to the rear looked easy until it was tried. This slope, covered in long grass, had hundreds of pointed stones facing down slope. To rush it would have resulted in the attackers having their legs broken, or worse. As the river was navigable, a dock was built near the fort so that the Roman galleys could supply it from the sea and also take away the copper ore.

To be continued...

*Tom Stone, Llandudno, April 1998*

| Date | Walk |
|---|---|
| May 28th ..... | Isle of Man boat trip - fully booked,<br>but check with Thomas Cook for cancellations<br>*Depart 10am, return 11pm* |
| June 4th ..... | Haulfre Gardens - inspect recent renovations<br>*Meet at the Kings Head car park* |
| June 11th ..... | Little Orme<br>*Meet at the Kwik Save car park* |
| June 18th ..... | Boat trip around the Orme (provisional)<br>*North Shore slipway* |
| June 25th ..... | Tom and Jerry<br>*Meet at the Summit car park* |
| July 2nd ..... | Llangelynin Church, behind Conwy<br>*Meet at the church (SH 7515 7375)* |
| July 9th ..... | Trip on tram to summit, walk down<br>*Meet at the Tram Station, 5.30pm* |
| July 16th ..... | Nant y Gamar<br>*Nant y Gamar car park* |
| July 23rd ..... | Deganwy Castle<br>*Meet at Maes-y-Castell, Deganwy* |
| July 30th ..... | Glan Conwy Cromlech<br>*Meet at Glan Conwy Garage (just outside village)* |
| August 6th ..... | Bryn Euryn, Llandrillo - recent archaeological dig<br>*Meet along the track off Tan-y-Bryn Road* |
| August 13th ..... | Five entrances cave<br>*Meet at Plas Road* |
| August 20th ..... | Happy Valley Shaft<br>*Meet at the Cable Car car park* |

Walks start at 7.00pm and are gentle strolls which last between one and two hours. If the weather is poor, then it is very likely that the walk will be cancelled until a later date. The walks will be confirmed each week in the Community News section of the North Wales Weekly News. There may be additions/cancellations to this list so either check the newspaper or phone Ali and Tony on 01492 877960.

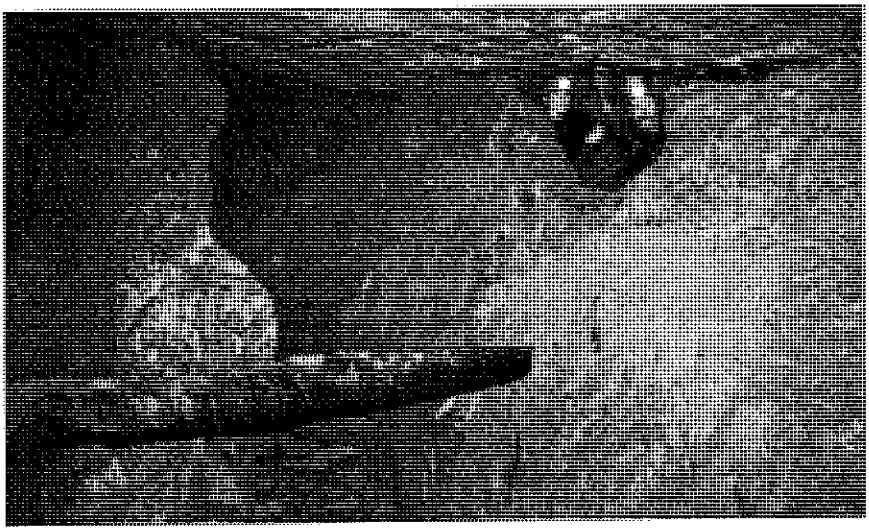


*Split Rocks, Llandudno. Not one of the walks (unless requested), just a nice picture!*

## WE HOPE!

The underground team, and one or two others in the Society, are hoping to get back in to the Pen Morfa adit. We all hope the Committee can get us access again.

When we were last in the Pen Morfa, about 1995, we found an adit that looks as if it 'goes'. Unfortunately, reaching it was a problem. To get to it we have to traverse a rock face which is about 10 metres in length and 11 metres high, so we tried to work out a plan of action.



*The buttress in Pen Morfa which requires traversing*

As always happens we discussed these problems in the Kings Head and put all the basic drawings onto beer mats. On this occasion the Kings head ran out of this technical paper, so we got onto the technical talk instead, but after a couple more pints we decided to wait until the following week.

The following week Steve and myself turned up at Tony and Ali's house with the drill and not much else. We decided to go to Romans and practice the technique we had devised the previous week over a few pints.

The belay was put in place and we all abseiled to the bottom of the shaft. At the bottom we then started off to the 'large stope'. The first thing we had to do was put in some safety lines in order to climb up the most appropriate rock face to practice our new technique. The first problem we found was getting across a small rift. If you are 6 feet tall you can just make it, but to make it more interesting there was a rock pillar in the way so it was a full stretch for both arms and legs in order to get across. It was here that we put in the first safety line to help the rest of the team get across.

Once we were all across we then set about tackling the rift. We drilled and put in the first bolt and then realised that the second bolt would not be so easy because we couldn't reach around the rock face far enough with the drill. We did not have enough equipment with us so we made our way back to the main shaft and SRT'd the 60 feet to the surface. Back to the Kings Head. The beer was going down and more technical designs were produced.

