

JOURNAL OF THE

GREAT ORME

• EXPLORATION SOCIETY LTD •



2021



Hello Readers,

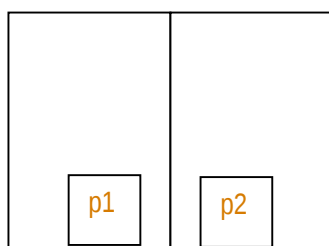
Welcome to the Great Orme Exploration Society Journal 2021. Unfortunately because of the pandemic club activities were suspended with no underground trips or summer walks taking place during 2020. There was no Extravaganza to have a GOES tent at, there wasn't even an AGM. Hopefully later this year as vaccines are rolled out the situation will improve and we can start to return to some normality. Sadly however, the Extravaganza is again cancelled but the summer walks will hopefully go ahead, an itinerary is enclosed. This edition will help to fill the void with articles about churchyard rock types, the Orme's fauna, lost mine shafts and lost prisoners. The link between Lewis Carroll and Penmorfa is explored and the view across Llandudno helps make a difficult decision. Enjoy the Journal.

As always, a great deal of thanks to all contributors.

Regards

Dave Wrennall – GOES Journal Editor 2021

Cover photograph: The 'Mad' Hatter. Apparently Lewis Carroll never referred to this character as being mad, though both the Hatter and the March Hare were said to be 'both mad' by the Cheshire Cat in the sixth chapter of Alice's Adventures in Wonderland.



PRINTING the JOURNAL

With inkjet printers use at least 90gsm paper (200gsm for the front cover). In order to optimise page sequencing page 1 should be placed on the back of the front cover with page 2 opposite on the next sheet of paper.

Contents

St. Tudno's Churchyard: Geological Aspects of Memorials and Headstones	p 3
Animals of the Great Orme	p 13
Coastal Encounters	p 17
The Goats of the Great Orme	p 18
The Great (Orme) Escape!	p 25
Thoughts on an Old Map	p 29
Down the Rabbit Hole??	p 35
Saying 'Goodbye' to the Caravan	p 37
GOES Summer Walks 2021	p 39
GOES Committee and Contact Details	p 40



Easter Week, Tuesday 14th of April 2020, deserted promenade. "If I had a world of my own, everything would be nonsense. Nothing would be what it is, because everything would be what it isn't. And contrary wise, what is, it wouldn't be. And what it wouldn't be, it would. You see?" The 'Mad' Hatter.

St. Tudno's Churchyard

Geological Aspects of the Memorials and Headstones

Introduction

There are certain properties of a rock that are required for it to be successfully used as a monumental stone, some of which have to be balanced against each other. Probably of primary importance is the durability of the stone itself, which may be due to a combination of its density, and the tensile and compressional strengths of the material. In other words, it must be strong enough for large cut slabs or carved structures to support themselves and to resist breaking.

At the same time it is important that the stone is able to be worked and to take an inscription. With the purpose of an inscription being to commemorate or celebrate an individual's life it is also essential that a stone resists weathering, so that any text or ornament inscribed can be preserved.

With respect to these requirements, a granite is hard to inscribe but is very resistant to weathering, whereas a coarse grained sandstone is easier to inscribe but will generally weather quickly. It is the interplay of these considerations, together with the costs involved in cutting and working exceptionally hard stones, that makes it very difficult to choose an ideal monumental stone for use in churchyards.

This article outlines the various rocks, both local and from outside the North Wales area, that have been used in the St. Tudno's churchyard, together with some that may be present but haven't been identified. It should be noted that the precise identification of rocks from the weathered or polished surfaces found on monumental stones in churchyards, can be hard or sometimes impossible. Ideally, from a geological point of view a fresh, broken surface is needed for identification, however chipping off a piece for examination with a hand lens, or microscopically, is not encouraged! Care also needs to be taken when examining some newer stones.

Example: G 104 (6) R. J. Smith - This headstone has the appearance of a polished black stone, but is actually a cement mix core with a black resin coating. This is only evident because a small chip has exposed the core.

(NB: The numbers such as G104, E39, C57 etc. next to the examples used, refer to the location of that particular grave on the Churchyard Plan).

Locally Sourced Rocks:

Limestone

Limestone is a sedimentary rock which is extensively used in the building and construction industries but may also be used as a monumental stone. One of the disadvantages of limestones as a monumental stone is that they are composed of calcium carbonate, CaCO_3 . When CaCO_3 is combined with rainwater, which is slightly acidic in the form of Carbonic Acid, it forms Calcium Bicarbonate ($\text{Ca}(\text{HCO}_3)_2$) which is soluble in water and the dissolved limestone is washed away. As a result, over time any inscription on a headstone will degrade. This is particularly true of more friable, coarse grained limestones which can lose inscriptions after only a few years; those that are finer grained will retain inscriptions for a longer period of time. The coarser and less massive nature of much of the local limestone is probably the reason why it is only rarely seen in the churchyard.

The fossiliferous limestone from which the outside pulpit is made, is Hopton Wood stone from Derbyshire (*St. Tudno News, April 2010*). This is much used as a building and monumental stone due to its compact fine-grained structure. Most of the visible fossils are the broken stems or ossicles of the crinoid *Amphoracrinus*. The stems are the means by which they attach themselves to the sea bed and they easily break up when they die. (*Photo to right, showing circular crinoid ossicles of varying size*). Despite their common name, sea lilies, they are animals, and are related to sea urchins and starfish. Oscar Wilde's tomb in the Père Lachaise Cemetery in Paris is also made of Hopton Wood stone.



The local North Wales limestones that form most of the Great Orme Peninsula are rocks of the Clwyd Limestone Group, which were deposited approximately 330 million years ago (Ma.) during the Visean epoch of the Carboniferous Period. The Hopton Wood limestone is of a similar age.

Examples:

G83 (16) Hugh Jones - Local fossiliferous LIMESTONE, with small side columns of pink Granite.

E 39 (15) Catherine Davies - Local fossiliferous LIMESTONE with sections of *Gigantoproductus giganteus* fossils. (E 39 Photo to right).

Outside pulpit - Fossiliferous Hopton Wood LIMESTONE (as described above).



Dolomite

Dolomite is a sedimentary rock which like limestone consists of calcium carbonate but with the significant addition of magnesium, giving it the chemical formula $(\text{CaMg}(\text{CO}_3)_2)$. Most dolomites are formed from limestone, by the post depositional addition of magnesium which is derived from percolating magnesium rich ground-water. This is a process called dolomitisation. The resulting rock which may be quite localized is sometimes hard to differentiate from limestone, although often it is denser and more robust, and because of the re-mineralization that has taken place it is usually less obviously fossiliferous.

Two areas of dolomite occur on the Orme - one, of restricted area close to the Summit Complex and a second, the Llandudno Pier Dolomite, which is extensive and underlies the whole of the Orme. It might be expected that the dolomite, generally being more massive and robust than the limestones, would have been extensively used as a monumental stone in the graveyard, however it seems that little use has been made of it. This is probably because the areas where it is exposed are limited and hence no major quarrying of the dolomite has been undertaken.

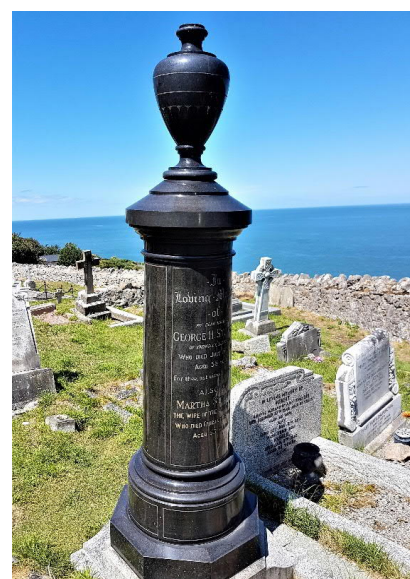
Microdiorite

The local microdiorite is known as Pen Granite because it has, over a long period of time, been quarried above Penmaenmawr. A diorite is an igneous rock that forms from a magma in the same way as a granite, although it has less quartz and light coloured minerals. A microdiorite is a finer grained form of diorite, as a result of the magma having cooled more rapidly. The crystals are randomly orientated and interlocking which together with its smaller grain size results in a hard, dense and durable rock. The Penmaenmawr microdiorite is thought to be of Ordovician (444 - 485 Ma.) age.

Because of the robust nature of the 'Pen Granite' it was widely used during the Neolithic period (approximately 5,000 years ago) for the production of stone implements, especially axes. The axe 'factory' became one of the most productive sites in Europe and examples have been found in many areas of Britain, including both the south-west and south-east of England.

Example:

C 57 George Strowcer - (Photo to right) Substantial cylindrical monument, which is almost certainly MICRODIORITE (Pen Granite). Other examples may be present but haven't been identified.



Industrial quarrying of Pen Granite had begun in 1830 and continued into the 21st century but the stone was primarily exported to Europe and various parts of the UK, where it was extensively used for road setts in many large cities, including Liverpool. As it would take a high polish and hold inscriptions well it is perhaps surprising that 'Pen Granite' has not been more widely used as a memorial stone in the churchyard, although it would probably have been fairly expensive to use for that purpose

Slate

Slate is another rock readily available in North Wales where it has been mined for export and used in a multitude of ways, in particular for building and roofing. As in many other areas many older gravestones have made use of local stone, in particular the slate. This cleaved into blocks of appropriate size which had smooth surfaces, and was relatively easy to work and easy to inscribe and decorate. However, the surface of slates from many regions weathers and degrades over time, largely due to the cold temperatures over winter and the associated freeze-thaw action. In St. Tudno's it is evident that the local Welsh slates have weathered very well despite the very exposed situation of the churchyard. This is exemplified by the stones dating from the 1760s commemorating John and Sarah Williams on which the scribe lines used for the inscription can still be seen (see example below).

Slate is a metamorphic rock which has been changed through the actions of heat, pressure and possible remineralization and recrystallization as a result of burial in the earth's crust. Slate has usually suffered low grade metamorphism with limited recrystallization. It is derived from argillaceous (fine grained) sedimentary rocks such as shales and mudstones. The high quality of the North Wales slates is due to the fact that they derive from uniform, very fine grained mudstones. It is essential to recognise that the cleavage of slate is not the original sedimentary bedding or banding that would be present, for example, in a shale. When the original rock is buried and earth movements exert horizontal pressure, minerals elongate and align themselves at right angles to the pressure and it is along these lines that cleavage develops. Traces of the original bedding / banding can sometimes be detected, often picked out by different colour banding intersecting the cleavage.

Of particular interest are the semi-elliptical, rings of about 1 - 5cms present on some headstones. Originally circular (or nearly spherical in 3 dimensions), they have been deformed by pressure during the slate formation. They are usually picked out by their different colour and have small, sometimes barely visible, crystals of mica (biotite) at their centre. Called Pleochroic Haloes they are the result of the decay of radioactive elements

within the mica, usually Uranium 238, and are very common in the slates of North Wales.

