



JOURNAL
OF
THE GREAT ORME EXPLORATION SOCIETY



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EDITORIAL - OCTOBER 1990

An apology for this issue of the Journal being so late particularly to the people who have submitted material for publication. The name Creuddyn has been dropped from the title, it being thought that this might deter people from buying the Journal. I liked the title and thought it appropriate but several members raised this point so we now have the original title back. For members not already aware of the progress made the area around Vivians has now been cleared completing the main phase of earth movement. The quantity of the spoil removed is estimated at 30,000m³ and this has revealed a large open cast feature within which many new entrances to the mine have been discovered. It was already known that the mineral vein ran North/South but it is now clear they have a complexity not recorded by the 19th century miners with 12 subsidiary veins having been identified.

An immense number of bones have also been removed. The process of logging these has been started by Frank Jowett and the sheer numbers mean this will be a long process. Some 5,000 bones have been recovered and species identified up to now are cattle, wild bear, sheep, goat, a human jaw and 2 premolars. This latter material has been submitted to Cardiff dental school for forensic examination. No deer bone has been identified as yet but the presence of antlers suggests these will be found. The potential information that could be obtained from the bones is great and no doubt will yield diverse information. In addition to the bone about 500 stone mauls have been recovered including one that weighs 29kl. There are two theories to explain how this very heavy impliment was used one is it was suspended within a frame work (like Newtons balls) or was simply used by a very strong individual. The school of thought, favouring the latter explanation, has now christened the maul 'Big Bob'.

Clearance of spoil underground has also continued in the immediate Vivians area and the Visitor Centre construction work started. The whole project is on course to open in the spring 1991.

Perhaps having some relevance to early mining on the Orme is some recent work on the body of Lindow man (known as 'Pete Marsh', a 2400 year old preserved body found in a Cheshire marsh). This has shown the presence of Copper Carbonate either on or in the superficial skin layers. Iron oxides were also discovered and the inference is that these minerals were used as cosmetics.

It is attractive and not unreasonable to suppose the Orme was a source of Copper mineral for use as a colouring pigment. Not that cosmetics did Pete Marsh any good, he was garrotted and had his throat cut.

Turning to the Ty Gwyn, Tony Davies and other members have successfully cleared the first fall in the main adit and made a temporary support structure for the roof. A more permanent support method is being considered.

As the end of the year approaches members are reminded of the Christmas dinner to be held on the 14th December 1990 at St Kildas Hotel, Llandudno price £10.00. Prior booking essential via Tony Davies or Richard Burton. An opportunity will be afforded to view some of the video shot by Tony Davies and others (sorry don't know specific names) and these will form a major attraction to the dinner event.

Finally I hear a trip is in hand during December to the Llanberis mine a site of reputed antiquity. Richard Burton and Tony Davies will have the details. I doubt there will be another Journal until after Christmas so Merry Christmas and a Happy New Year and I resolve to produce more journals in 1991.

Dave Smith

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GREAT ORME EXPLORATION SOCIETY

TY-GWYN

First Impressions

A hole in the ground, just a manhole as if its the entry to the sewers, but in fact the entry point to a whole new world underground. As I sit on the edge before decending I'm wondering what I have let myself in for by agreeing to go on a *trip down the mine.*

Climbing down the steel rungs protruding from the concrete manhole liners, which have been used to make the entrance, the first thing to be encountered and overcome is a tangle of acrows and joists used as support for the above mentioned liners. Then as you sit on your haunches waiting for the rest of the party to descend and for the last man down to make safe the hole through which you came, you begin to realise that this is a totally different world from that you left behind just a short time ago. This is a place full of history, a world of long forgotten miners, fathers and sons, of ancient machinery long removed. A no smoking zone where the condensation from your breath and that of your colleagues hangs in the air like a cloud.

As you follow your guide who seems to know what he is doing and where he is going, the roots of trees, like underground foliage reaching to drink from the water splashing up your boots, only seem to strengthen the feeling of stepping backwards in time. You can envisage the old miners stooping as they waded along the impenetrably dark passage towards their work-place somewhere ahead. You wade along towards who knows what and marvel at the construction of the Adit. Adit ! A mining term soon learnt and now part of a new vocabulary. Then your guide stops ! There must be more than this you think, yet all that can be seen is a pile of rubble where the roof has caved in. One day we will come and dig this out he explains, but for now we have to backtrack and go around by a different route. Back down the tunnel we all traipse until the hole in the side wall you noticed earlier is reached. Here you have to stoop even more to follow your guide as he disappears into blackness. This passage is a lot smaller than the first and if claustrophobia is to be felt then this is where it will happen. You also notice that it has not been lined, as the entrance adit had been, here it is the very earth itself through which you walk, self supporting and very dry for the present with numerous side tunnels shooting off, the first of which has been filled in for some long forgotten reason.

As you pass the next side tunnel you are warned from ahead to beware of the hole in the floor which is soon reached and gingerly stepped over, just past here you all stop and have a rest while Billy (your guide) explains that "on the way back we'll have a look down there". Soon after restarting, you are wading through water again, yet now it is in a tunnel cut directly out of the rock itself. This passage seems a lot more substantial than the previous one but is relatively short as you are soon to re-enter the main adit, only this time on the other side of the collapse.

The walk now is quite pleasant, as standing upright, you all stroll along a wagon-way with the rails still in place which is appreciably wider and higher than anything yet encountered, the air is also noticeably fresher here and a draught blowing from somewhere cools your back as you continue. Here you are shown an old wagon wheel made of cast iron and further along, after being asked to be careful to walk around the protection tapes, clog prints still preserved in the sticky mud. After this the tunnel rapidly ends in another blockage the other side of which are more tunnels which can only be reached by descending the Tyn-y-fron shaft, so you retrace your steps to the resting place just by the hole in the floor. To your left as you sit there is what looks like the remains of a stone fireplace but is in fact the bottom of a filled in shaft.

By now tiredness is starting to creep in, not from the time spent or effort expended but from walking in a stooped position. Yet still there is more to see, so, down the hole you drop, where a choice of three passages awaits. First you take the right hand arm of the "T" until a brick built wall is reached. There is no obvious need for a wall being in this position as the tunnel behind it is all backfilled nearly to roof level, yet as you discuss possible reasons for building a wall in such a strange place it is obvious that there must have been a very good motive for the old miners to haul the bricks and mortar to this place.

As already mentioned the passage you are in is just one arm of a "T" and after retracing your steps you start down the other arm. The walls here are very jagged with rocks protruding out of the sides and roof as well as littering the floor on which you walk. The tunnel diggers of old had obviously not taken as much care here as in other places through which you have passed. There is a bend in this passage after a while which serves to hide from view anything that might lay ahead, but as you round this it opens up onto a ledge where you can all huddle to gaze at a pool of water lying just in front and below where you stand.