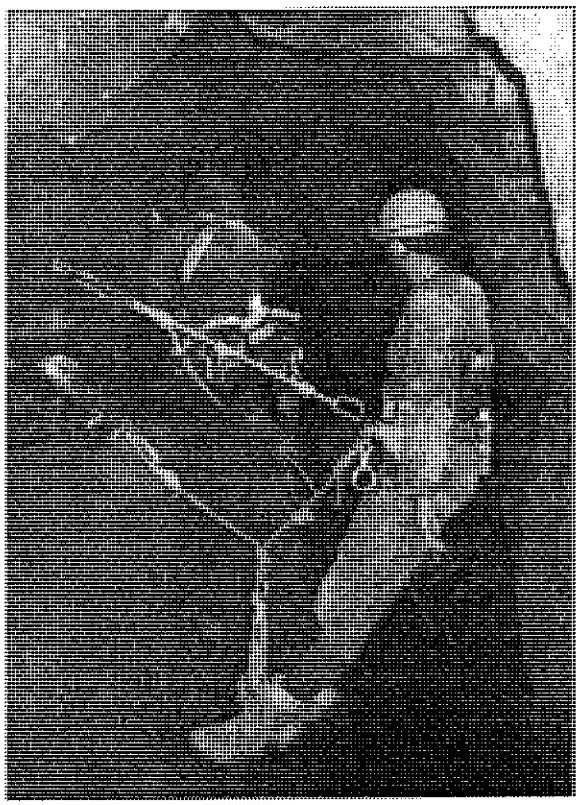
When I got home I found some old rope and cut it up to make some foot strops. I threaded it through some lengths of old hosepipe to make it easier to put your foot in the loop. By more luck than technical skills I got it to the right length first time.

Week three arrived and I set off for Tony and Ali's (9.30am – still felt like night time!). We all set off for Romans again. This time I had my new foot strops so once again it was down the shaft, off to the big stope, over the rift and to the face. A safety line was put onto bolt one allowing me to reach far enough to drill bolt two. The foot strops were also attached allowing me to stand against the rockface. Still feeling unsafe about leaning over to drill the third bolt hole we all stopped to have a think about things. After some discussion it was found that if we made our cows tails shorter and into the shape of a V it allowed us to lean over a lot more and so drilling went on.

Once on the rock face it became a pain passing equipment backwards and forwards so the hammer and spanner were attached to pieces of string and hung from my sit harness, which meant I didn't lose them. The drill was put on a sling and hung around my neck. At £500 a time, no-one wanted to drop it. It was found that after about four holes the battery needed changing. Also after about four holes it was time to swap over the person that was drilling as placing bolts in this awkward position sapped your strength.

*Erik drilling bolt holes in Romans*

Tony then took over. With the foot strops in place it was an easy task for him to traverse the face and get in to position. Tony drilled four more holes, placed the bolts and safety lines and had finished the job. It was now time for the rest of the team to have a go. It was agreed that it was very easy and yet still very safe – which is the main thing.



*Tony and Erik traversing the rock face*

Now that this practice area has been completed we are looking forward to getting in to the Pen Morfa and putting our new skills to use. At the beginning of this exercise I knew it would be hard work, and I suspect that Tony thought the same, but this method of traversing is certainly better than the old way of bridging or hand bolting.

*Erik Sellors, Glan Conwy, January 1998*

## THOUGHTS ON BRONZE AGE COPPER ORE PROCESSING AT THE GREAT ORME

It is difficult to work out the grade of copper processed out of the dolomite host rock on the Great Orme as so far no unworked veins have yet come to light, making it virtually impossible to work out a close percentage of copper metal to rock produced during the Bronze Age, but from the massive underground system of workings the amount would have been very large.

Over the last seven years I have collected ore from different locations at Great Orme Mines, all of a grade which the 'miners' obviously left as not being up to scratch. Recently I was able to collect an amount of surface ore, with a large amount of chert and well rotted dolomite manganese, hydrocarbon along with small amounts of bone coloured green by the copper, this was sitting on an old soil/clay horizon under a nineteenth Century spoil tip. Originally this ore must have come from a mineral deposit close to the surface as I have been told that chert only appears approximately within the first ten metres on this site.

I am unclear whether this is Bronze Age waste or material dumped during the 1840's 'Welsh California' from Bryniau Poethion, the site of the bell pits running north to south along the vein (my research would suggest that some of these pits may be very old and date to Neolithic times when chert was used instead of flint in the area). Work to make them safe after the June 1993 rainstorm showed traces of ancient tool marks underground.

From hand sorting to crushing:
I decided to use only malachite, carbonate ore for the experiments in processing, as this would be easier to process and ultimately smelt.
Tools of the trade:
Anvil stones, pestle and mortars – for washing and sorting of the ore
Anvil stone – large flat granite blocks over 60 kg's.
Pestles – oblong or oval stone made to fit into a mortar stone
Mortar stone – flat stones of all sizes with man-made cup shaped depressions

Virtually all the ore processing stones have been found in the mining area with none found on the various washing sites, this would lead me to believe that most of the ore processing was done around the mine site and in the area of Bryniau Poethion and Maes-y-Facrell.