The slates of the Bethesda - Nantlle belt were originally deposited as mudstones during the Cambrian Period about 500 million years ago, while those of the Blaenau Ffestiniog belt are of Ordovician age. Both were subject to burial and low grade metamorphism approximately 400 million years ago as a result of tectonic activity during the final closure of the Iapetus Ocean and the associated continental collision.

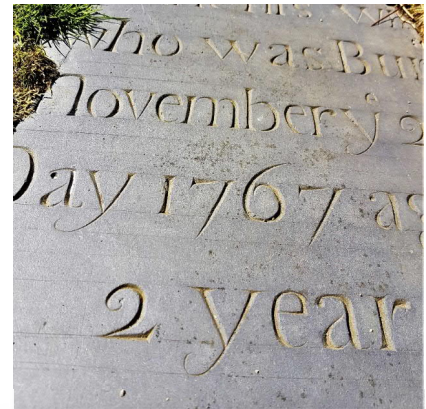
Examples:

A 126 and 127 John and Sarah Williams - Dated 1767 showing scribe lines to guide the positioning of the inscription. (A 126 Photo right).

A 61 (1) Owen Jones - SLATE showing biotite with pleochroic haloes.

A 198 (14) Owen, Son of Henry William - Flat SLATE next to pulpit. Traces of original bedding can be seen as a contrasting green band diagonally crossing the stone.

G 111 (5) Willie Rees - SLATE with good examples of deformed biotite pleochroic haloes, well displayed by the contrast in colour. Lower halo shows dark biotite crystal at its centre. (G 111 Photo right).



Sandstone

Sandstones are arenaceous (coarse grained) sedimentary rocks with a grain size of 0.06 - 2.00 mm. They can be deposited in marine and fresh water environments, but can also be formed as dune deposits in desert environments. Most sandstones predominantly consist of quartz grains unless an additional descriptor such as *micaceous*, *feldspathic*, or *glaucinitic* sandstone is used. When the constituent grains are loosely packed there may be a considerable amount cementing material but when closely packed there will be very little. The strength and durability of sandstones varies considerably and is very dependent on the cement. This is usually very fine grained and can be of many types including calcareous, siliceous, and ferruginous material. Sandstone colour is much dependent on the constituent grains as well as on the cement.

The reddish brown coloured sandstones often used in buildings, construction and sometimes as monumental stone in North Wales, are ferruginous sandstones with grains mainly cemented by haematite (Fe_2O_3). They are the New Red Sandstone, desert, dune

deposits of Permian age (299-250 Ma.) that have been brought in to the area from north-east Wales or the Cheshire area. The nearest and most likely source is the Kinnerton Sandstone Formation deposits of Flintshire.

Sandstones are not commonly used for monumental stone due to the fact their grainy and often friable nature means that inscriptions weather quickly and soon become unreadable. However harder sandstone can survive for a reasonable length of time and there are examples in the churchyard.

Examples:

G 247 (9) Worn inscription - Brown SANDSTONE.

G 126 (11) Alfred Flood - SANDSTONE.

A 172 William Owen - A micaceous SANDSTONE (Flagstone) which has the oldest identified inscription in the churchyard. A micaceous sandstone has layers of mica which enables it to split easily and hence is useful for paving. Often it weathers poorly but in this case the inscription dated 1705 is still discernible. The sandstone is local from the Orme.

G 162 (10) Broken Celtic Cross - Reddish-brown SANDSTONE. From the highly ferruginous Triassic Kinnerton Sandstone, dune deposits. (Photo right).



Rocks Sourced from Outside the Local North Wales Area:

Many rocks used locally in buildings, as facing stone, and monumental stone are not derived from the local North Wales area. Some are derived from other regions of the British Isles, while others have been transported from overseas.

Rocks from Other Areas of Britain:

Stone from many parts of Britain is present in the churchyard, however as many similar rock-types from different area may look the same, the precise area that many of them came from can be hard to establish.

Granite

Granite is a coarse grained (usually 1 - 5mm) igneous rock that primarily consists of, quartz (SiO₂) which makes up approximately 12% of the earth's crust; feldspar, an

important rock building silicate mineral that in its various forms makes up approximately 50% of the earth's crust; and mica, a layered silicate mineral with almost perfect cleavage. Large, thin sheets of mica used to be used as see-through fronts to stoves and boilers. Varied accessory minerals may be present. Generally a smaller grain size indicates that the magma cooled more rapidly than in the case of a coarse grained granite.

Granite is hard and durable and hence is much used in buildings, as a facing stone, and also as a monumental stone. It is harder to work than some other rocks but carved inscriptions are usually long lasting, particularly on finer grained granites. It is very varied in colour depending to a large extent on the variety of constituent feldspar, and it may have a uniform grain size or have included larger crystals (Phenocrysts) to form what is termed a Porphyritic Granite. Due to its durability and occurrence in many areas throughout Britain granite is widely used as a monumental stone. Most of the grey granites in the churchyard are likely to have been sourced within Britain but others, such as the pink granite (example A 168 below) are likely to have been imported.

Examples:

G 302 (12) C. and H. Keeling - Typical fine grained, grey GRANITE.

G 232 (8) William Kendrick Jackson - Classic fine grained grey GRANITE. (Photo to right). As with G 302 this could come from various locations in the British Isles, but is probably from Cornwall.

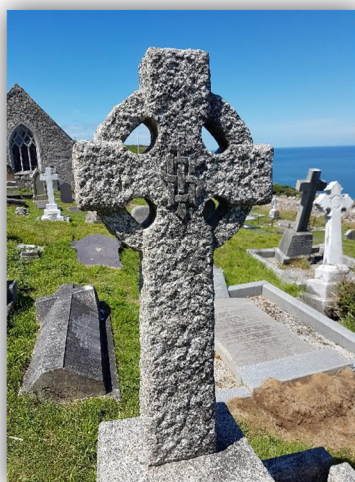


G 332 (13) Agnes and George Girling - Dark grey GRANITE. Might be from Britain but is probably imported.

C 60 Thomas Smith Wilkins - Coarse grained GRANITE with large white feldspar crystals, grey quartz and black biotite mica. Probably Cornish. (Photos right).

C 34 (2) Anna Wright - Porphyritic GRANITE.

A 135 (4) Edward Williams and others - Pink GRANITE with fine grey inclusions.



A 168 William Arthur Jones - A large pink GRANITE sarcophagus shaped monument. The fairly uniform grain size granite takes its colour from the pink of the orthoclase feldspar. It also has fine grained grey granitic xenoliths (inclusions), which derive from the 'country rock' into which the granite was emplaced. It is uncertain from where it originates; it may be British, but most likely is imported, possibly from Scandinavia. (A 168 Photos below - photo on right showing a grey, granitic xenolith).



Imported Rock:

In the past goods, particularly the slate, were exported in bulk by sea from North Wales. After unloading, and before embarking on the return journey it was necessary for safety reasons to add weight to the boat in the form of ballast. In many instances the easiest and cheapest ballast to use was local rock, especially those rocks that could be used as building, facing stone etc. on return. This was particularly so for Scandinavian countries such as Norway, rocks from which were extensively used in Britain. There are monuments and headstone decorations in the churchyard that have been sourced in this way. Recognisable imported monumental stone includes:

Marble

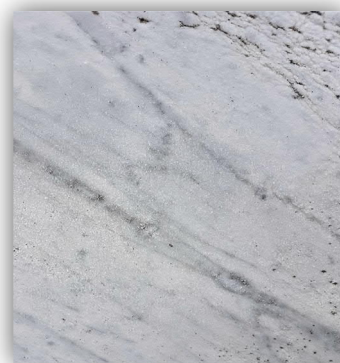
One particular imported rock that can be readily identified as having been extensively used in the churchyard is the white veined marble. Marble is a metamorphic rock which is formed by the thermal metamorphism of limestone. The white, veined variety found in the churchyard is typical of the marble from the famous quarries at Carrera in Tuscany. There is no equivalent British marble. It is hard and relatively durable, although the marble in the churchyard is veined, Carrera marble is generally famed for its purity and it has been extensively used for monuments and statues since ancient Roman times.

During the Renaissance it was used by Michelangelo for his statue of David.

Example:

G 140 (7) David Owen - Impure, veined, white MARBLE.

Probably from Carrara, Italy. One of many examples that may be seen in the Churchyard. (Photo to right).



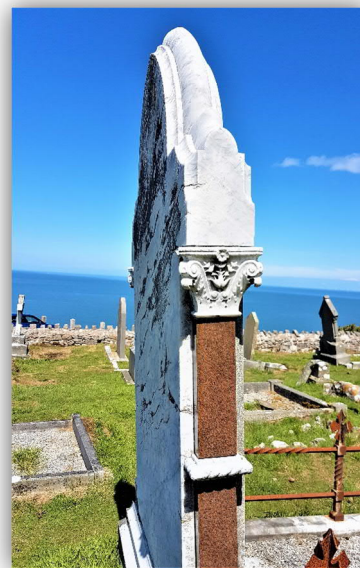
Contrasting finials and side columns

These are found on many of the more substantial monuments. Of varying origins these have probably often been carved from non-local rocks sourced from offcuts available in the stone mason's yard.

Examples:

C 33 (3) Elizabeth Mary Jones - The pink side pillars are GRANITE, probably from Shap in the Lake District. This has been much used as a building and construction stone. It can occasionally be found on the local beaches, having been carried there during the last Ice Age.

E 13 John Roberts - Veined impure, white MARBLE probably from Italy with fine grained, pink GRANITIC side pillars. (Photo to right).



* * * * *

It is evident that many of the rocks used to create monuments and headstones in the St. Tudno's Churchyard are readily identifiable and a good case can be made for identifying the areas from which they have been sourced. However, full identification of others is more problematic, particularly with regard to their source.

The fact that not all rocks are, for various reasons, suitable for use as monumental stone has contributed to the widespread use of rock from outside the area. In counties like Cornwall almost exclusive use is made of the very hard and durable granites from the county, which are resistant to weathering and can hold an inscription for hundreds of years. In North Wales it is noticeable that slate, one of the most abundant rocks locally, has been extensively used particularly for many of the older graves and headstones. However, limestone which is also available locally, has not been used to the same extent. When it is compact, it is fairly robust and is relatively easily worked but is not an ideal choice as over long periods of time it is subject to chemical weathering

Hard igneous rocks that would be suitable, are locally limited in availability largely being

restricted to the microdiorite known as 'Pen Granite'. Despite being exploited periodically over millennia, it has mainly been exported from the area and has not been extensively used as monumental stone.