Of course it is not actually a pool but a flooded shaft. This, explains Billy, is the Ty-Gwyn shaft, which reaches above your heads to the Empire Hotel car park, and if you are careful and look up you can see the domed capping on the top of it, and below your feet to a depth no one is totally certain of, possibly another 220ft. The shaft was abandoned when the pumps failed and the miners had to bid a hasty retreat due to the incoming water, leaving all their tools and belongings behind in the workings below.

Finally you turn your back on the wonders of Victorian mining and, with your mind full of thoughts and questions return to the hole in the ground, which now is your exit from this strange world, as your first *trip down the mine* has come to an end. There is one final ritual that needs to be performed explains Billy as you are getting out of your overalls and boots, this is soon explained and after a short walk you are quenching your thirst in the nearest bar and busily planning your next trip, because by now you are totally hooked on exploring the underground copper mines of the amazing Great Orme.

Tony Davies.

CAVERS.

Poor People in customary liberties that go daily to the Mines, carry a small Wiskett and a Hammer along with them, picking up all small bits of Ore they can find, which they take with 'em home, and drefs, and fell to the Ore-buyer; these *Cavers* dare not come to any Man's *Grooves*, when no Company is there, nor dare they Measure their Ore, but by the Lord's Dish Trough, for fear of Punishment.

extract from

HIGHWAYS & BYWAYS IN NORTH WALES
ARTHUR G BRADLEY
c1898

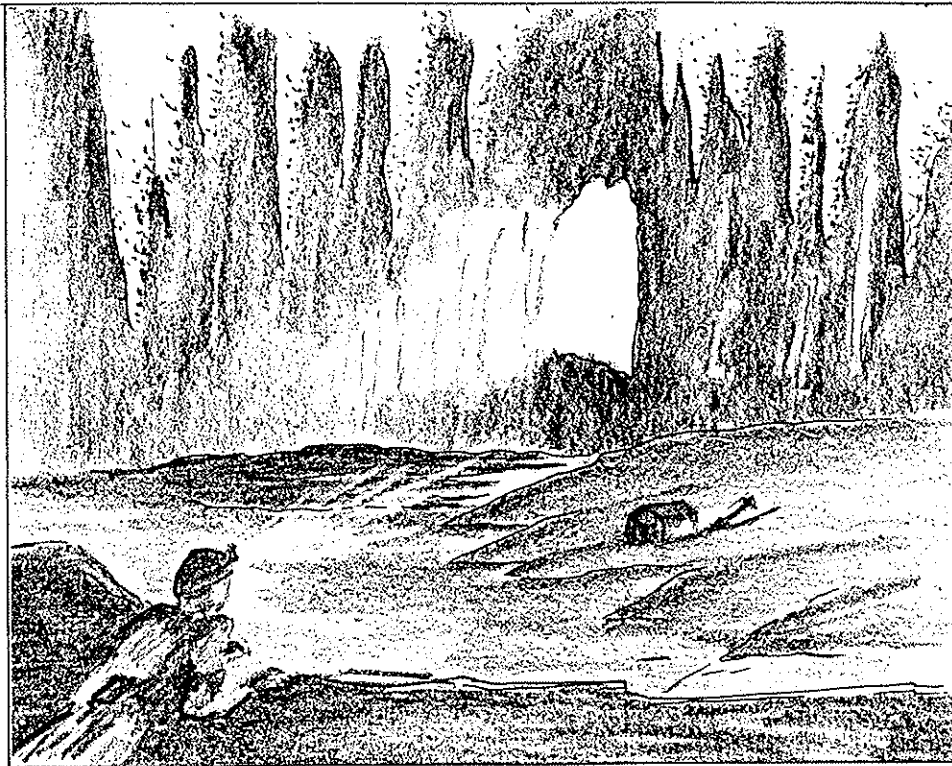
But in the meantime we must not ignore altogether this strange block of lumpy broken country, known as the Creuddyn peninsula, a dozen square miles perhaps in area, lurching out into the sea, with the two Orme headlands forming the horns of its extremities, and Llandudno lying between them, its dominant influence:-a windy, treeless, sheep-pasture for the most part, till the tourist and the builder took so much of it for their own. Even yet, between the villages and villas and scrubby plantations of new country houses, there are rare sweeps of gorse-lit common, and billowy uplands of emerald turf, that culminate in wild and unexpected outbreaks of naked crags and sterile rocks. Eighty years ago, or thereabouts the "Queen of Welsh Watering-places" was a cluster of fishermen's huts tucked away under the shoulder of the Great Orme, and the tiny church of St. Tudno, which still occupies a lonely perch where the waves dash upon cruel and cavernous cliffs at the back of the promontory, was more than sufficient for their needs. As such things go, modern Llandudno would really seem to justify its self-complacent claims to supremacy, for it sweeps in undeniably imposing fashion round the noble bay, with its incomparable sentries on guard upon either hand.

Indeed it is no longer content with this mile or more of level sea front, but has clambered several hundred feet up the precipitous sides of the Great Orme. The visitor has now ample choice. He can sport with the North-country 'Arry or the negro minstrel on the sand, or he can perch himself in almost inaccessible seclusion, and look down upon the merry crowds darkening the shore like swarms of ants, and on the white-winged pleasure-boats skimming the dimpled sea. But twenty Llandudnos could not spoil the Great Orme, for it is not merely a headland, but a world to itself, where, lifted high up between sea and sky, you may wander for miles over its white ribs of limestone and sweeps of velvet turf.

In late autumn too, if you would court solitude, you will probably find it here, and yourself alone, save for the handful of squatters scattered about in white-washed cottages at far intervals, who reap some sort of harvest, no doubt, in the season from the giddy world beneath. The great charm, however, of Llandudno, to my thinking, is the noble outline which the Carnarvon mountains present to even the dwellers in its streets. What can be said therefore of the outlook from the top of the Great Orme? Nothing. For the attempt would merely be to detail every mountain top, and epitomise the physical geography of half North Wales.

The North West Passage

I found myself wandering along a precarious ledge that skirted the east side of the massive chamber, below me the dark waters of the pool reflected little light from my lamp, which was by now becoming quite dim. Across the water on the far side I could faintly make out what appeared to be a wooden chest, beside it and resting against the walls stood a number of tools, shovels, picks and iron bars. I tried to recall the descriptions given to me some years ago by Huw Tudno, how he had once discovered a passage leading through the Orme, and seen a similar chest. The scene set me thinking, those smuggling stories of centuries past filled my mind, were they true; and of the fate of poor Jane who had lost her lover at the hands of the customs men, a story I had read some weeks earlier in John Hicklins old guide to Llandudno. Could this be place those notorious men had used as their secret hide-out, having lain forgotten for so long or had it, as a few believe been purposely kept secret for some mysterious reason.