After the Bronze Age phase of mining had finished many of the specialist stone crushing tools may have been thrown into the open cast, as Bryniau Poethion was cleared of the largest stones for agricultural use in the early Iron Age. This continued after the Romans left with the establishment of the Christian settlement around the church dedicated to St. Tudno who lived in the 6th Century and was one of the sons of Seithenwyn, King of the plain of Gwyddo (whose land was inundated).

Many stone hammers found on the surface have very defined wear lines suggesting a close fit between mortar and pestle and a practiced technique of use on the large anvil stones by the surface processing workers using the stones for grinding up the ore. It could also suggest that a large amount of separation was to a fine malachite grain, and "only in the case of hand sorting of rich particles would the malachite be roasted uncrushed". (stone hammers found underground as a rule show very heavy use with large chips and sections broken off).

Copper washing sites on the Great Orme:
It is my contention that the final washing of the copper ore was a very wasteful process in Bronze Age times from the amount of malachite sludge salvaged from the main washing site by the Victorian miners, Ffynnon Galchog etc.The Bronze Age miners difficulty in reclaiming the sludge could have significance to the difficulty of transport from washing site to smelting site, especially if the bulk of the copper ore was smelted off the mountain near a good wood-charcoal site (Conwy Valley being the obvious place)

Observations on a series of processing and washing experiments carried out at Great Orme Mines:
The copper bearing rock was washed to remove soil and dirt and by colour all the green rock (malachite nuggets) were kept safely to one side and the rest were dumped. Using a modern gold pan the green rock was again swilled in water and the solid malachite pieces were hand sorted and kept. The chert and dolomite rocks with the malachite were left to dry in the sun. A number of flat and rounded pebbles were collected from the beach to act as pestles and mortars and were placed on a ground sheet. The ore was broken up (using the new pebbles as pestles and mortars) to pea size and smaller, and hand sorted. It soon became apparent that the beach stones were very unsatisfactory as they were not worn to shape (as the samples found at the copper mine) causing the ore to shoot off in all directions.

Reasons:
from the experimentation it became obvious that the Bronze Age miners would have cherished their pestles and mortars and that is why so many have been found worn to destruction; the deeper the hole in the mortar, the more ore can be crushed, with its pestle stone to match. The pestle stone must be as large as possible as weight makes a tremendous difference to the energy a processor must expend, only by spending a number of days working does this become apparent. Long term study will prove or disprove this theory.

The rock and malachite was placed in the gold pan and washed around vigorously to expel the rock and leave the malachite sludge in a nice crescent shape along the bottom of the pan. This was then put with the hand sorted malachite ready for roasting.

*Edric Roberts, Craig-y-don, 1997*

## JUST A BIT OF INTEREST

Quentin Tarantino, the Hollywood director whose Reservoir Dogs and Pulp Fiction made Sam Peckinpah seem wimpish, has landed himself in trouble over his liberal use of blood – from environmentalists. In the wake of his latest gore-fest, The Hangmans Daughter, howls are arising about irrevocable damage Tarantino is supposedly doing to historic caves in South Africa – due to fake blood splurging over the walls.

*The Times, 26 November 1997*

## HAPPY VALLEY DIG - LATEST NEWS

On Sunday May 17th four GOES diggers were excavating this shaft as normal. They had reached lunchtime and the buckets were getting heavy so decided to call it a day. Just when the last digger was expected to ascend the rope lots of movement of rocks and grunting noises came echoing up the shaft, closely followed by an excited voice shouting "It Goes!, I've found a passage!"

On the surface the remaining three diggers suddenly forgot how exhausted they were and rapidly put on their harnesses on in a race to see this new and unexplored area.

The new passage is approximately 45 feet below surface, 6 feet high and 30 feet in length and heads northwest. Unfortunately it is completely blind, ending at a solid rock face. At the base of this face lies the skeleton of a small animal, possibly a dog or a fox.

The plan now is to make a detailed survey and take several slides for our archives. We will then backfill the whole passage with the mud and rubble remaining in the shaft. At the moment it is unclear whether the shaft continues downwards, or just ends here with passages branching off in other directions. Time will tell.

*Alison Walton, Llandudno, May 1998*

*Geoff (intrepid explorer) David is seen here preparing to descend into the unknown.*

The Great Orme Exploration Society have over the past 8 months dug down approximately 37 feet into a mine shaft on the slopes of Happy Valley.

The area was first noticed due to a depression in the ground, and later dowsing confirmed the presence of radiating tunnels. Permission to dig was obtained and work started in September 1997. By October the ginged wall of a shaft had been uncovered and this was pushed downwards.

The ginging only lasted for 1 – 2 yards where it was supported on three sides by solid rock and on the other by a wooden stemple. The dig started to change after this as the 'shaft' widened into a rift.

It soon became obvious that the upper sides of the shaft needed supporting before any further progress could be made. After several long discussions around a suitable table a plan of action was agreed.

A concrete base was formed around the top of the ginging and pre-cast concrete rings placed on top to form the entrance, as seen in the photo above.

Three steel scaffolding poles form an 'A' frame for the attachment of ropes and pulleys etc. Digging is slow and all spoil is pulled out in buckets and deposited within the confines of the fenced area around the shaft.

The shaft is still continuing downward in its rift-like progress, deep into the unknown on the Great Orme.