Use has been made of stone such as granite from other parts of Britain, and marble has been imported from Italy. Others rocks may have been sourced from various overseas areas but the precise locations are hard to identify.

Even within a churchyard it is interesting to observe which rocks have been used for various purposes and why has that rock been chosen and not another? Is it due to the actual properties of the rock; its availability; its look and the aesthetics, especially of a polished surface; its colour; the size and ability of the stone to support itself; or even its affordability and the wish to impress? It is worth considering these aspects, as well the fascinating inscriptions on memorials, when looking at the churchyard and considering its history.

This article appeared in the Friends of St. Tudno's Church Newsletter in December 2020.

Author: Martin Trevelyan-Jones

Spotted along the coast.... Found on the Prom between Colwyn Bay and Rhos on Sea

these blocks are primarily designed for sitting on. They are made from the same type of limestone as Orme limestone and contain the same fossils. The coral is really well displayed, almost in 3D. The brachiopod looks to be depicting an alien invasion.



Coral *Lithostrotian junceum*



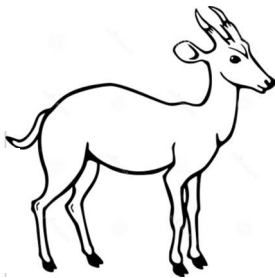
99% of people walk by without looking at them. I saw them first when they were wet and easier to see. Passers-by have been rather surprised to have them pointed them out. When I mentioned to someone, he was sitting on a 340-million-year-old coral, he was amazed. The moral is wherever you are walking keep your eyes open. Both these fossils were described in the 2019 Journal.



Brachiopod *Gigantoproductus giganteus*

Animals of the Great Orme

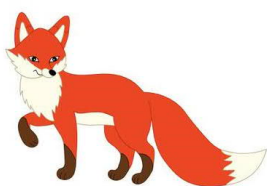
Everyone has seen the Orme's wild goats, (described later in this Journal) and there are rabbits and sheep, though the Herdwicks are a more recent addition, but what other animals can be observed and what else may have roamed on the Orme in times past? These questions were prompted in March 2020 when the author caught a glimpse of two animals near Pink Farm running at speed into gorse bushes. "Hmm! Looked like deer. Wonder if they were muntjac?"



An enquiry was made at Pink Farm, but they had no muntjac sightings to report. Nor had anyone else, but in these days of the Covid-19 virus, wildlife is taking advantage of quiet roads to explore further afield. For instance in April 2020, two roe deer were photographed in Sheffield town centre! Ok that's a long way from the Orme but muntjac have been seen in the Conwy Valley which ain't too far away. A curious ancient feature of the Orme landscape is called Path of the Deer – so muntjacs might have been present (unnoticed) for hundreds of years!!

Speaking of Sheffield again (the writer used to live there and is daft enough to support Sheffield Wednesday), a badger was photographed in the concourse of the town centre railway station. This was also April 2020.

Now, badgers live on the Great Orme as you can see fresh badger setts in some places. The writer had never seen them since he is far too timid to venture up there after dark. If you have been lucky enough to see them, the question arises – just what were you up to there in the dark! There is a cave on the Orme known as Badger Cave, so there may be a long history of badgers being present.



Foxes and hedgehogs? Both tend to be nocturnal of course, and hedgehogs seems to have avoided me. Have seen foxes though in daylight. First sighting was at the Coast Artillery Site next door to Millionaires' Row. Apparently, several foxes hang around there. In April 2020, I spotted a fox at the Summit just across from the tram station chasing the floods of rabbits in that area. In May 2020, we saw a fox on the Invalid Walk.

Now for a rarer animal. Walking up the concrete military road (near the Rest And Be Thankful Cafe), Judith and I were very surprised to see a weasel running towards us. This was in 2018. A year later we saw two more running across Marine Drive just below the Lighthouse. In June 2020 we spotted another weasel above the Ski Slope. In July 2020 we saw another weasel run across Marine Drive in the Crinkle Crag area. Would be interesting to hear whether other people have seen weasels and what numbers there are.



St Tudno's Church is noted for its outdoor services. On two occasions in 2020, the congregation was entertained by a stoat scampering over the graves. It seems that this religious animal has set up home in the churchyard.



Bears and Elephants

Ok, I haven't seen either on the Orme! Let's now consider animals that used to live on the Orme in times long past. There are many caves on the Great Orme – around 37 have been recorded. Some of the caves have been excavated with the bones of various animals being uncovered. My favourite being a rhino! (More about that later). Elephants? Not really! The Elephant's Cave in Happy Valley takes its name from pillars left by quarrymen to support the roof, the pillars look like the legs of an elephant. Bears did live on the Orme though. Above the Invalids Walk at the West Shore end, there is a cave called Bear's Cave. Now it may be fanciful to claim it was a bear's den based on the name alone. Just a legend perhaps. What really clinches it was that archaeologists found a bear's tooth in the nearby Kendrick's Cave. So bears did roam the Orme at one time. Bear's Cave did reveal Neolithic animal remains but whether they were the bones of a bear remain unproven.

These thoughts on caves and their names raise the interesting question: just how old are the place names of the Orme? Remember that early populations were on the Orme and not the town.



Animals as food

The caves on the Orme have contained traces of a variety of animals. Some may have been killed by rock fall and some may have crept away to die of injury or old age. Some animals without doubt were butchered to provide food. Where bones of small animals have been excavated, it is impossible to be certain if they were killed for food or not. Remains of sheep, pig, hare, fox and badger might suggest slaughter for food. With larger animals the case may be clearer. Did horses live on the Orme and were they used for food by early men? Wild horses remain on Conwy Mountain and at the RSPB Conwy, so it is very probable that horses roamed the Orme before the mines and the town developed. The finding of an inscribed jawbone in Kendrick's Cave would indicate both that horses ranged the Orme 13,000 years ago and that the horse was a food item since a wild horse would be unlikely to be a cave dweller. Obviously horses would be used for haulage and transport of goods in more recent times but two landscape features may have some relevance here: Ffynnon Gaseg and Ogof Gaseg. The naming of a spring and a cave after a horse (or rather a mare) could have some significance here.



35,000 -yr -old decorated horse-jawbone: Llandudno Museum

Exotic Beasts on the Orme

From today's point of view, you can't really imagine the beasts that used to live on the Orme, but the archaeological evidence tells a different tale. Once upon a time you could find bison on the Orme as bones were found in Kendrick's Cave. The animal would have been too large to fit in the cave and would again suggest the bison had been slaughtered somewhere else with bits and pieces being brought back to the cave. Earlier, I mentioned rhino bones being found when cave exploration was being carried out. This was not the white or black rhino but the woolly one. The same cave revealed remains of reindeer and hyena! The bones of these three animals were found in Ogof Pant-y-Wennal.

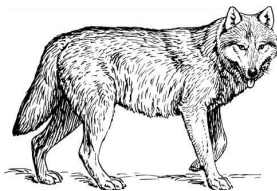


This cave is not on the Orme but these beasts need a large territory

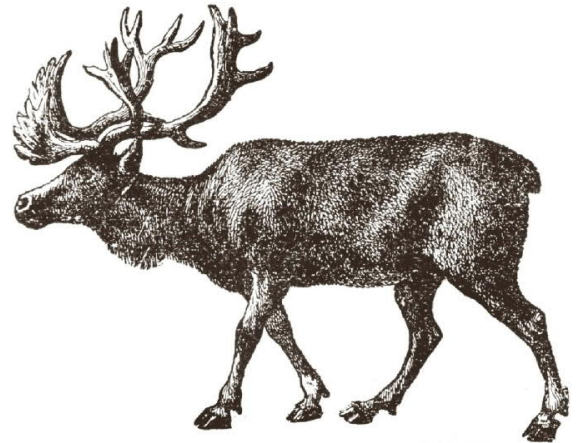


and it is inconceivable that they didn't wander across to the Orme. Ogof Pant-y-Wennal is situated up above Bodafon School. Hyena bones were also found on the Orme at Lloches-yr-Afr Cave. Good job these bone crunching beasts aren't on the Orme today! Or are they ...

With herds of reindeer and horses on the Orme you would expect predators other than man to be around. You might think of wolves and indeed they were present. In the book "Llandudno Before The Hotels" Christopher Draper mentions the tooth of a wolf was unearthed in 1979.



Draper also mentions that bones of bear, hyena and rhino were found on the Little Orme. Again supporting the view that these would have also roamed the Great Orme. Rumours of gorillas emerging on Sunday afternoons from a certain muddy ditch in Penmorfa are thought to be mischievous.



Finding more about caves

If any members of GOES have a drone, perhaps it could be used to get close-up photos of inaccessible caves or to search for new caves and possibly more animal traces?

Kendrick's Cave and Thomas Kendrick are well documented. See GOES Journal 1994 issue 2 page 3; 1996 issue 1 page 4; 1989 May issue page 7.

Information on Ogof Pant-y-Wennal, see GOES Journal 1994 issue 2 page 3.

The Little Orme has approximately 13 caves.

Further information on the caves of the Little Orme and the Great Orme can be found on the Internet. The best site is one run by Cris Ebbs, a lecturer, writer and caver. Use the link: <https://sites.google.com/site/cavesofnorthwales/11-caves-of-llandudno> or search for Caves of North Wales Llandudno. This is a comprehensive, scholarly site with detailed information on individual caves often supported by photos. The writer of this article has drawn on Cris's website for some of the information used in this article.

A version of this article appeared in the Friends of St. Tudno's Church Newsletter in December 2020.

Author: Keith Morris

Coastal Encounters



In 2014, whilst climbing on the cliffs of Lower Pentrwyn, a venue only accessible at low tide, we were visited by an unusual local inhabitant. The mink was very bold, seemingly unperturbed by our presence. It wandered slowly along the cliff face, occasionally dipping under the boulders and headed out to sea. Half an hour or so later it reappeared confidently carrying an eel and continued in the direction of the pier where presumably it scrambled up onto the more accessible slopes. I sent the photographs to the Head Warden, Sally Pidcock who subsequently used them in her talks.