I scanned the torch beam over the vast cavern looking for any route to reach the shore where the chest lay, but to no avail, I would surely have to return with a rope and company, but could I remember the way in or was there another way out. At least a few hours appeared to have passed since I had entered the system of tunnels, so I decided to retrace my steps back to surface and to the rocky limestone pavements of Porth Helyg. All of a sudden the lamp began to fade, and in desperation I tried to quicken my pace, yet however hard I tried my movements became slower and slower, till at last I could no longer walk. Through the growing darkness I could hear a sharp banging noise also voices, I leapt up... and bleary eyed, peered through the window, by now the sun had risen above the Little Orme, its rays filled the room, I recalled last nights conversation in the Kings Head, something about going down the Ty-Gwyn mine, an early start. There, on the front door step stood Billy and Richard, I really must try to get that bell fixed!

THE TY GWYN EISTEDDFOD

Bank Holiday Monday, last August I think,
The Eisteddfod was held 'down below',
The Ty Gwyn tram level, a venue distinct,
It promised to be quite a show.

The Society gathered, to oil vocal parts,
And tarried far longer than planned,
Then we decamped, with song in our hearts
To the shaft, in the grass, by 'The Grand'.

With helmets on firm and our caplamps aglow,
We ventured in turn down below,
We chatted, and joked, and wanted to know,
Just who would be star of the show?

The caban we built, in traditional style,
In comfort to seat about ten,
We built-in more seats, and with some guile,
Sat hundreds and hundreds of men.

Huw Tudno began with a Hymn from the heart,
In the chorus we all had our part,
'Cwm Rhondda' went rolling right out to the shore,
And returned as rousing "Encore!"

Before we went on, we called Ian Bright,
"Be sure that the town can all hear,"
He came in a flash, and cables he laid,
To Tannoys he'd placed on the pier.

Tom Parry had songs, Don monologues long,
Bob Smith he did conjuring tricks,
Tony had stones he'd polished and shone,
And Kristian was doing high kicks.

Associates, GOES, from parts far and near,
Came down to watch and perform,
Day-membership soared, we filled up the pier,
Then we began on the Orme.

Alex Munroe, he was there on Y Fach,
In spirit he walked with the throng,
In style of years past, they sang Sosban Fach,
He lead the crowd on in the song.

The band heard the noise, and came one and all,
They played as they marched down the mine,
Their full brazen tones reached down to the wall,
Then Echoed their way up the line.

The strains went abroad, far into the Orme,
The dragon awoke in his lair,
To see all these miners of beauty and brawn,
He'd visit this festive affair.

The knockers heard too, they weren't far away
They wanted to see what was on,
Shy though at first, their choir we did sway,
To sing us their old knocking song.

Clouds drew aside and it shone on the throng,
They sang, and they laughed, and they cheered,
Ice cream was selling quite well on the prom,
.....Till the By-laws Inspector appeared.

Down the level he crept, to the sound of the song,
By the light of a taper held high,
It flickered, and spluttered,...and then he was gone,
Consumed by Y Ddraig's searing sigh.

A camera crew came, we made the late news,
A message came down from the Queen,
"My husband and I, think it's by far,
The best one that we've ever seen."

The Amenities Officer saw what was on,
His office had heard them applaud,
The size of the throng, and the volume of song,
He couldn't conceive so he awed.

The Red Arrows had asked if they could appear,
The venue we thought, 'rather small',
We sent them a message, and sent it in clear,
"It's wet, perform in Town Hall."

The contest continued well into the night,
But the chairman's decision was hard,
And all through the night, the tie-breaking rite,
Failed to decide on the Bard.

In the still you can hear, at the back the mine,
Deep in the heart of the earth,
The strains of the festival linger in time,
The songs, and the verse, and the mirth.

Bank Holiday Monday, next August I think,
The Eisteddfod we'll hold 'down below',
The Ty Gwyn tram level, that venue distinct,
You know it will be quite a show.

Don Smith, London, Ontario, July 1990.

Tune: Ballad of Ivan Skinsky Skavar and Abdul Abulbul Amir.

AN EPIC VOYAGE IN THE GWYLOG

One fine, very hot, very still afternoon in July an intrepid trio of GOES members and Edric set off on a voyage around the Great Orme's head in an 18 ft. boat belonging to and skippered by Captain Tom Parry.

We set off from Llandudno North shore rather later than the 12 noon rendezvous and from the start of the voyage time became irrelevant. Initially we were accompanied by Brian Allen, a friend of Tom in his rather splendid boat called the Tawny, which even Tom agreed was more sophisticated than the little Gwylog, and certainly in a more pristine condition. Edric, Tom and myself sped off at high speed on a 4 horse power engine leaving Andy and Brian trying to conserve fuel by sailing. Inevitably they failed since there was not a breath of wind to stir the sails and soon they abandoned sailing, started the engine and set off in hot pursuit of the Gwylog.

The first difficulty the Gwylog encountered was that of the invisible fishing lines off the end of the pier. As we ploughed through the water we became entangled in a transparent line and wasted vital seconds removing the obstacle; the angler was not too perturbed, saying that we were the largest catch he had ever had. The Tawny was now getting closer and the two boats rounded the snout of the Orme. We observed the beach adit, the natural water formed holes in the cliff and an inlet known as Dutchman's cave. During this time literally thousands of photographs were being taken by the society photographer, Edric, who somehow or other managed to simultaneously operate three or four cameras whilst only occasionally leaving the lens cap on. We chugged slowly around to Ogof Llech and then on to Pigeon's Cove where we layed anchor and waited for the Tawny. Brian decided that he would only have enough fuel to return home if he turned about at this point, so after a transfer of crew and a few minor engine problems had been sorted out the two boats parted company and Andy, Edric, Tom and myself chugged out to sea avoiding the menacing rocks which lay beneath the shallow water near the cliffs. Ahead lay a vast expanse of empty sea, the blazing sun sparkled on the water and the only sound to be heard when we switched off the engine was the cry of the gulls, kittiwakes and guillemots on the cliffs high above our heads. We sailed or rather drifted since there was little more than a gentle breeze and before long we were becalmed, just like the Ancient Mariner 'as silent as a painted ship upon a painted ocean', luckily there were no sea monsters at large and the sea although far from clean was definitely better than the bubbling oils which Coleridge described in his poem.