*Tony Davies, Llandudno, April 1998*

## ORMESDAY PROJECT

This project was started in June 1994 by Mrs Diane Bannerman. It is a record of all the mines, caves, quarries and wells on the Great Orme, Llandudno.

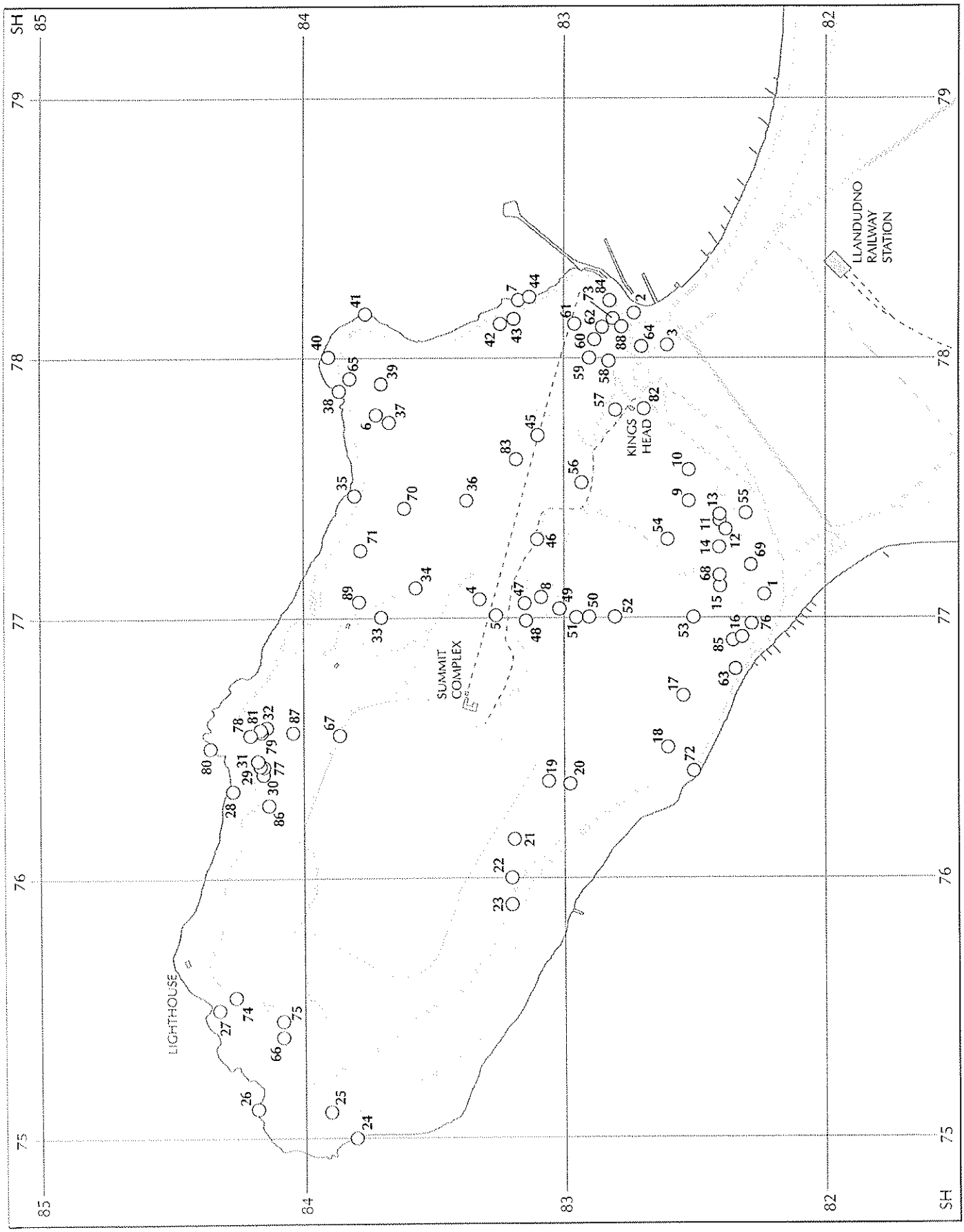
Many of the caves listed are very small - little more than rock shelters perhaps cut by waves when the sea level was much higher - but these are still important as some of them show traces of prehistoric habitation. Some have been lost due to building works such as Miriams cave, and perhaps most intriguing of all is the cave reported by Mrs Pat Deane which according to rumour was found when the School of Gunnery was being constructed during the Second World War. The story says that artifacts were sent to the British Museum, but were covered by the Official Secrets Act.

Unfortunately Di left the Society in 1997, so leaving the Ormesday project unfinished. If anybody wishes to provide further contributions or can expand on any of the following listings then please send all details to Tom Parry (Archives Officer), 3 Cromlech Road, Great Orme.

It should be noted that many of the larger mines have been gated and access can only be obtained via GOES. All grid references are approximate.