Pigeon Cave has in recent years become a favoured beach for grey seals. Photo: Steve Lea

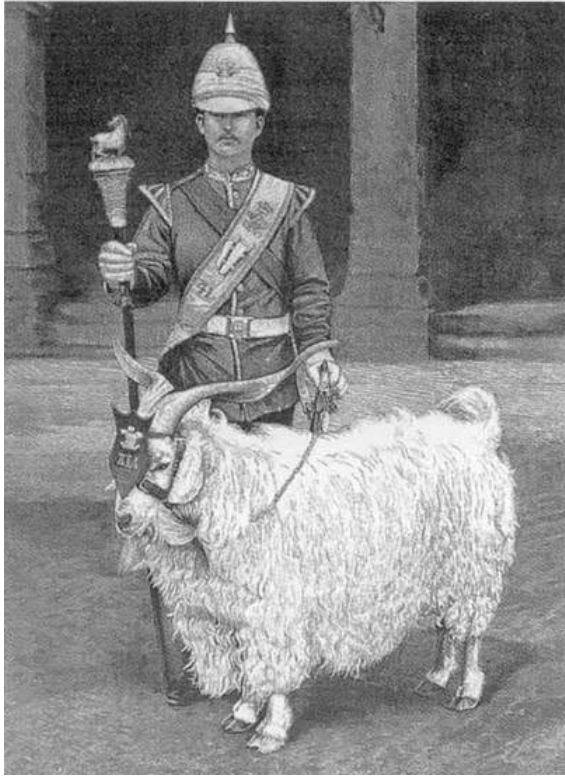
Author: Dave Wrennall

The Goats of the Great Orme



It seems as if the goats have been on the Great Orme for ever, but their story starts in the foothills of the Himalaya. They are predominately found in Nepal, Ladakh, Tibet and of course Kashmir. Locally in these regions they are called Markhor, Changra, Changthangi or Pashmina and are prized for their Cashmere fleeces. The goats' journey is presumed to have started in 1819 when 1,500 of these animals were brought to France from Persia via Crimea unfortunately only 256 arrived alive in Marseilles and Toulon. In 1823 a Mr Christopher Tower of Weald Hall Essex purchased 2 male and 2 female goats on a visit to Paris. In 1828 he manufactured a Cashmere shawl and wins an award for his work. This attracted the attention of King George the IV and he was given a pair of the goats which were placed in Windsor Great Park thus starting the Windsor herd. In 1837 when Queen Victoria ascended the throne, she was presented a pair of Kashmir goats as a present from the Shah of Persia. She went on to present a Kashmir goat in 1844 to the Royal Welsh Fusiliers as their mascot, a tradition that continues to this day. The Regiments association with a goat as a mascot dates to 1775 from the battle of Bunker Hill in America (this stems from the legend that a young sentry was

forewarned by bleating of an adopted goat, of imminent enemy attack) – they had been parading their own provided goat since 1777 until 1844 when the royal gift was presented.



In 1890 a pair of goats from the Windsor herd were given to Major General Sir Savage Lloyd-Mostyn by Queen Victoria – possibly around the time he finished serving as a Colonel with the Royal Welsh Fusiliers. The goats were initially kept at Gloddaeth Hall, where they bred, and were later released onto the Great Orme.

These magnificent creatures have roamed the Orme for over 130 years and are now regarded as feral/wild. They seem well suited for the Orme with its limestone crags/cliffs and desirable vegetation for a healthy diet. The steep rocky ledges are ideal for the Nannies to birth their young Kids and leave them in a secure location away from predators and nosey tourists.



No one is legally responsible for the goats as they only become someone's property if they are confined, they are not. The Great Orme land manager Conwy County Borough Council (CCBC) is entitled to act on behalf of the animals' welfare, in the same way any landowner may act, if a wild animal is in distress whilst on their land. As the goats are feral animals it is not Council's legal responsibility to contain or fence the animals in. The onus, if damage is being caused to adjoining properties, is therefore on those property owners to keep the goats out.



Photo by Dennis Oliver

The Council also has the legal right to control the size of the herd, with the current number of goats at about 160, but the number has been higher in the past (220 in the year 2000), so some sort of control has been required. Many organisations (CCBC, Mostyn Estates Ltd, Natural Resources Wales (NRW) and the RSPCA) all have an active interest by virtue of land ownership, conservation or animal welfare. Therefore, in 2001 CCBC resolved to reduce the herd size over the longer term. This has been achieved through a combination of relocating groups of the animals (to conservation organisations/sites around the UK) and through birth control, using the contraceptive vaccine Gonacon. This approach has been widely supported and was developed in partnership with the Animal & Plant Health Agency, RSPCA, NRW and a local veterinary Surgeon. The financial support for the programme has come from a partnership between CCBC, Mostyn Estates Ltd, Llandudno Town Council, the Aberconwy branches of the RSPCA and NRW. Long-term the herd will be subject to ongoing control by the methods already agreed in order to maintain the herd at a reasonable, but viable level. This will be subject to review at the meetings of the Great Orme Country Park Management Advisory Group (at which GOES has a Representative – currently the author).



To spot the difference between Billies and Nannies is easy when the goats become adult – Billies grow massive curved horns whereas Nannies have much smaller ones. However, it can be difficult to differentiate the sexes when they are younger – so look at the goat's forehead – in most cases, if there is a fringe, it is a Billy, no fringe it is a Nanny.



To tell the age of a goat you need to count the notches/rings on the horns, this is not always easy unless close. The Orme goats are friendly creatures and can be observed up quite closely if no sudden movements are made. You can normally smell them before you see them, especially in the Rutting season (Oct/Nov).

There have been genetic oddities such as Humbug seen below, with her first offspring - notice how she is the same size as the rest of the herd Nannies. but her fleece colouring is very distinct.



In the past the Orme goat herd usually stay on the Orme, but in bad weather have been known to wander into Llandudno as far as 'Bog Island' and the old 'Post Office'. However, during 2020 and 2021 the Covid 19 restrictions have meant less people and traffic in town and on the roads, which has given the goats free-rein to wander wherever they like – even into Craig y Don, with the worry that they may take up new residence on Nant y Gamar or the Little Orme!



Photo by Dennis Oliver



This wandering around the shops and highways of Llandudno has brought them not only local and UK notoriety, but also into the international news. Such publicity has worked well for St David's Hospice in that they have been able to sell, for fund raising, merchandise extolling their mischievous behaviour.

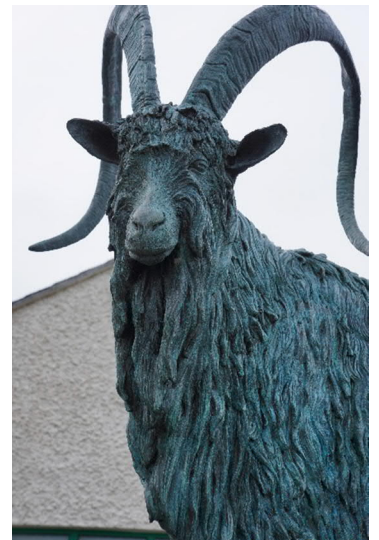


Photos by Roger Edwards

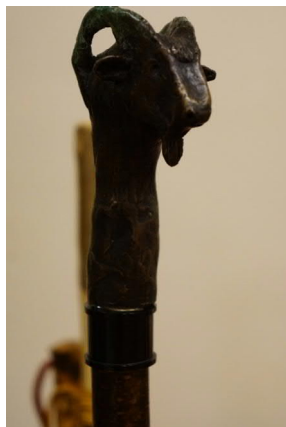


Photo by Dennis Oliver in 2007 with the goats outside the Hospice (notice the black Billy possibly one of Humbug's ancestor's).

The goats have also inspired artists to replicate these wonderful creatures around the town and on the Orme.



Even GOES members have tried their goat crafting skills.





These amazingly agile, surefooted creatures have made their home on the Great Orme, and they never cease to impress locals and tourists alike when they are seen or stumbled across.

Their majestic presence seems to enhance the Great Orme experience and long may they reside here.



Acknowledgments and thanks go to the following in helping compile this short piece:

Eve Parry – Author Aliens in the Great Orme.

Tom Parry – Local Historian.

Dennis Oliver – Photos.

Roger Edwards – Photos.

Special thanks also to – Sally Pidcock and Sion Dafis Great Orme Wardens for current goat information.

Author: Nick Challinor

The Great (Orme) Escape!

It was cold and damp on the evening of August 16 1915 when Walter Wood, accountant to the Llandudno Urban District Council, left the town's County Club. Outside, he was buttoning his coat up against the weather when a soldier approached him, offered him a polite greeting and started walking with him down Lloyd Street. Feeling uneasy and fearing that he was about to be the victim of a robbery, the accountant turned and ran back to the building in which he had spent the evening. He burst into the lobby followed by half a dozen soldiers, excitedly, shouting "We've got him; we've got him". In reality they only had Walter!

For two days hundreds of soldiers had been searching for three German prisoners of war who had escaped from a camp in Llansannan. Dyffryn



Dyffryn Aled postcard

Aled had been requisitioned in 1914 to accommodate captured German officers and while interned there, Lieutenant-Commander Hermann Tholens and Captain Heinrich von Hennig hatched a plan to escape and rendezvous with a German submarine off the Great Orme.

Korvettenkapitan Hermann Tholens was one of the first German naval officers to be interned at Dyffryn Aled after being picked up by a British destroyer during the Battle of Heligoland. He had been second in command on the bridge of the German cruiser *Mainz* when she was destroyed by the Royal Navy and spent an hour in the cold waters of the North Sea. He spent his first week of captivity at Chatham's naval hospital before being transferred to North Wales. He was later joined by Kapitanleutnant Heinrich von Hennig, himself rescued from the sea by the Royal Navy off the Pentland Skerries, after his vessel was sunk by HMS Garry.



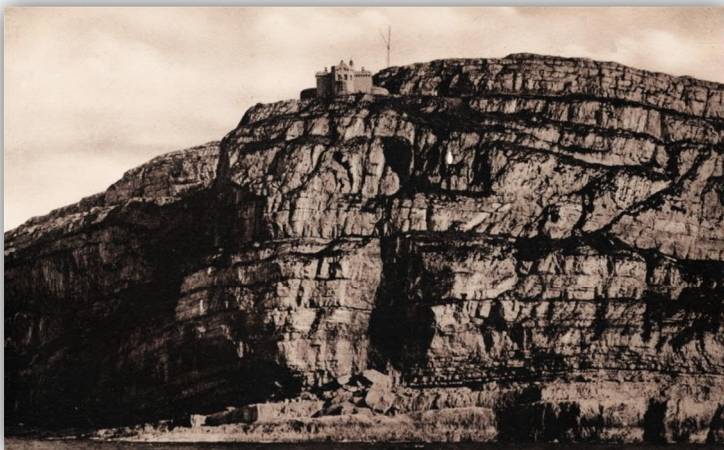
Herman Tholens

The thoughts of the captives soon turned to escape and a number of plans were hatched by the German prisoners of

war with varying success. During a prisoner exchange program in December 1914 the opportunity arose to get a message from the captives in Dyffryn Aled to the Commander-in-Chief of German submarines requesting for a submarine to rendezvous with Tholens and von Hennig off the Great Orme. The affirmative to their proposal was sent in code to the pair at the camp in a series of letters and the date set.