Tom tried a clever bit of sailing, zig-zagging or rather tacking to take advantage of what little wind was available. It took Edric and myself a little time to understand the complexities of a boomless mainsail but soon we had the hang of it and although we did not move very fast we seemed to be in control of where we were heading. At this point Tom amazed us all by showing us one of the latest pieces of technology - a depth meter. We were at first a bit sceptical and Andy thought that Tom would be better off with a piece of string with a stone on the end since that would be more in character with the boat. Unperturbed Tom lowered the device overboard and we got a reading of about 80ft. which none of us could dispute or confirm so we remained unconvinced of the usefulness of this device. Tom had originally intended to take us round the Orme and then back to the North shore, but the deckhands decided that we also wanted the full trip to Deganwy and threatened mutiny if he did not take us along. There was however the problem of the tide, we were too early to make for the harbour, at 2 pm large off shore sand banks were still visible so we sailed further out to sea and bided our time. By 4pm we were somewhere off Llanfairfechan and sandbanks still loomed beneath the water. At one point the water became so shallow that Edric and Andy got out to push the boat, however once the water got above knee height they quickly got back on board, Edric because he could not swim and Andy because he did not want to get his shorts wet. Soon after we met a speed boat the drivers of which had no idea how to get into Deganwy harbour but insisted in showing off by speeding up and down in water which at some points was very shallow.

Slowly we chugged along a narrow channel marked by buoys. We got the depth meter out once again and this time it came into its own. At one point we must have almost lost the channel since the depth meter only registered 3ft. and Andy's side of the boat was at least six foot deep all of us were ready to conclude that the meter was not working until I stuck a pole over my side of the vessel and felt the mud only a couple of feet beneath the surface. We quickly altered course and safely entered the harbour, making for Tom's mooring where his little rowing boat lay waiting. Tom then ferried us one by one ashore. It had been an idyllic day, but we were now thrust back into the hustle of everyday life and I for one wished we could have continued sailing for much longer.

Helen Jones

THE HOLE IN THE PROMENADE.

I must be mad ! This is my most frequent thought these days, since joining GOES. For a claustrophobic to start delving into deep dark holes in the ground at the ripe old age of twenty one and a bit seemed a little ludicrous at the start and gets no saner as time progresses. A certain events organiser, who shall remain nameless made going underground sound like the most exciting thing since the discovery of penicillin, so I warily agreed to go down. Everyone knows the well used saying, "Don't look down!", so whats the first thing I do when confronted with an open manhole on the promenade? My stomach did double somersaults and tried to escape through my throat, but I couldn't get out of it as the trip had more or less been organised for me. I had ten minutes and four fags to get used to the idea and by the time I went down I was absolutely petrified. As I turned round at the bottom of the ladder and the colour started to come back to my knuckles, I felt like I had stepped into a fairytale. The sight of the tree roots coming down from the gardens above to gain sustenance from the water below was quite indescribable. Walking (unsteadily) through the tunnels, I was both nervous and awestruck at the sheer craftsmanship and hard work of the Victorians who had erected this monument to the copper industry. I wondered if they had realised how long it would last. Even the encroaching tree roots had done nothing to destabilise their efforts. I wondered if they realised that some of the tunnels were large enough to drive a small car through. I wandered in a daze through a guided tour of living history and realised that nothing and nobody could keep me out of this place. I WAS HOOKED! I am now a full-blown mine exploration addict and I beg and pester to go down at every opportunity, which is how I managed to see the first daylight to hit the back of Vivians since prehistoric times (not that I would boast about that particular privilege. I am being gradually persuaded to buy more equipment of my own and I rarely ever miss an opportunity to go underground, but there are still times, when I'm wedged between two rocks attempting to chimney or sliding towards some gaping abyss somewhere in Vivians that the thought pops into my head "I must be mad". I'm sure my mother would agree!

Special thanks to Mr. Tom Parry for excerpts from the Ty Gwyn video script !

Kristian Wheal,

June 90.

Y Ddraig Gogarth from slumber awakes

There may be some among you who doubted the veracity of my report last year in the G.O.E.S. Newsletter concerning Y Ddraig Gogarth. To those doubters within the society I say, "Shame." Proof, if proof were needed, of the existence of this legendary creature has been before us for some time but has gone unrecognized.

For many years, even as long as Huw Tudno's memory, rocks have been tumbling down the slopes of the Great Orme and onto the road. To the council, this used to be a simple fact of life requiring a vehicle to clear the debris off the Marine Drive each morning. Little had been made of this phenomenon until recent years when it was brought to light by tragedy.

When the falls are small and inconsequential one might in error attribute them to sheep or the elements, but larger stuff requires further consideration. A sheep could hardly have started the fall onto the Marine Drive over the Christmas period. No, much greater forces were at work and I fear Y Ddraig Gogarth has been stirred from its cryptic seclusion and is at large.

But why now? I can think of no other reason than the Society's recent firesetting jamboree on the north escarpment, not far from the most recent incident. It must surely have been some party (why wasn't I invited?!) to have woken a neighbour such as this, and caused it to rise like a Phoenix from our hot ashes. Far from being a vengeful, Y Ddraig Gogarth is still rather clumsy, drugged by deep slumbers, and also very hungry.

The sword of Damocles hangs before the council providing two options. First, it could spend no money at all in the expectation the dragon will have a feast of all the loose nutritious rock and return to its slumbers. However, the society would have to find another more remote site for its firesetting experiments. Or, secondly, it might spend a bundle on the drive, remove the dragon's feeding ground, and upset it with noisy heavy plant and loud explosions. You may be assured, this would have stunning consequences as a hungry angry dragon makes its presence and opinion felt. As it proceeds to the Town Hall, incinerating cars and all that stand before it, I can hold out no hope it will be able to distinguish councillors and their cars, and extinguish all others. The choice is theirs, but write to your councillor and make your views known.

I can offer no simple solution, only sound advice. When next you tread the Orme's soft springy turf, do so on tip toes, listen hard and speak in whispers, lest you provoke the dragon's 'ire.

Professor Huw G Lyre BS, 1990

FIRST IMPRESSIONS OF THE THROUGH TRIP - ROMAN'S, TREWEEK'S AND VIVIAN'S

Early on Sunday morning the 8th of July a rather dubious group of nine GOES members assembled at the Roman shaft. We were all kitted out in sit-harnesses and absailing gear, giving the impression that we knew what we were doing, whilst in fact half the group had not done the trip before. However in the capable hands of Phil Smith we were assured that everything was under control, well planned, and that we definitely would not get lost - even if we did there was always Andy's map (drawn after a few pints in the King's Head), and if we could not follow that then there was always the last option - to SRT back out !