**1. Penmorfa Adit** SH7709 8223. Currently gated and all access has been denied. Work started during 1996 to make the main adit safe as some of the ginging had become unstable. The adit was pipe-jacked until solid rock was reached. At the end of the main adit the mine opens out in all directions and on several levels. These passages are mainly dry and once used to connect with the other mines on the summit of the Orme. Penmorfa was created during Victorian times to drain excess water from these other mines.
**2. Ty Gwyn adit** SH7817 8273. 1835–1853. Ty Gwyn Mine Company changed to the Tyn Y Fron company in 1846, produced more than 100,000 tons of copper ore. Mine offices, workings, engines and two shafts were located in the vicinity of the Empire Hotel running down towards the beach and upwards in the direction of the tram station.
**3. Ty Gwyn shaft** SH7805 8260. Capped shaft leading to the Ty Gwyn adit
**4. Romans shaft** SH7707 8332
**5. Treweeks shaft** SH7701 8327
**6. Tyn y Fron shaft** SH7778 8372. Prospect Terrace. During the mid to late 1830's a tramming adit was driven 534 yards from the north beach to join a large shaft of almost 300 feet named Tyn y Fron. Records indicated that the shaft had failed to connect with the promenade adit (Ty Gwyn) by a few yards, but in 1986 GOES proved that the connection had been made. A drainage level had also been driven but this had been blocked by the construction of the pier pavilion in 1884.
**7. Ty Gwyn Beach adit** SH7822 8317. The adit is driven through a fissure inclined to the right a few degrees off the vertical. At the entrance over a dozen stemple holes can be seen in the left hanging wall, also some larger holes which may have been part of a sea defence system. Clearance work started in the spring of 1992 from the entrance where several weathered steps cut into the rock were covered with loose rocks to protect them, excavations soon exposed the original 19th Century floor at the entrance, this was followed as the base of the excavation into the adit rising at a slight gradient. Work ceased in May 1993 at a distance of 21.8 metres from the entrance with a 1.8 metre working face under an area of broken rocks. A temporary working gate was fixed at this time at the first left hand bend of the adit. An estimated 40 tons of material was removed by wheelbarrow, dug often with bare hands due to the glutinous clay.
**8. Vivian's shaft** SH7708 8309. Great Orme Mines Ltd. Prehistoric copper mines dating from 1700 and BC. Now open to the public.
**9. Haulfre trials** SH7745 8252
**10 Haulfre Cafe trial** SH7757 8252. Access, with permission, through the cafe kitchen.
**11. Five entrance mine** SH7739 8240. In a small cutting.
**12. Run in shaft** SH7734 8238. Possibly another entrance to Five entrance mine [Billy Davies]. Hammer stone found by Stephen Lea 21 July 1994.
**13. Run in shaft** SH7740 8240. As above.
**14. Corkscrew cave/Bat cave** SH7727 8240. Fragments of human bone discovered by Geoff David. It has two openings, a low crawl and twists to the right as you move round to the small opening.
**15. Ogof Defaid/Lady Butler's cave/Sheep cave** SH7712 8240. The cave is a rock shelter formed by the collapse of some limestone bedding planes, it basically consists of some gaps between the fallen rocks and is about 2 metres long by 1 metre high. A couple of other cracks link up with the cave
**16. Ogof Arth/Bears cave/Toby's cave** SH7693 8233. Various Neolithic animal bones found. Inhabited in the early 1900's by a Liverpudlian farm labourer, to whom Lady Augusta donated a bed. Used as a scout hut (1960) until the scouts were driven out by the smell of goat. 'Toby's Cave' painted above the cave by vandals. A 2 metre high entrance to a 3 metre diameter chamber with a dirt floor.
**17. Skeletons cave** SH7670 8254. Neolithic skeleton found within, now in Cardiff. Gully between cliffs at the top of a slope with a large overhang, 3 metres up on the left a small entrance 1 metre by 1 metre. After 3 metres this intersects a larger mud floor passage, choked to the right, left continues down to a low termination. On the east side is what appears to be a choked passage. On the west side there is a small 40x40 centimetre entrance obscured by brambles. This extends for 3 metres. The floor is covered in snail shells. 10 metres to the west at the base of a cliff there is a small square shaped entrance about 40x40 centimetres and 2 metres long.
**18. Pen y Ffordd Goch trial** SH7650 8260
**19. Ffynnon Gogarth** SH7637 8307. The well supplied the water to power the Tom and Jerry engine. 1826 – 1842 approx.
**20. Ffynnon Gogarth level** SH7636 8298. A single adit which terminates after a short distance. Contains a shaft of approximately 20 feet which is currently flooded.
**21. Ffynnon Llygaid trial** SH7615 8319
**22. Parc level** SH7600 8320
**23. Monks Path trial** SH7590 8320