On the night of August 13 1915, Tholens and von Hennig, along with their cell mate, Captain Wolff-Dietrich Baron von Helldorf, forced their way through the barred windows of the 18th century mansion and walked the twenty miles to Llandudno. Security had been stepped up in the wake of another escape attempt five months earlier but the three Germans still managed to evade the sentries and searchlights and walk through the front gate. Dressed in civilian clothes they casually strolled into the seaside town of Llandudno shortly after dawn. Tholens later recounted how they *“Crossed a large training field in the middle of the town and admired, at our leisure, the exercises and drilling of a whole army of soldiers”*. Confident that they would not be missed until the camp’s morning roll call, the three enjoyed a meal in a café before hiding for the day.

Meanwhile, out at sea, submarine U-38, captained by Max Valentiner, had been making her way to the North Wales coast since leaving the North Sea naval base of Wilhelmshaven on August 4. She had made her way down the west coasts of Scotland and Ireland and after torpedoing a number of merchant vessels headed north through the Irish Sea arriving 50 miles off the Great Orme on the evening of the 13th.



Lighthouse and cliffs from offshore

Back in Llandudno the three Germans left their hideout at dusk and tried to scramble down the cliffs below the Great Orme’s lighthouse. In the dark waters below U-38 moved towards them waiting for a signal which never came as the officers failed to find their way down to the beach. All was not lost for the three, however, as the plan was for the U-boat to rendezvous at the same position for three consecutive nights.

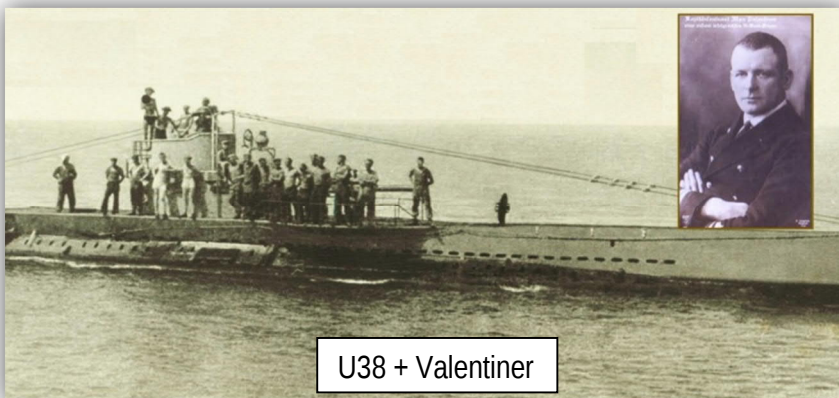
They returned to their hideout, under a thicket of brambles, and tried to sleep for the day. At dusk the three successfully made it to the foot of the Orme. In the moonless night they signalled to their naval comrades waving a torch in a circular motion over and over again, but got no reply. In desperation they built a fire of driftwood, scavenged from the rocky foreshore, and waved a large log of flaming wood into the dark night. By now, Tholens and his non English speaking compatriots assumed, wrongly, that the submarine was not coming. It actually turned out to be only a few hundred yards away, but so close inshore, that their view of each other was blocked by a limestone buttress. Unfortunately their attempt on a third night was to be frustrated by a storm.



The three German Naval officers signalling to the submarine that never came.

Dejected, cold and hungry the Germans decided to walk into Llandudno, split up, and try and get a train to London. After buying a packet of cigarettes, Tholens went into a café in Mostyn Street where waitress, Nellie Hughes, served him a cup of coffee and piece of cake. He left the coffee bar and outside the Tudno Hotel was approached by Police Constable Morris Williams who asked his identity, the German replied: *"I am a Lieutenant-Commander in the German Navy, I am one of the officers who escaped from the camp at Denbigh. I want to be arrested"*. Williams escorted him to the police station.

Unable to locate the other two fugitives the authorities staked out the railway station but no men matching the descriptions entered the concourse. To be sure the London-bound train was stopped at Colwyn Bay and every compartment searched but to no avail as von Hennig and von Heldorf had just entered the offices of the Silver Motor Company in Llandudno. They asked for a car but when staff tried engaging them in conversation the Germans departed abruptly.



U38 + Valentiner

That evening, around the same time the innocent council accountant was being harangued, cab driver, Alfred Davies was on his way to pick up a fare from the Pier

Pavilion. He noticed two men standing under an ornamental lamp in North Parade in the pouring rain. He pulled over and asked if they needed a cab and understanding that they did, he opened the door for them and they climbed in. In broken English they asked to be taken "to the colonel" so he took them to the headquarters of the London Welsh Battalion who were billeted in Gloddaeth Street.

So what became of the three *Kaiserliche Marine* officers?

The following day all three were taken back to the camp in Llansannan in an ambulance belonging to the London Welsh and were subsequently put before a military court held at Chester Castle. They were sentenced to 84 days imprisonment in Chelmsford Gaol, without hard labour.

In September 1917, Tholens was sent to Switzerland and interned there until May 1918 as part of a prisoner exchange. In 1931 he joined the Nazi party and during Hitler's reign served with the rank of Obergeneralarbeitsfuhrer (Upper General) in the regime's state labour service - an agency which helped militarise the German workforce and indoctrinate it with Nazi ideology. Tholens survived the Second World War and died in 1967 aged 85.

Heinrich von Hennig remained in Llansannan until early 1918 when he was moved to neutral Holland for internment. After the First World War he continued his naval career until retirement in 1931. In April 1940 he re-joined the German Navy.

It is surprising that outside Llandudno the story of the three fleeing Naval officers is barely known. It would surely make a perfect film and one imagines that if the failed heroes had been British or American then it might very well have found its way to the silver screen.

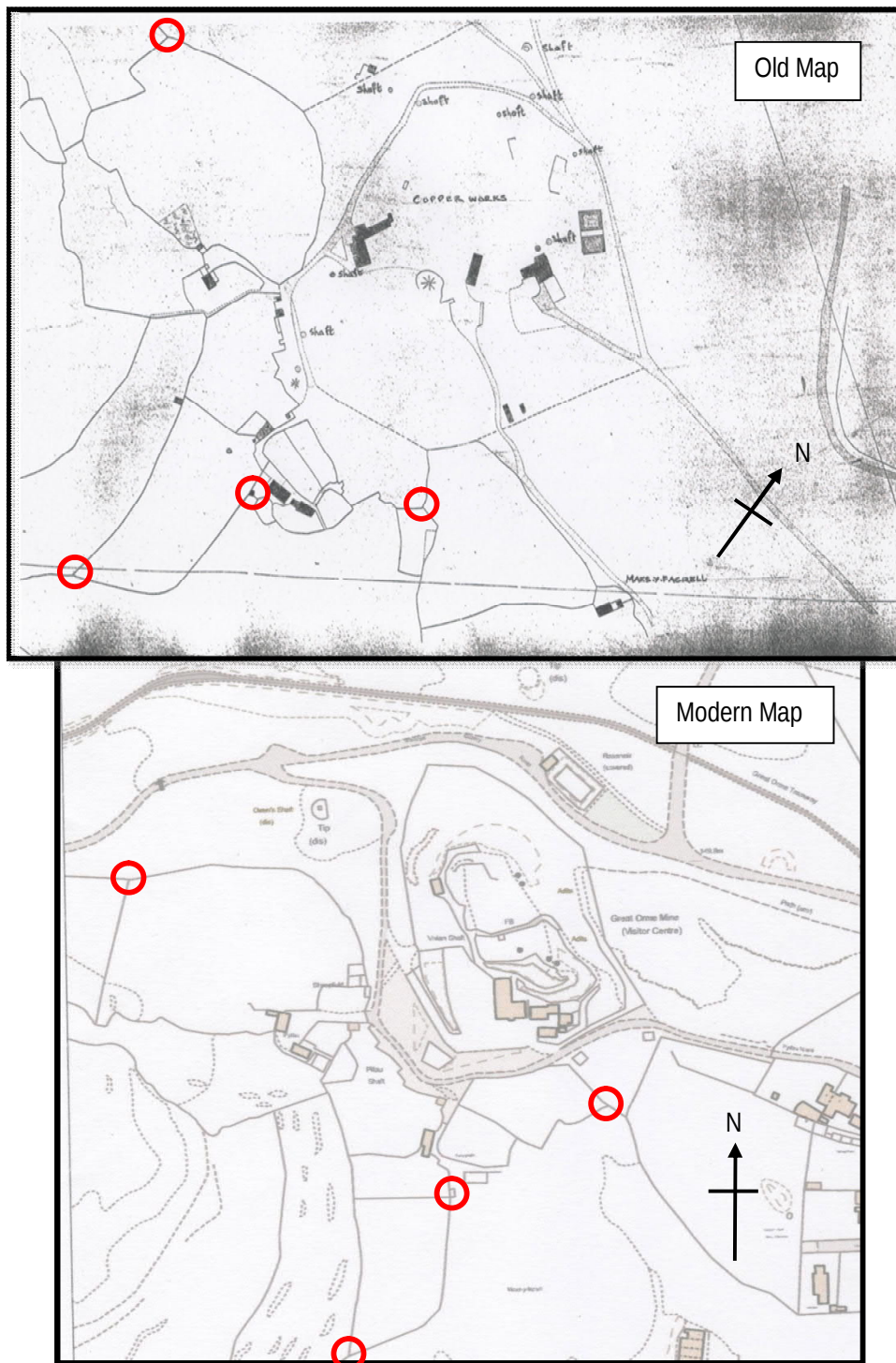
When the Great War ended in 1918 Dyffryn Aled became run down. It was returned to private ownership in 1919. In the 1960s it was demolished and in its place stands a bungalow.