Absailing down Roman's shaft was the first test of our nerves, everyone successfully negotiated the 50ft pitch, though for me the most frightening moment of the whole day was initially lowering myself into the shaft, leaving the daylight world behind and casting myself into an open void which at the time seemed to be bottomless. Once everyone (Phil, Bob, Louise, Kristian, Billy, Dave, Ian and myself) had reassembled we set off down a wet passage towards the wagon gate level in Treweek's shaft. Meanwhile, Tony Davies, being a brave chap, absailed down Treweek's shaft alone to set up a belay system at the wagon gate so that we could descend the remainder of the shaft. After a short while scrambling around in low roofed passages observing radioactive bitumen deposits and negotiating a couple of difficult descents our party arrived at the wagon gate. We now prepared ourselves for the 90ft absail down the wet shaft. Bob volunteered (or rather was told by his brother) to go first. Phil meanwhile was rather anxiously checking that the rope actually reached the bottom of the shaft, he wasn't sure so of course he sent Bob to find out ! Bob arrived safely at the level where you have to swing in out of the main shaft and waited for the rest of us to descend. Tony went next and lay in wait, camera in hand ready to take photographs of each one of us as we were pulled to safety by Bob. Then one by one we began the descent probably not realizing that if Bob missed us then it would have been very difficult to get back out. Luckily Bob grabbed (or should the female members of the group say 'groped' ?) each one of us and Tony tried rather unsuccessfully to capture the moment of rescue on film, ending up with a collection of backside shots, and only Phil smiled at the camera whilst entertaining us all with his yo-yo impressions on the end of the rope.

We now set off on the final stage of our journey, along what seemed to me a maze of tunnels spreading out in all directions. There were a few dodgy places with little or nothing to hold onto and loose earth all around. In one place especially we all took great care not to fall down a gaping hole, all that is except Bob, who seeing our lights below literally jumped down and somehow ended up in one piece at the bottom. After a series of winding tunnels we reached Base Camp and did the traditional thing, lit some candles and ate Tom's dried banana pieces. We then did some exploring. Phil found a steeply sloping bank of mud which made an excellent slide. We christened this the 'WEEEEEE ! ' and it was great fun provided you stopped before the rather deep hole at the bottom. Once playtime was over we all assembled for a group photograph, (hopefully Tony remembered to take the lens cap off). We then set off towards Vivian's. Ahead lay several tight squeezes, knee and elbow damaging crawls over sharp rocks and a couple of chimneys; which were somehow negotiated by all of us, though we did wonder if we would lose Bob in some of the smaller passages. Before long we reached Vivian's workings and promptly got lost. We tried using Andy's map, but soon gave that up as a bad job, as Phil put it the map was 'about as much use as a chocolate fire-guard', and we concluded that Andy had intended us to use it and get lost. Eventually, after several false routes Tony saved the day (it was getting late and the pub had already opened) and we found ourselves back on familiar ground.

We inspected the dead cat and clog prints before making our way to the chain ladder and rope section, where I managed my usual acrobatic feat of climbing up backwards and getting stuck, eventually I sorted myself out and clambered gratefully towards the large stope in Vivian's. Daylight was clearly visible from the newly created entrance but by now everyone was tired and showed little interest in the new developments that have been taking place in Vivian's. We made the final ascent of the ladder in the shaft out into bright daylight. The whole trip took three and a half hours and we still had time for a couple of pints in the pub.

We later heard from Tom that he had been the cause of some alarm amongst the men working on the tram track; since Tom had only just finished work he arrived in time to see us down the Roman shaft still dressed in his ambulance uniform and a rather worried tram worker assumed there had been an accident down the mines and immediately offered the assistance of the whole gang of labourers ! Luckily the trip was completed without any injuries except a collection of bruised knees and arms and everyone thoroughly enjoyed themselves.

H.M.JONES

The Old Wells of the Great Orme

This is the second in a series of articles on the old wells of the Great Orme, and was written by John Roberts of Bryn Celyn at the turn of the century. The well site has changed in its appearance from this description of nearly a century ago, and all that now remains is a water trough and an area of marshy ground. For those interested in visiting the site look on any large scale map of the Orme and you will find it at SH 7711 8356.

Ffynnon Powell

This is probably one of the most interesting wells situated on the Great Orme. Walking along the path from Pen-y-mynydd to St. Tudno's church, and after coming just within site of the church we arrive at a water receptor with water running from a pipe into it, and an iron cup for the purpose of drinking; this is Powell's well. This well has been a great favourite with the old inhabitants, and the water was fetched for household purposes and for drinking; the water is most palatable and sweet to drink, and it is asserted that many well known townsmen when walking along the path will never pass without tasting its waters. It will be observed that the well has been named after some person. How has this name Powell been attached to the well? And why? Did he discover the well? Was he made whole of some disease by using its waters? and many other questions suggest themselves. As a matter of fact it has been called this name for generations. Years ago there was a tradition among the old inhabitants of Llandudno which is most interesting and is as follows. Long ago near the spot where the well is situated there lived a small farmer and his family of the name of Powell. If the place is examined it will be found to contain the remains of buildings, this to a degree confirmed the story. However, on a certain summer due to the lack of rain, the drought became very severe; not only did the sheep and cattle suffer, but the Powell family also suffered great privations. Owing to some dispute all the neighbours declined to supply the Powell family with water, they were informed with the peril of death not to approach any of the wells on the Orme. Owing to this unneighbourly proceeding the poor family were in dire straits, and terrible agony of thirst threatened their very existence. Now this family were considered very pious, religious and good people. After considering the situation and as a last resort they decided to pray to God for their deliverance. The whole family left their home and repaired to St Tudno's church near by, and there worshipped their God, and earnestly prayed for divine assistance in their distress. They returned home with sad hearts, but when they reached home to their great joy a spring of lovely water was bubbling up near the door of their house. Their gladness was unbounded and the name of Powell has clung to the well to this day. Thus runs the story of Powell's well.

GREAT ORME EXPLORATION SOCIETY

As there are now many new members in the society, some of whom do not have the knowledge of knot tying that more experienced members have I thought it about time to rectify this situation. Therefore future journals will show commonly used knots together with instructions for tying them.

We start with basic rope terminology which you will need to be familiar with in order to follow the instructions, and then two of the most important knots in common useage.