**24. Gunsite mine/Cowboy mine** SH7500 8380
**25. West lookout trials** SH7510 8390. Metal ingot discovered here in the 1970's. It was traded in at a scrapyard.
**26. Hornby cave** SH7511 8419. Named after the wreck of the Brigantine Hornby. It's sole survivor, John Williams, was thrown ashore from the bowsprit to the rocks on New Years day 1842. He forsook the sea and became a local copper miner. An entrance 20 feet high and 15 feet wide leads to a 25 foot long cave (with high water) and a 40 foot high rift leads to the surface.
**27. Hiding cave/Ogof Llech** SH7549 8432. The path to the cave has collapsed and is now impassible. Just inside the entrance is an octagonal sandstone wall with a diameter of 2 metres and lined with "very good quality masonry wrought in 1470" [according to Lord Mostyn in 1870]. The walls are now covered in wet moss and flowstone. Some of the graffiti dates to 1896 and 1901. There is a short continuation opposite with a fill blocked narrow rift. There is a small fresh water spring and a carving of a human face near the entrance. Possibly used as a monks cell, a footpath connected it to Gogarth Abbey at one time [Wm. Ashton 'Evolution of a coastline' page 190, 1920]. During the 1920's a dentist, Mr Hopper, often fished from 'Hoppers rock'. While attempting to improve the path he uncovered steps already cut into the rock.
**28. Ogof Hafnant/The Gulf cave** SH7635 8428
**29. Badger cave/Ogof Pryf Llwyd/Ogof Tudno** SH7643 8416. Ogof Tudno is part of Badger cave system [Tom Stone]. Adit within natural cave follows copper seam for 40 metres. Three metres to left of entrance, below a small overhang, a low tunnel running east for 3 metres ends in a sharp turn to the south. A quantity of animal bones found by Tom Stone during excavation of Ogof Tudno. Possible prehistoric mine. Backfill cemented with flowstone and stalagmitic formation. In places hammerstone marks on ore bearing rock. Tom Stone reports finding typical Bronze Age pointed bone mining tool approximately 25 metres in from the entrance. Bannerman/D. Chapman, 11.1.95.
Description from C.C.R.: The cave has four entrances, the largest on the right being 2.5 x 2 metres high. A large passage from here continues for about 8 metres. There are numerous small passages emanating at various levels. Back near the entrance a low passage extends to the left with a hollow sounding rotting fibre dirt floor. Again numerous small crawl passages lead off. The cave is an archaeological site and has yielded a hearth containing the bones of sheep, pig, hare, fox and fish. Miners have also been active here in the pursuit of copper ore. As a result of excavations in the neighbouring Ogof Tudno shaft during 1996 much of the entrance passage has now been filled to the roof with spoil. Jo Jones is also depositing spoil here from an archeological dig that she is conducting within the cave.
**30. Ogof Tudno shaft** SH7640 8415. A large boulder was lifted here one day and a handbag discovered underneath. The handbag contained several items. It was retrieved and is believed to be stored at Nigel Bannermans house. Drill marks also noticed in the rock face. Digging started in 1996 by GOES. A shaft was revealed, probably Victorian. Digging continued to a depth of 39 feet before the shaft was gated. A small penknife was found in the spoil – date unknown.
**31. Tear fund trial** [Geoff David]/Happy Birthday trial/Llandudno North adit [C.C.R.] SH7645 8417. The 120 centimetre high entrance closes down after 2 metres. there is a small hole in the floor covered in boulders. This can be descended by moving the boulders (replaced on exit) to drop into a mine level. It can be seen from within that the adit has had a wall built across it to prevent entry. Walking passage continues for about 10 metres to a deep shaft in the floor. Scaffold pipes have been laid across the shaft to a continuation of the level beyond. There are a few small natural solution cavities in various parts of the roof. Geoff David working with a party from St. David's school dug out the entrance and named the trial after the Tear Fund charity.
**32. Hwylfa Ceirw shaft** SH7658 8414. Ginged shaft, run in or possibly filled in, surrounded by spoil heaps.
**33. Trial** SH7700 8370. 1845 mine entrance.
**34. Ffynnon Powel/Gwaith Ffynon** SH7712 8357
**35. Porth yr Helig cave and mine** SH7747 8380
**36. Bannerman's Vein** SH7745 8334 to SH7745 8340. Referred to by this name in the North Wales Weekly News, June 1993. Shaft revealed in the 1993 flood, filled in shortly after. Vein runs north towards Porth yr Helig. Pieces of chert with malachite adhering to them were found after the flood. The possible source of similar material found at Ffynnon y Galchog washing floor. Copper stained bone fragment found on the path 1.12.94.
**37. Ffynnon y Galchog** SH7775 8367. Lime Well. Can also be translated as the washing well. Possible Bronze Age mineral processing site.
**38. Pigeons cave and quarry/Ogof Colomenod** SH7788 8387. A fisherman's path leads down to a level platform 10 metres above sea level. A ledge continues around overlooking a small bay. The overhang is about 30 metres wide, 13 metres high and 13 metres long floored with shingle. A climb down a 4 metre shaft to a small chamber with a 4 metre drop through a hole to sea level on the right. On the left there is another excavated 1 metre deep shaft. This was discovered by GOES in 1986 and dug to a depth of a few metres before it flooded. It has since been filled in. To the right of the shaft a level goes southwards for 30 metres with the passage gradually lowering to a stoop. The level is floored with sand and shingle. Back at the top of the shaft the ledge continues until it peters out and a traverse regains the ledge further on near another mine level. This is about 10 metres long and curves to the right. From this entrance a 3 metre drop lands on the beach below. East of the cave on a broad ledge there is evidence of limestone extraction which, by tradition, took place during the building of the Cob, the Telford Suspension Bridge [1826] and the Stevenson Tubular Bridge [1848] at Conwy. Several large blocks of limestone with shot holes can be seen. Gelignite or other high explosives leave many compound fracture lines radiating from shot holes and renders stone unfit for building purposes. As these are absent it is reasonable to suppose that the explosive employed was black powder, which is also a much older type. However, as black powder was used until quite recently this cannot be relied upon as a dating method. There is also at this point a chute cut into the cliff down which, also by tradition, large blocks of limestone were lowered onto vessels moored below.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COMPLEX
LIGHTHOUSE

This type of quarrying took place at various points around the Orme and traces of it can still be seen here and there. In the 'Chester and holyhead Railway' volume 1, by P.E. Baughan, page 112 it is mentioned that 161450 cubic feet of limestone blocks, each of between 5 and 8 tons, were used for facing purposes on the Stevenson bridge at Conwy. These were obtained fron the Great Orme and Penmon.