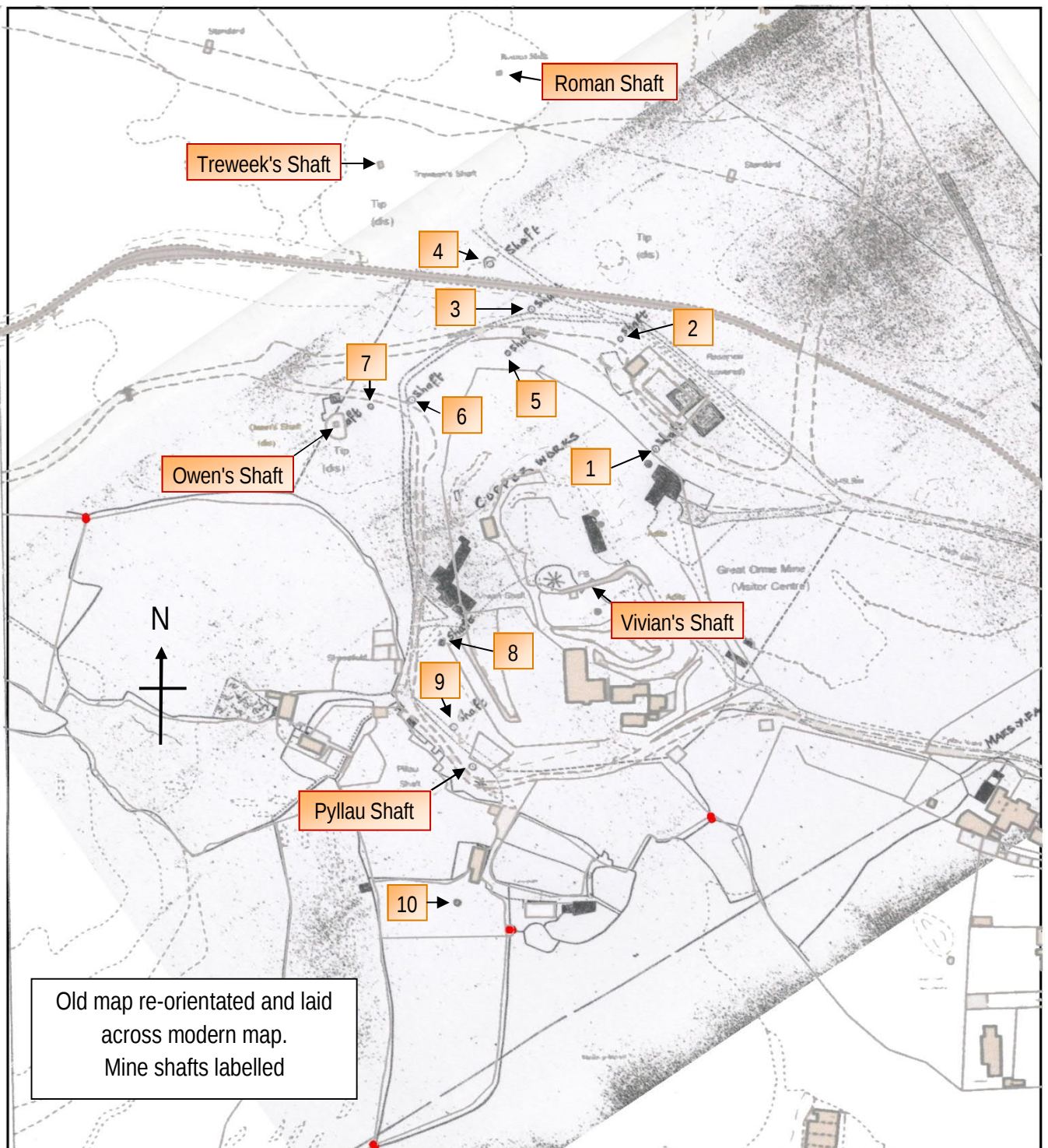


Author: Adrian Hughes

Thoughts on an old map

This old map came by way of Andy Lewis probably originating from C J Williams. Dating from the middle of the nineteenth century, it shows numerous mine shafts which no longer exist. By selecting fixed reference points on the old map which can still be found on a modern map, the two can be overlaid and the location of the lost shafts better deduced.



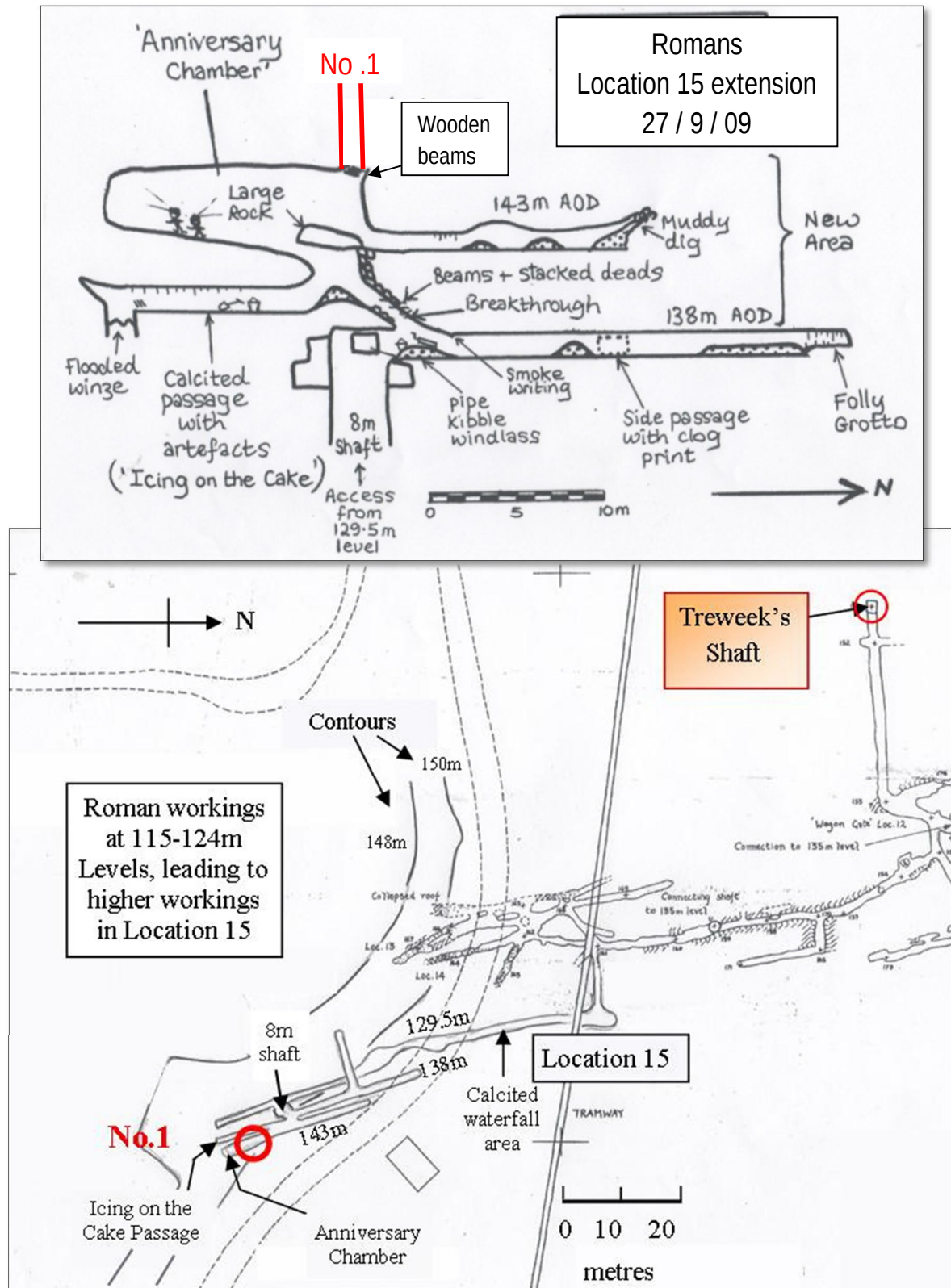


Treweek's and Roman shafts are outside the area of the old map.

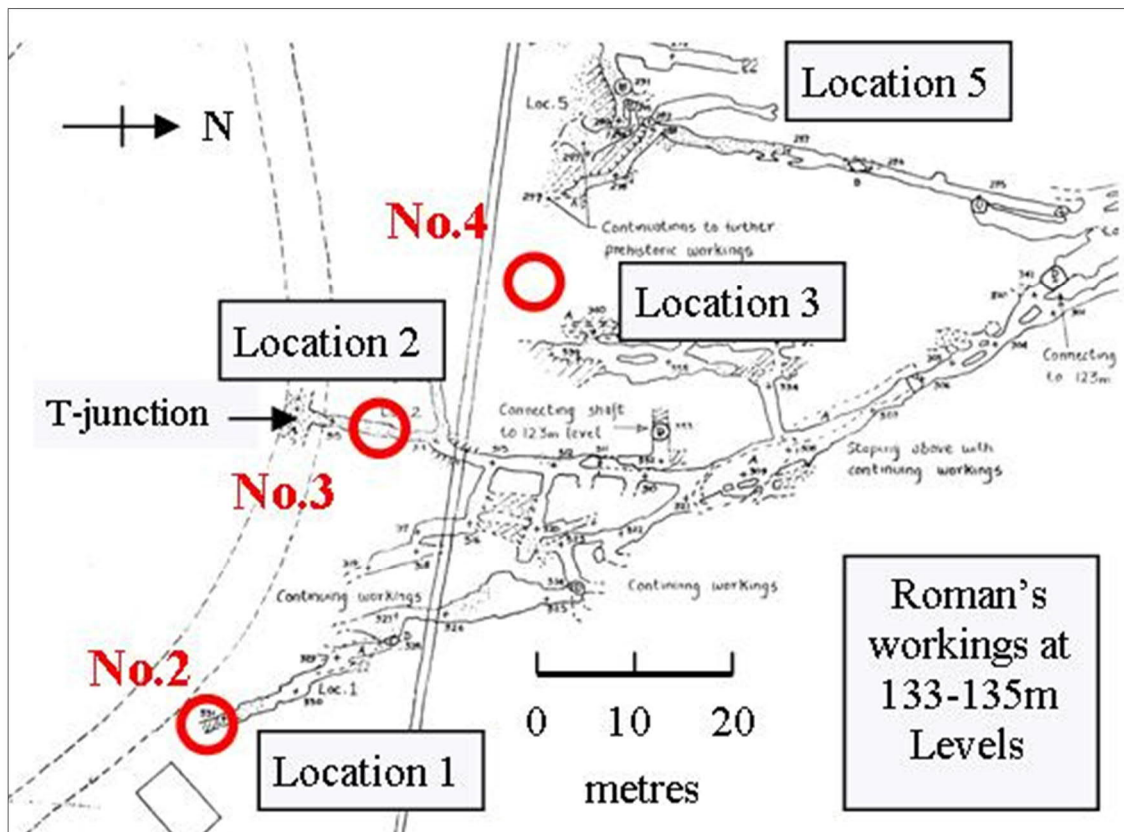
Owen's and Pyllau are both named. In the case of Pyllau the actual circle depicting the shaft hasn't got the word 'shaft' written alongside. This is probably also the case for Owen's; the word 'shaft', partially hidden due to an alteration actually applying to the shaft further north (No.7). Vivian Shaft is not marked on the old map, though the large horse whim close by is.

Based on plans of the underground workings made by Andy Lewis and my own sketches and explorations it is possible to speculate where the marked shafts link into the mine workings.

No.1 Romans Location 15: Anniversary Chamber was discovered in 2010. The shaft probably lies above beams spanning a section of its roof. Access is now prevented by the collapse of the 'unstable looking wall' at the breakthrough point. Journal 2010.



No.2 Romans Location 1: A passage which continues running SW is blocked by infill at 147m AOD. At this point trams are audible. This shaft is most likely an inclined level. Billy Davies recalled a metal pipe exposed in the tunnel roof – probably a water main. Subsequent collapse covered the area. During the reclamation improvements in 1989 this area was excavated from surface in the hope of finding the entrance. Unfortunately, it wasn't found. It probably lies somewhere below the tram track in the bank behind our regular water board parking spot at 150m AOD.