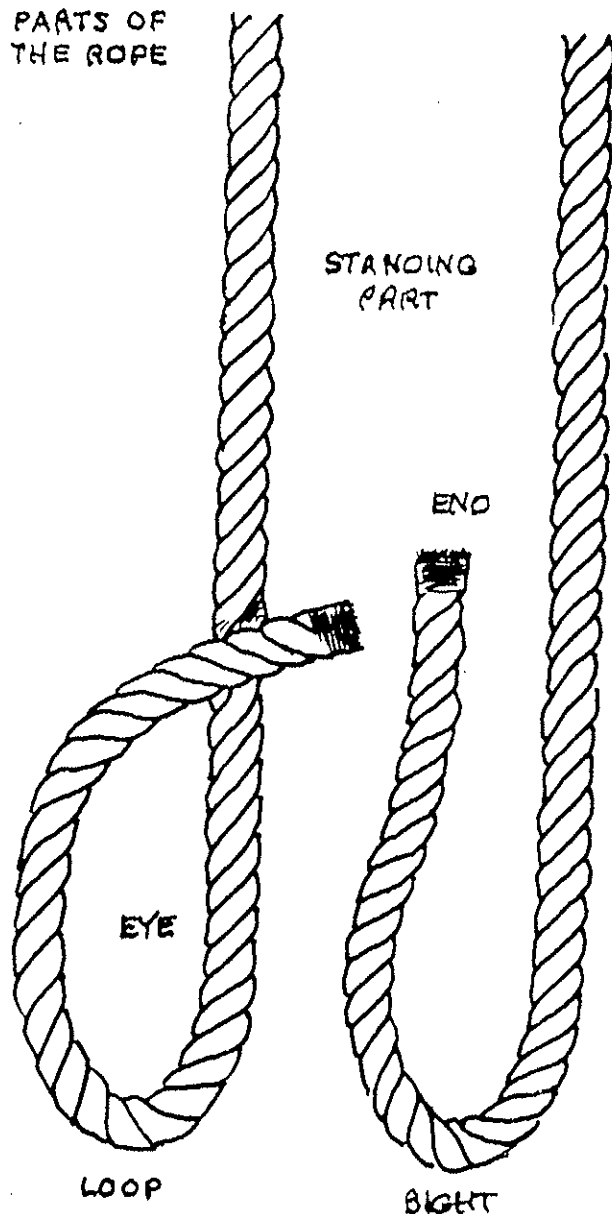
Question

When is a knot not a knot

Answer

When its a bend or a hitch.

PARTS OF THE ROPE



1. *The Standing part* is the main part of the rope, above a loop or bight. It is the part opposed to the end.

2. *The end* is, as the term implies, the end or unsecured part of the rope.

3. *A bight* is a half, or open circle in a rope and also refers to the middle part of a length of rope.

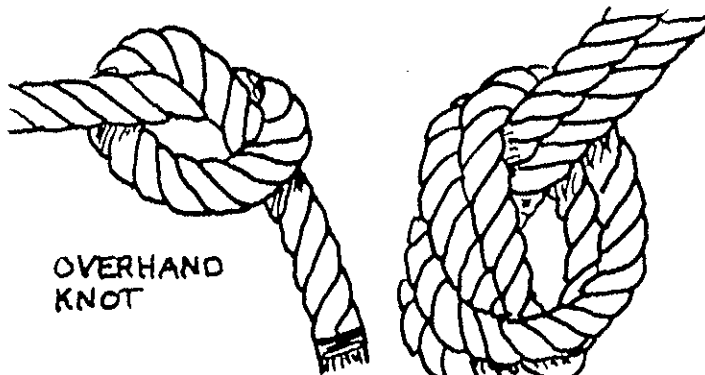
4. *A loop* is a closed circle in a rope.

5. *A knot* in the precise meaning of the term, is any knot, other than a bend or hitch!

6. *A bend* is the knot used for tying one rope to another.

7. *A hitch* is used for fastening a rope to another object, such as a spar or tent peg.

OVERHAND or THUMB KNOT



OVERHAND
KNOT

USES: This is a "stopper" knot and well enough known to be used unconsciously by practically everybody. It is the most basic of knots. A better one for stopping ropes is the Figure of Eight Knot.

HOW TO TIE: Take the rope in the left hand and form a loop by laying the end across the face of the standing part. Tuck the end round the rope and back through the loop, and pull tight to form the knot.