**39. Bwlch y Llwynog** SH7790 8370

**40. Dutchman's Cove/Ogof Ellmyn** SH7800 8390

**41. Ogof Haner Dydd/Midday Cave** SH7814 8376. At 12 noon on the 21st March and the 21st September the sun shines directly into the mouth of the cave. Thought by David Jones to be part of the Elephant cave system [?]

**42. Rock Studio quarry** SH7813 8324

**43. Cave** SH7815 8319

**44. Toll Gate trials** SH7823 8313

**45. Wyddfyd trial and shaft** SH7770 8310. A short adit leads to a near vertical shaft, the original floor of the adit is covered with loose rock, mainly from early excavations by Billy Davies and Co. Excavations recommenced on the 12th September 1993 by Dave Flowers, Erik Sellors and Steve Lea, this work assisted by a temporary lifting wheel and bucket. The reached the solid base of the shaft at 4.5 metres below the adit floor confirming this to be only a trial.

**46. Trial Mound** SH7730 8310. Possible shaft used for dumping old cable from the tramway.

**47. Higher Shaft/Shaft Uchaf** SH7705 8315. Access from underground from Owens

**48. Owens Shaft** SH7690 8315. Old mine. 19th Century and Bronze Age workings.

**49. Pyllau Shaft** SH7702 8301. Main shaft for new mine

**50. Cae Llwyn Helig shaft** SH7700 8290

**51. Pen y Gwaith shaft** SH7700 8295

**52. Trial** SH7700 8280

**53. Pen y Ffridd** SH7700 8250. Manganese mine.

**54. Tyn y Coed** SH7730 8260. Filled shaft.

**55. Shaft yr Odin** SH7740 8230. Capped shaft in the grounds of St. George's school. Now a decorative well, it was used as a well when the place was a nursery. An original village well [Thomas Rowlands].

**56. Ogof Deuben** SH7752 8293. Cave open at two ends

**57. Y Craig** SH7780 8280. Quarry.

**58. Kendrick's cave** SH7800 8284. Upper and lower caves. Neolithic human remains discovered in 1879, comprehensively examined and explained by Tom Stone in the GOES journal 1994, supplement 2. Some discovered items on display at the Great Orme Mines Ltd.

**59. Elephants cave** SH7800 8290. Chwarel y Fach. Happy Valley Quarry ceased work in 1897. Elephants Cave dig, in right wall of first cavern, a dog leg passage leading to outside cavern. Brenda's Stream passage in right wall, backing onto the two houses Ardwy Orme and Glain. 'Builder's Grave' a slit in the ground leading to the second cavern, collapsed by Dante Roberts then owner of Tyn y Coed quarry. These are part of the Elephant cave system, a theory put forward by D. Jones in the 1970's, this system would include reference number 41, Ogof Haner Dydd.

**60. Ty Gwyn incline** SH7807 8288

**61. Happy valley trial** SH7813 8296. Halfway up a tree covered slope, a hollow with overgrown spoil heap on the downhill side. Possible run-in trial or lost Ty Gwyn shaft referred to by C.J. Williams in 'British Mining No.52', page 27. GOES began excavation here in September 1997 after gaining permission from the Council. In April 1998 they had reached a depth of 37ft.

**62. Hole in the ground** SH7812 8285. Excavated by Billy Davies 1993.

**63. Cave** SH7680 8234. Ten feet down ending in a 'T' shape

**64. Mine shaft** SH7805 8270. Under old police station cells, Court road. reported August 1994 by Charles Judge, opened and closed during alterations. Possibly connects with the walled off passage in the Ty Gwyn mine.

**65. Lloches yr Afr** SH7792 8382. A shallow rock shelter about 3m high, 2m deep and 3m wide. Dug during the the 1970's by Mel Davis, all of the fill material has now been removed. Various archeological remains were discovered. Cave and adjacent overhangs possibly destroyed during the making of the road.

**66. Ffynnon Gaseg/Ogof Gaseg/Mare's Cave** SH7539 8408. 10m from the road a small chamber 3ft x 3ft x 3ft with dirt fill on the left that could be removed.

**67. Ffynnon Rhufeinig/Roman Well** SH7655 8386. Site of an archeological dig during the summer of 1996 by Sheffield University.

**68. Bedding Plane cave** SH7716 8240. The elliptical entrance is about 3m wide by 1.5m high. Within a few feet the largish entrance lowers at a restriction before entering a 1m high by 3m wide passage. The passage is floored with dry mud, becoming glutinous after 10m, and there are signs of digging activity. The passage continues with similar dimensions for another 10m.

**69. Agen Glandon** (Ogof Abaty; named by GCPC) SH7720 8228. The entrance is about 120cm wide by 260cm high. This reduces rapidly to a width of 30cm before entering a small chamber 150 x 150cm by 3m high. The walls are covered with small nodules, it has a dirt floor and contains some rubbish. From the chamber two narrow parallel rifts continue. One is about 10cm wide and continues for another 5m, the other is 15cm wide but choked with pebbles after 1.5m. On the other side of the knoll there are a couple of small holes which probably link up with the rifts. Played in by Tom Parry and friends as children.