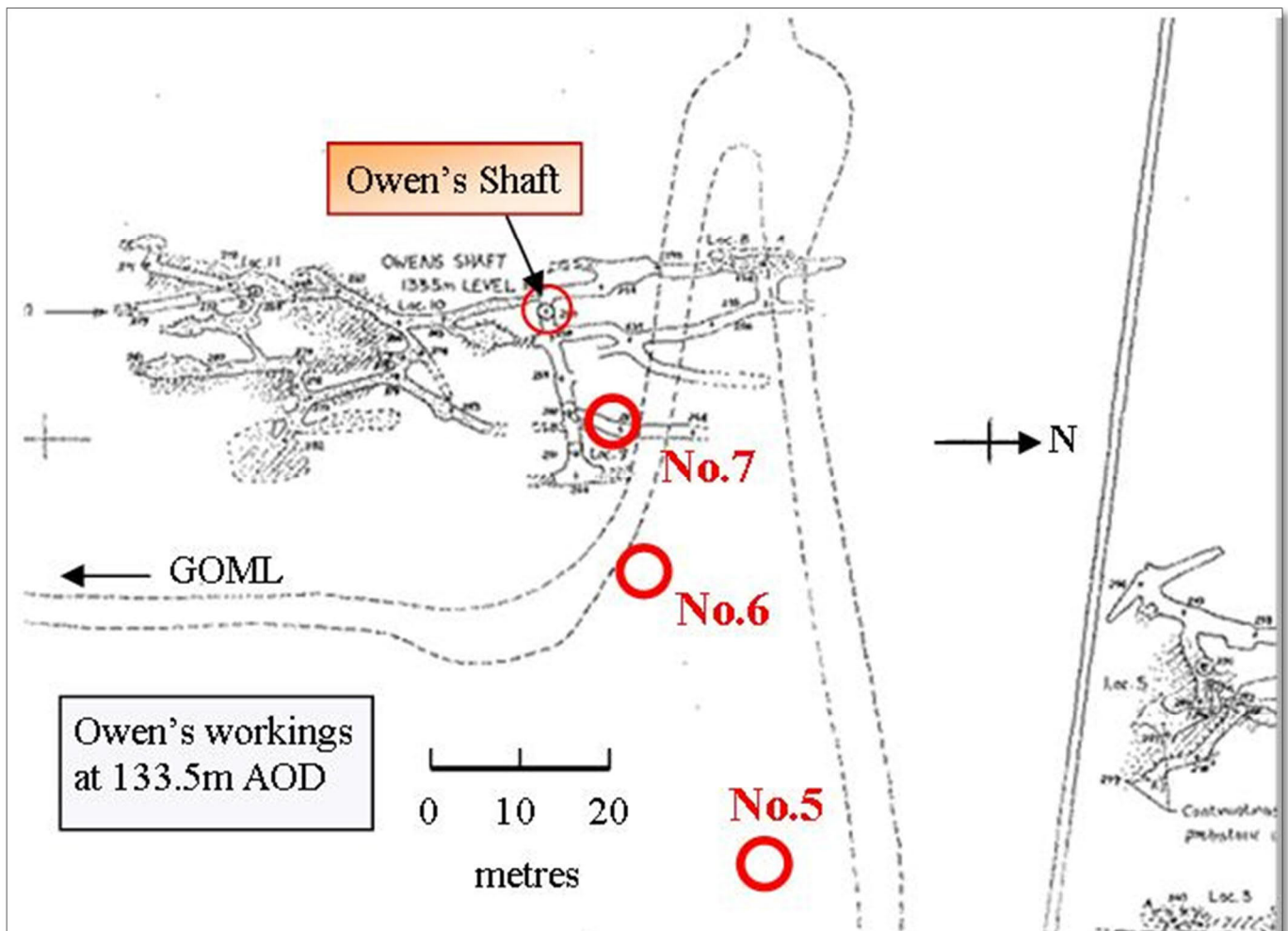


No.3 Romans Location 2: There is a rubble filled shaft just before the T-junction. It was excavated and roughly surveyed in the mid-1980s to reveal the T-junction, collapsing not long after. Re-excavated 18 / 7 / 10. (The 'scary window' of Journal 2011). It has since fallen in again.

These three shafts (1,2 and 3) provide simple ways to extract ore from the various limbs of the Romans 133-135m AOD levels, avoiding the need to move rocks to either Romans or Treweek's shafts whilst facilitating easy access and better air flow.

No.4 Close to the position of this shaft are 'prehistoric' workings in Romans Location 3, but we are not aware of any infill to indicate a shaft. A better possibility is a shaft / adit leading towards Romans Location 5.

Removal of rock from this location using the known tunnels would have been arduous, another access point would be sensible. However workings closest to the marked shaft are thought to be prehistoric and are very restricted with no indication of recent tunnelling. Perhaps more likely is that the marked shaft accessed the complex area of shallow workings beneath Bryniau Poethion similar to the Ali Series.

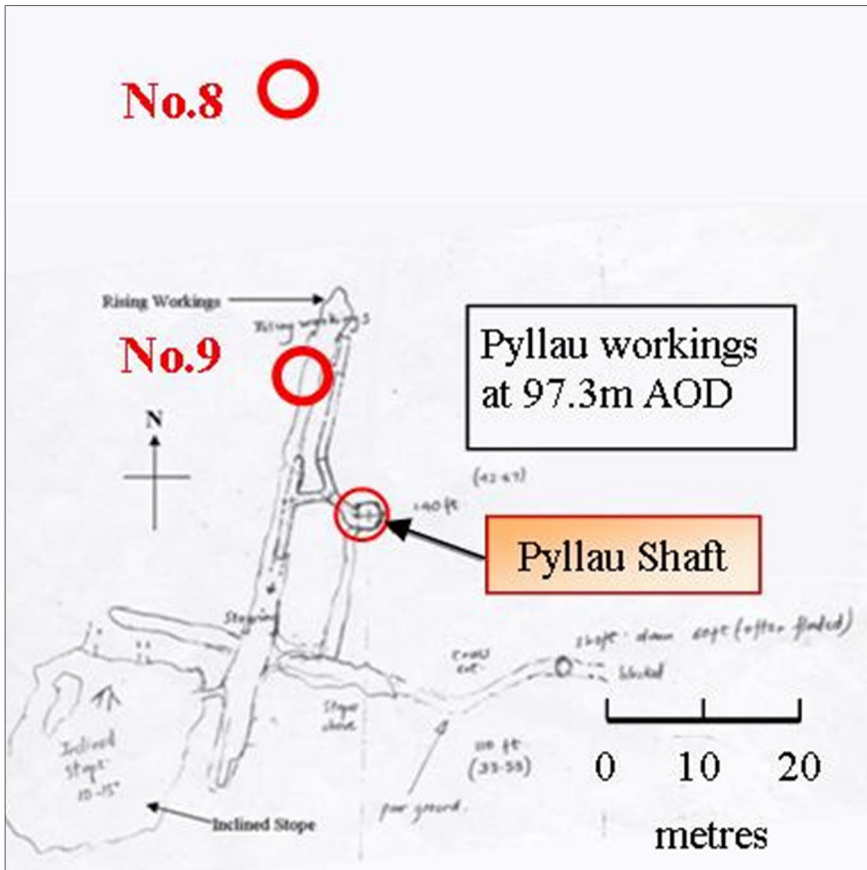


No. 5 Higher Shaft: This was a major winding shaft. Unfortunately it disappeared during landscaping in the 1960's after being filled. Its position has been indicated on other old plans and can be ascertained after an isolated section was found in Location 24 at 122m AOD.

No. 6 Shaft in landscaped area on north edge of GOML access road. The closest known workings are in Owen's Location 9. It is likely this shaft gave access to so far unknown workings, which may have linked into Owen's.

No. 7 Shaft immediately south of GOML access road, which is 15m above Location 9 in Owen's. Rubble at the end of several tunnels may hide the base of this shaft.

No. 8 An isolated shaft which probably accessed still unknown workings that represent a northerly extension to the main Pyllau ore vein.



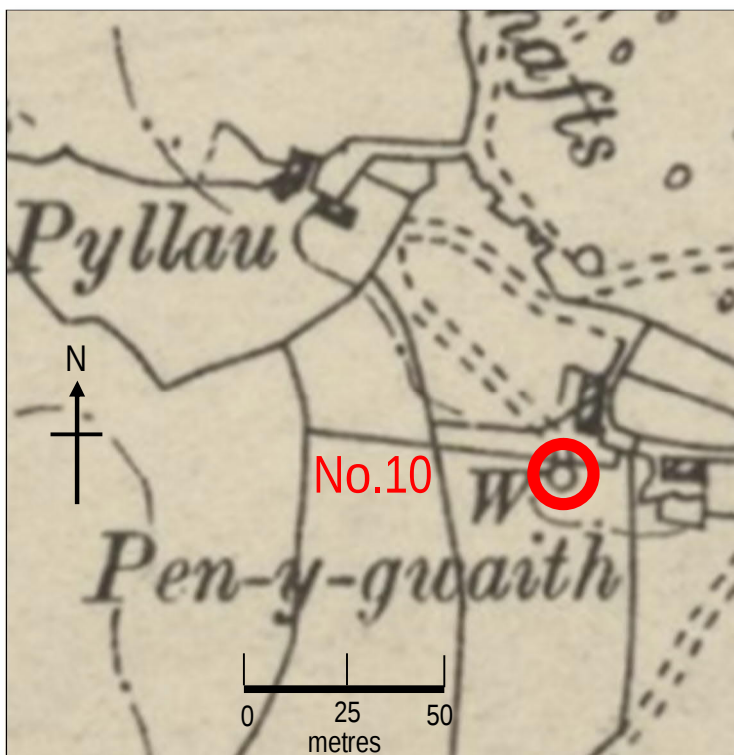
No.9 This shaft lies above rising workings on the 97.3m level of Pyllau Shaft. It is possible that these workings continue up to the base of the shaft.

Several of these shafts (6 to 9) may have been useful man-ways to free up Owen's and Pyllau shafts for haulage as well as aiding air flow.

No.10 This was sunk to connect with the Pyllau vein system and is marked on old maps as a well at Pen y Gwaith rather than a shaft. In the 1980's dead sheep were thrown into it. Duncan James told Andy Lewis that he once abseiled the shaft to find the floor a seething mass of maggots. There was no sign of any side tunnels.

Author: Dave Wrennall

Thanks to Andy Lewis
for the use of his maps
ideas and feedback.