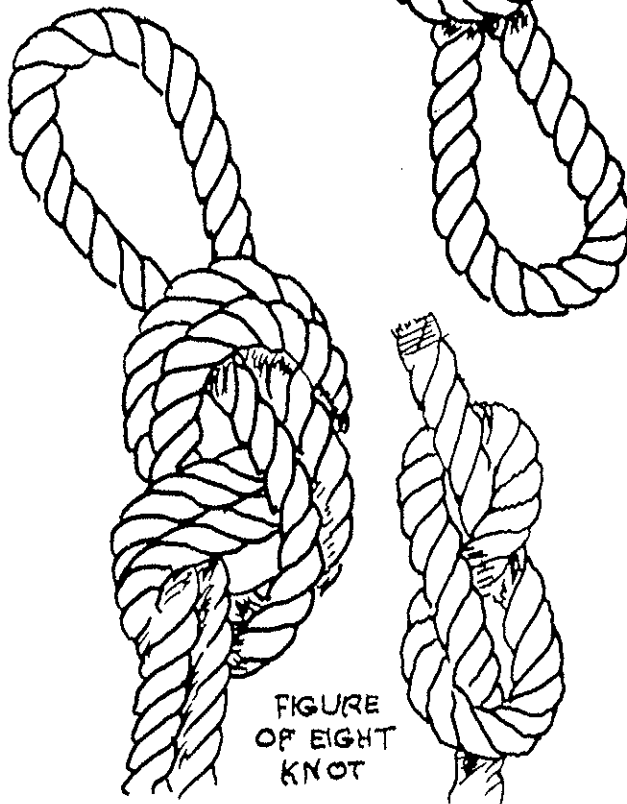


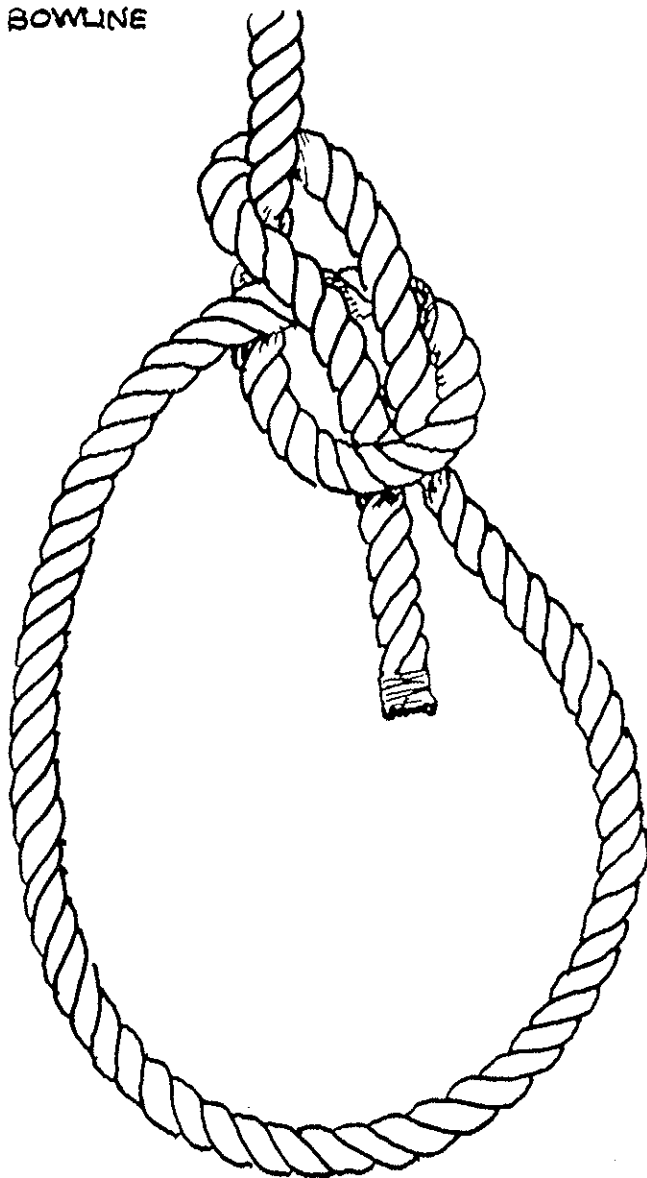
FIGURE
OF EIGHT
KNOT

FIGURE of EIGHT KNOT

USES: This is a "stopper" knot used to stop a rope running out through a cleat, block or karabiner. It has the big advantage of being easy to untie.

HOW TO TIE: Take the rope in the left hand, and form a loop by laying the end across the face of the standing part. Then lead the end around the back of the standing part and down, through the front of the loop. When the end is pulled, the rope falls into the figure of eight shape.

BOWLINE



THE BOWLINE

USES: This is the queen of knots, with a wide range of uses. The basic purpose is to put a non-slip knot in a rope, and thus form an eye, bight or loop. It can be used for making a waist line and should be secured with an overhand knot.

HOW TO TIE: Hold the rope in the left hand and form a small loop over the top of the standing part. Hold in place with the thumb of the left hand. Then lead the end through the back of the loop, round behind the standing part, and tuck the end back through the loop. Pull tight and presto!

Remember the tale that "the rabbit comes up out of the hole (the loop), round the tree (the standing part), and back down the hole!"

WOOPS!



ROMAN MINE ADMINISTRATION AND LABOUR

During the Republic^{I II}, ie until 27 BC, commercial and civil activities were not taxed directly by the state. The collection of taxes was privatised, the leases being given to the Publicani^{1-III} with the highest bids. Publicani, the tax collecting joint-stock companies, administered their lease (in this case mines), collected dues, tolls and taxes, and kept for themselves sums in excess of the government contracted figure. They granted mining concessions to Conductores, who were either Equites or Curiales², privileged and wealthy landed members of Roman society, below Senatorial class.

Under the Empire the Imperial Civil Service expanded and this system of indirect taxation was gradually replaced. For a time the Publicani continued to collect taxes but were permitted to retain only a certain percentage of their harvest. Conductores replaced the Publicani, and they in turn were replaced by Procurators³ who, as government employees, collected the taxes directly^{III}. The regulation and taxation of mining followed a similar course.

The first reference to a Procurator in Britain appears in 61 AD in an inscription naming Gaius Julius Alpinus Classicianus, Procurator Provinciae Britanniae^{IV}. Subordinate to him would have been other procurator's with more specific terms of reference eg silver mining^V. Another inscription found on a grave stone at Coombe Down near Bath names a freed man, Naevius^{IV}, as the Procurators assistant, circa 212-217 AD, when Britain was divided into an Inferior Province, with its capitol at York, and Superior Province administered from London.

The full title of a Procurator^{I II} depended upon his terms of reference:

The province	Procurator Provinciae Britanniae
All metals	Procurator Metallorum
Iron	Procurator Ferrariarum
Silver	Procurator Argentariarum
Gold	Procurator Aurariarum

His staff appears to have been similar irrespective of his particular mineral responsibilities and included^{II}:

¹Publicani: The officials of these companies were all Equestrians who ran their corporations from Rome and had agencies in the provinces.

²Equite: Equestrian Curiales: Landed prosperous class, municipal councillor, with hereditary public obligations.

³Procurators were drawn from the ranks of the Equestrians, an order open to all Roman citizens of good character, over 18, of free birth and having a census rating of over 400,000 sesterces. Once admitted by the princeps, they progressed through military positions to Tribune and were then eligible for a civil Procuratorship^{III}.

- 1 An Assessor, responsible for justice.
- 2 Iudex arcae metallorum/ferrar...., an arbiter.
- 3 Vicilus, a minor official, bailiff.
- 4 Tabularia rationis metallorum/ferrar...., collector of taxes
- 5 Arcaris vectigalis, mine revenue treasurer.
- 6 Actor metallorum/ferrar...., a toll collector.

In addition, he may have had technical advice from slave artificers or natives.

Conductores wishing to start a new mine, or revive an abandoned mine, would erect a notice, pay a fee to the appropriate official and register the right, following which they had 25 days to collect their equipment, men and begin work¹¹. Once in operation, 50% of all mineral was payable to the Procurator, and if work ceased for more than six months the right to work was forfeit. Small and large concessions were granted, the former being perhaps a single pit worked by the conductor, who at that time may have been a freed man, and a few others^{VI}. Larger concerns, too big a burden for one man, were often formed into Societates by a number of Socii, or shareholders, eg. Socii Lutudenses in Derbyshire.

Lead ingots found in Derbyshire often bear the cognomina⁴ of the conductor, who may have been freed men, others bear a company name such as Socii Lutudenses mentioned above. The Procurator would also ensure salvage of silver from lead where it was possible and stamped treated lead ingots 'Ex Arg'. Nearer home, copper bun ingots have been found to bear similar marks. The Caerhun ingot was stamped Socio Romae, no doubt the name of the company, and others bear names of conductores^V.

Legionary stamps have also been found in various parts of Britain perhaps indicating a regulating role. Occasionally they played a more active managerial role as may have happened in the Mendips, Shropshire and Yorkshire, where the mine would be run by a Beneficiarius, a privileged soldier^I. Other mines seem to have been run directly by the Procurator's staff, particularly those guarded by the military and manned by slaves^I.