**70. Pink Farm spring** SH7742 8361

**71. Spring** SH7726 8378.

**72. Miriam's Cave** SH7641 8250. Miriam Jones reared her family, known as the 'Rogo' in this cave before 1878. It was mostly destroyed during the construction of the marine drive. What may remain is now covered by a garage.

**73. Southcliffe Hotel**, Hill Terrace SH7815 8281. A shaft in the kitchen, now filled in. Source was Les Willis, a builder.

**74. Ogof Gwylan** SH7554 8426. A steep path leads down from the car park towards the sea, the entrance is 3m up a sheer wall in the second from top limestone terrace.

**75. Tyllau Brwyn** (named by GCPC) SH7545 8408. The first entrance is in a small outcrop at the west end of the parking area, it is 1m high and 50cm wide, it closes in after 1.5m but a 10cm rift continues for about 3m.

The second entrance is at the same altitude 10m further west, it is about 60cm wide and 30cm high opening up slightly and continuing for about 3m.
**76. Quarry** SH7697 8228. Accessible from Invalids Walk, a possible run-in shaft.
**77. Badgers Cave East trial** SH7643 8415. Cutting into hillside, large amount of grassed over spoil running downhill.
**78. Possible run-in adit** SH7655 8420
**79. Possible run-in shaft** SH7656 8416. Reference numbers 73, 74 and 76 may be connected with Hwylfa Ceirw shaft. Hafnant mining area also includes numbers 23, 24, 25, 26, 72 and 75.
**80. Sea cave/Smugglers cave** [Tom Stone] SH7650 8435
**81. Fire setting trial** SH7657 8416. GOE5 conducted fire setting experiments here.
**82. Tram Station well** SH7780 8270. In 1957 an old shaft which had been used as a well collapsed. It was 12ft in diameter and at least 130ft deep. Council workmen discovered that the shaft had been covered by a domed brick construction, probably placed over when Church Walks was built.
**83. Cave** SH7761 8318. Small square quarry, open one side with cave in the opposite wall to north. back filled, with several possible crawls off.
**84. The wine cellar** SH7822 8282. Two boarded up adits, excavated by GOES in the late 1980's. 6ft high by 10ft long, partially bricked across, then continues for another 10ft.
**85. Ogof Bys** SH7691 8235. Cave in quarried face. A 170cm wide by 60cm high entrance widens after 3.4m to 4m by 60cm high and continues for another 4m. Shallow pits dug through stalagmite floor exposing dogtooth calcite crystals with small inclusions of chalcopyrite. N.V.C. Bannerman, 3rd February 1995. Artificial stone structures in grass terrace around entrance.
**86. Hafnant Trials** SH7628 8413
**87. Trial** SH7656 8404. Run-in adit
**88. Kitchen cave** SH7812 8278. In the Bryn y Mor hotel basement cupboard, a bricked up mine entrance.
**89. St. Tudno's Well** SH7707 8379. Lower down to the east of the church, surrounded by ancient masonry.

*Di Bannerman, Llandudno, September 1995 for the Great Orme Exploration Society.*
*Many thanks to Mostyn Estates, Steve Lea, Tom Parry, Tom Stone, Geoff David, Billy Davies, Dave Chapman, Tony and Ali, John Bowen, Robin Griffiths [Ogofal, Andy Lewis, Don Smith, Edric Roberts, Brian Sherlock, and GOES Thursday nights at the King's Head.*

## LIMESTONE CAVES OF THE GREAT ORME

Apart from the many small caves dotted about the Great Orme there appears to be no long cave passages worth contemplating! But is this true, or are there two that just need clearing to find a New World to explore?

**Cave system 1:**
Off Vivian's Shaft at the Great Orme Mines is a crafty little system with a water worn chamber and rather good looking scalloped roof. This has been partly filled, with mined waste and other debris. Its only access is approximately 10 metres down the shaft, hard to access and needs a few days hard excavation to find its extent. The survey of this area would suggest that the system goes out into the Pyllau valley towards the Cromlech end, approximately under the new smelting hut. From the look of it, it seems this may be a contender for the longest cave system yet found. (90 to 110 metre A.O.D.).

**Cave system 2:**
Ogof Deg. Found on 12 June 1993 (after the Great Flood). This is of unknown possibilities, but from the amount of water that comes out after heavy rain, this could be the best hope of the big one. This is into hard limestone and I understand would be filled with glacial debris, stones and clay. It was completely hidden by boulder clay until this was washed away during the rainstorm of 10th June 1993. The conglomerate and clay overhanging the entrance is in an unstable condition. With a bit of effort one can get into the entrance and look into the tunnel. I would suspect one sees the phreatic tube at the top of the tunnel and the main tunnel is loosely filled with glacial spoil. Walking away from the entrance large blocks of tufa have been dislodged and rounded boulders are lying around, this may mean the original tunnel running through the boulder clay has collapsed with the volume of water coming through the tunnel. It would be interesting to know if the passage was choked up during the last ice age 10-12,000 years ago, or the big one 20,000 odd years ago.

*Edric Roberts, Craig-y-Don, April 1998*