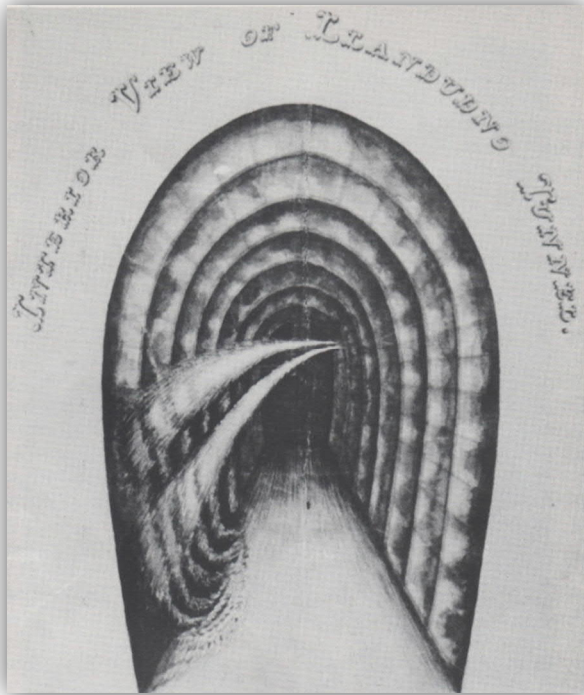
Down the Rabbit Hole??

At the Orme end of the boating lake on West Shore lies Abbey Place, and trickling alongside Abbey Place is a small stream with a big story.



The stream drains the copper mines of the Great Orme and it is not natural. This is a drainage tunnel, called the Penmorfa Adit which was created to drain the Orme mines from below, as the alternative of pumping out the flooded mines from the Orme's surface was costly and inefficient. Starting in February 1834, 12 miners working alternate shifts, drove the tunnel 879 yds (800m) into the Orme, working day and night for over 8 years!! This is an average of 6' (1.8m) a week. It was 6' 6" (2.0m) high and 4' (1.2m) wide and lined with stone for the first 149 yds (135.2m).

They stopped tunnelling when they were 6' (1.8m) from the workings of the New Mine (Accessed from Pyllau Shaft). They knew these to be flooded to a depth of some 200' (60m) and realised they were finally there when, on 14th October 1842, a long probing drill hole produced a torrent of water. At least one other hole was drilled (3 documented) before they presumably ran like hell!, or simply waded out confident in the rock barrier, to let the water drain in its own good time. It is estimated that the flow of water through the holes approximated to nearly 400 gallons a minute. (1.8m³) There was even a poem written about it and an artist's impression of the event is held at Llandudno Library. The Penmorfa Adit was subsequently extended to reach the Old Mine at Vivian's Shaft.



Artists impression of the holing-through.

Through Gogarth, cutting a cleft to be a roadway, beautiful, without its better;
to open a wall, to send waggons
along the borders of the earth's belly.

A thick face was reached, its surface without
the light of the heavens; an opening
with an arch above is what Gogarth
gives as a waggon-road.

Through the drill holes break out long
jets of water, through the middle of
deep fissures from inside its bosom that
was closed.

Two cataracts roaring to its middle,
flowing tortuously, came to be lakes
of water from the water-table of Ynys Tudno.

Poem translated from Welsh.

Once fully opened the adit was not just used for drainage but also as an entrance to the lower levels of each mine, many of which were below sea level, and much copper was taken out to West Shore. Here the ore was hammered into unsmelted ingots on the site we now know as Penmorfa, and taken away by sea to be smelted, mostly to Amlwch or Swansea. The boats used to beach on West Shore when the tide was right, to be loaded by hand and reloaded later. Returning vessels brought mostly coal for the mine's steam engines further up the Orme.

Personally I am convinced, from the photo unearthed by John Lawson-Reay in his Secret Llandudno of Lewis Carroll on the steps of Penmorfa House, that he really did visit Llandudno. (Link to photo: [Did Lewis Carroll visit Llandudno after all? - North Wales Live \(dailypost.co.uk\)](http://www.dailypost.co.uk)) Following on from this I am also convinced that the dark entrance of the tunnel was, indeed, the inspiration for Alice's rabbit hole. Put together the fact he visited West Shore and stayed only 100 yds (90m) from the entrance, with the fact that there was a mine called Rabbit Venture just along from the adit (near the modern day site of the Hospice) AND in Alice Through the Looking Glass a reference to a zig-zag path being close to Alice's house and then there you have it: not only does the Penmorfa Adit have great industrial heritage, but a massive literary one as well!

Bibliography: British Mining No.52: Great Orme Mines by C J Williams <http://www.nmrs.org.uk>

A version of this article appeared in the
Friends of the West Shore newsletter

Author: Philip Berrie

Saying 'Goodbye' to the Caravan

Having bought a static caravan in Penrhyn Bay 10 years ago, I began looking for activities in the area for the many times when I would be staying there on my own. One of the organisations I discovered was GOES. I saw the announcement for one of the Thursday evening public summer walks and went along. Everyone was friendly. I knew very little of the history and geology of the area, having only spent a few family holidays in Llandudno as a child & teenager (usually staying at 'Bodlondeb' on Church Walks – at that time a Methodist Holiday Home - adjacent to the tram station) and I liked walking, so was curious to find out more.

After a year or so enjoying the summer walks, I decided I should join GOES, just as an 'above-ground' member, though I did venture down Ty Gwyn on two occasions! The information I gleaned on the walks and other events - such as spending a little bit of time in the GOES marquee during the Victorian Extravanzas - was fascinating, though I'm afraid I didn't always retain it from one year to the next. There seemed to be an infinite number of different paths and routes on the Orme, so every walk was fresh and different.



Judith front, Haulfre gardens June 2017.

During the limited spell I was permitted to be on the caravan site during 2020, because of the restrictions imposed as a result of the Covid-19 pandemic, I had to decide whether or not to keep the caravan. I was able to put it up for sale as a going concern, to remain on the site, if I did so before the end of 2020; if I kept it after it was 10 years old, but then decided later to sell, it would have to be removed from the site and sold privately or to the trade, undoubtedly at a substantial loss. It was time to make the decision – and a difficult one at that! I had loved my time in North Wales, but keeping two lives and homes going, and pursuing quite a lot of activities in both areas was becoming quite hard work, and I didn't want to carry



Donkey path July 2018.

on until having the caravan became a burden. All the organisations I was involved with around Llandudno – apart from the cycling group – had suspended their activities; the time I could spend at the site was hugely reduced in 2020 and I could envisage the same restrictions applying to at least the early part of the 2021 season.

So where should I go to contemplate the decision and the meaning of life, but up on the Great Orme. I went up the zig-zag path and sat where I could look over Llandudno, Craig y Don and the Little Orme, which was just a stone's throw from the caravan park.



And the decision was made to sell. Although I would miss all the people and activities with which I had become involved, now was an easier time to leave than when everything was in full flow. I could always return – Llandudno's not a million miles from Warrington after all! It would allow me more time for holidays abroad – silly me, that's not looking such a good idea now, but there's plenty of the UK to explore when we can.

So, thanks to everyone at GOES for welcoming me, for providing such interesting activities and companionship, and for putting up with my regular last-minute arrivals for the walks, after excusing myself early from Church Choir practices on the same evening, but never quite early enough!

Keep up the good work, and when I'm back in the area on visits, I'll be looking to see if there's a walk available, so you've not got rid of me quite yet!

Author: Judith A Hogg

February 2021 judith.hogg@ntlworld.com

GOES has appreciated your membership Judith and enjoyed having your company on the summer walks. We wish you all the best for the future and hope to see you again sometime.
Dave (Chair) +Nick (Former Walks Coordinator).

GOES SUMMER WALKS 2021

All walks start at 7pm and are usually gentle strolls which last up to 2 hours. Sturdy footwear and waterproofs are recommended for all walks. If the weather is poor, then the walk is likely to be postponed until a later date.

Walks subject to change due to Covid-19 restrictions!

20 May – The Path of the Deer. Meet at the water pump house (near halfway tram station).

27 May – ‘Flying Foam’. Meet at Dale Road Car Park (charges may apply). Low tide 19:00 (0.8m).

3 June – In Search of Val Dunne. Meet at the Rest and Thankful Café, Marine Drive.

10 June – St Tudno’s Well. (with guide Christine Jones). Meet at St Tudno’s Church.

17 June – Wendy’s Wildflower Walk. (with guide Wendy McCarthy). Meet at the water pump house (near halfway tram station).

24 June – The Silver Studded Blue Odyssey. Meet at West Shore Toll House.

1 July – Mynydd Isaf and Fynnon y Galchog. Meet at the water pump house (near halfway tram station).

8 July – School of Coast Artillery. Meet at junction of Llys Helyg and Marine Drives (very limited parking) at 7pm or at West Shore Toll House at 6-40pm to walk to meeting point for 7pm.

15 July – Bryn Euryn. Meet at Bryn Euryn nature reserve car park, Tan-y-Bryn Road, Rhos-on-Sea.

22 July – Happy Valley. Meet at Llandudno war memorial, Prince Edward Square.

29 July – Brammock Rods and Llety’r Filiast. Meet at the water pump house (near halfway tram station).

5 August – Nant-y-Gamar. Meet at the junction of Fferm Bach and Queens Roads (near Blind Veterans UK).

12 August – Pen Dinas and Wyddfyd. Meet at ‘the bench’, ski slope car park.

Walk Coordinator: Adrian Hughes (07833 109505)

GOES Committee and Contact Details:

Chairman: David Wrennall	email: dave.wrennall@gmail.com
Vice Chairman: David Flowers	email: daveflowers30@gmail.com
Secretary: Gareth Davies	email: penrhynsideheating@hotmail.co.uk
Treasurer: Stephen Lea	email: steve.lea005@gmail.com
PR Officer: Nicholas Challinor	email: nicholas_challinor@sky.com
(Representative on Great Orme Country Park Management Advisory Group)	

Additional GOES Contacts:

Archives Officer: Stephen Lea	email: steve.lea005@gmail.com
Equipment Officer: Gareth Davies	email: penrhynsideheating@hotmail.co.uk
Journal Editor: David Wrennall	email: dave.wrennall@gmail.com
Summer Walks Coordinator: Adrian Hughes	
	email: adrianhughes1@hotmail.co.uk

GOES meets informally every Thursday evening in The Snowdon, 11 Tudno Street, Llandudno from 9.30pm. <http://www.the-snowdonhotel.co.uk/> All are welcome.

The Great Orme Exploration Society (GOES) was formed in 1985 and became a Company Limited by Guarantee and not having a share capital on 7th April 1999. It is a member of the National Association of Mining History Organisation (NAMHO), British Caving Association (BCA), and works in association with the Gwynedd Archaeological Trust (GAT), the Early Mines Research Group (EMRG) and the Gwynedd Bat Group (GBG). Views and opinions expressed are those of the author(s) and not necessarily those of the Society.