Regulations were passed down from Rome periodically, as Lex Metallii Vipascensis, an example has been found at Aljustrel¹¹ in Portugal. These tablets are cast in bronze, intended for public view and observance, and detail the conduct of many mining activities including safety, movement and theft of ore, trial shafts, adits, and the integrity of support pillars. Offenders, if slaves, could look forward to a flogging, and freed men confiscation of property and expulsion from mining. Quite how effectively the privileged classes were disciplined is not known.

The division of soil and subsoil rights became recognised, the latter remaining with the state. A mining system evolved becoming

⁴ Names: Praenomen:Forename, Nomen:Family or tribal name, Cognomen: Additional individual name. The combination made the full name.

the basis of the Saxon *Gerwerschaft*, the cost book system of the *Stannaries* and *Royalty*^I.

Where a large enough community existed at or near a mine or mining area, entrepreneurs bid for the franchise to provide services such as laundries and hot baths, as a monopoly.

The Romans certainly used slave and criminal labour in their mines^I, as well as other lessfortunates such as barbarian prisoners of war and christians. Contemporary accounts describe the conditions in the mines as far from ideal. Lighting and ventilation was poor, few comforts were provided, the death rate was high and the skeletons found in many slave mines are all young and sometimes are still fettered^{III}.

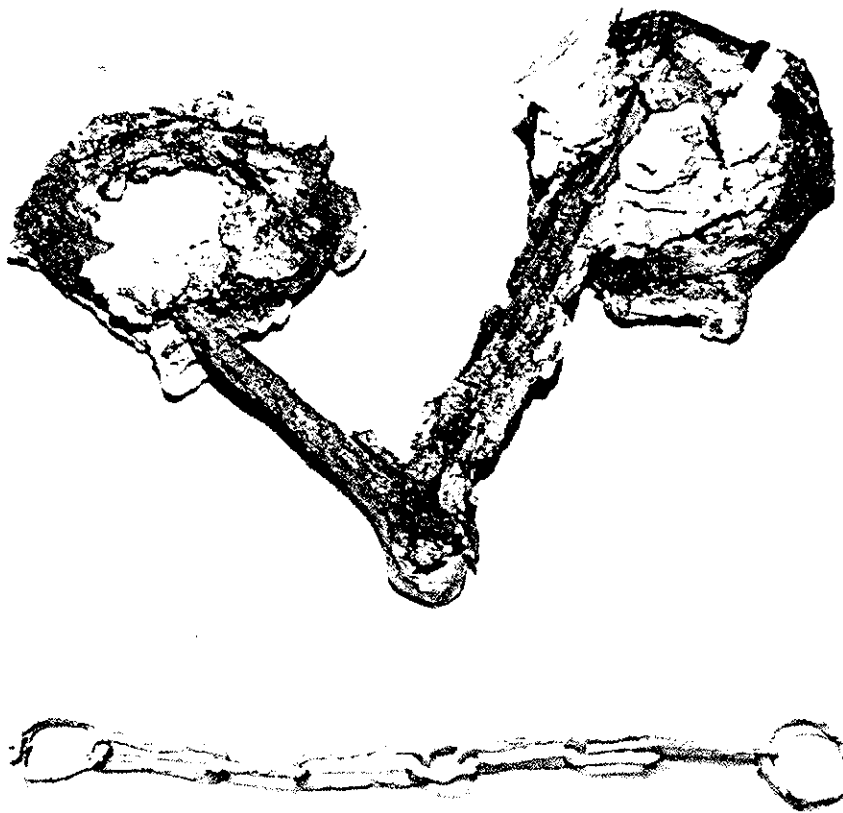


Fig I Leg fetters found in the Rio Tinto Mines.

While skeletal remains have been found in Llanymynech, they were found in association with late second century coins. It is thought probable that a freed man, or other small conductor, was operating the mine and it does not represent evidence of a slave mine^{VII}.

The labourers were frequently billeted underground in an easily guarded cave or a disused stope which would be adapted to provide primitive comfort by carving out benches and alcoves for sleeping and storage, as at Cassandra^{III}.

Another source of labour were the local peasants. Under the *partiaris*^I system, they would be treated as vassals by the

conductores holding the local mining concession who demanded a quota of free labour, or corvee, on pain of beating if they refused. There is some evidence to suggest this was the fate of the local Deceangli in the lead mines of Clwyd; a lead ingot found in Hampshire^{VIII} bears the stamp NERONIS AUG EX KIAN IIII COS BRIT, indicating it came from the Kangi or Deceangli area in Nero's fourth year, ie 60 AD. Similar use may have been made of the Brigantes of Yorkshire^{II}. Other peasant labour was translocated eg from Albania to Dacia^{II}.

In addition to custodial and administrative duties, troops were used in German mines, as detailed by Tacitus. They do not seem to have been engaged in mining itself, but were performing the associated engineering tasks^I.

During the Empire the pattern changed for several reasons. Major wars where slaves could be acquired en mass became less frequent. After Augustus there was a trend to liberalise the conditions under which slaves were kept, many were freed by their owners as reward for good service or on the owners death and others bought their freedom^{III}. As the body of freed men grew they became involved in all aspects of trade, many becoming rich and influential.

It has been suggested that the lack of skilled volunteer labour in the mines contributed to the premature closure of some earlier mines when problems were encountered, such as flooding. Conditions probably did improve at Veraspatak where men were engaged on six month contracts and facilities seemed to have improved.

At Dolaucothi considerable time and energy was put into engineering with the construction of leats and an underground waterwheel. There they also built hot baths but not quite on site. While they may have been for the use of the mine staff, they may also have been intended for the garrison at Pumpsaint where the remains of six bowl furnaces have been discovered within the walls of the fort^{IX}. We can but guess at the conditions prevailing in the Great Orme Mines during this period. In view of the large hoards of small denomination coins found in the area, it is likely, at least during the 3rd & 4th centuries, that mine labour was volunteer.

REFERENCES

- I Roman Mining in Europe (1935) p7-16, Oliver Davies.
- II Mining and Metallurgy in the Greek and Roman World (1978) p103-138, John F Healy.
- III A History of Rome to AD 565 (1967), AER Boak & WG Sinnigen.
- IV Roman Inscriptions in Britain 12 & 179, R Collingwood & RP Wright
- V Britannia 1984;15:257&8
- VI Roman Britain (1984), Peter Salway.
- VII Subterranean Britain (1979) p90-94, Harriet Crawford.
- VIII British Mining (1887) Chapter 2, Robert Hunt
- IX Britannia 1973;4:272

Don Smith, London, Ontario, January 1990