MINES AND MINERALISATION IN PERRANWELL.

Forgive a long preamble but understanding the basic geological principles will assist in the understanding of the overall picture.

Underlying much of Cornwall some 3-4 kms below the present surface is a mass of granite called a batholith extending from Dartmoor to well west of the Scillies. Rising up from this batholith are granite domes exposed at Bodmin Moor and Cammenellis. Similar but much smaller steep sided protuberances are seen at Cam Brea and Cam Marth. Associated with the latter are mineral bearing solutions rising from great depths and depositing metals in numerous veins. The deposition is governed by reducing temperatures, so tin metal called cassiterite crystallises first within or near to the granite, copper follows further away and lead and zinc still further,, ideally in concentric circles around what is called an emananative centre. Needless to say this paints a far too simplistic picture as the solutions were injected over many millions of years and a single vein may contain a whole range of minerals. Overall this belt from Camborne to Chasewater is one of the most intensely mineralised areas in the world.

The largest and richest mineral veins of the main stage mineralization are aligned east to west and many late stage injections are aligned from north to south. This latter represents the picture in Perranwell and the veins are small, as they are so far from the granite source. The small scale mining of the mineral veins in the parish is insignificant compared to the value of what is called detrital tin in the Camon valley shared between Perranwell, Kea and Feock parishes.

Imagine some 15,000 years ago Perranwell was waste land of bare rock and gravel with patches of snow and a wall of ice in the Bristol Channel. All the mineral veins were exposed and broken up by ice and melt water releasing the insoluble tin into the numerous streams. Other metals such as copper, lead and zinc were soluble and were either washed away or redeposited at the water table. The tin was concentrated in the Camon valley, which became the largest detrital tin deposit in Cornwall.

This surface tin was recognised by our bronze age ancestors of some 3000-4000 years ago, who were the first so-called tin streamers, who learnt how to separate the heavy cassiterite from the waste rock and melt it into ingots for export. The easy pickings from the streams nearest the tin outcrops became exhausted and downstream the tin bearing ground was covered with 60ft or more of mud and gravel. Shallow depth mining is known to have occurred in Roman times as coins have been found and oaken shovels unearthed. In the 18th century the buried tin ground was worked by creating earthworks to hold back the tide and the Camon stream was canalised. In 1823 during these systematic and profitable workings Perranarworthal man was discovered near the mouth of Mellingey creek and the find aroused great interest and publicity He was a perfectly preserved skeleton buried under four large timbers covered by 17ft of mud and a pile of quartz boulders indicating that the tin ground had been worked underground here and he was probably killed by a collapse of timber work.

In the early 1800's an artificial island was made at the junction of Perran Creek and the Camon valley and a shaft was sunk to the tin ground. The operation was technically successful, but no information has come to light about this venture, so it is presumed that tin values were uneconomical

In 1768 the County Adit was initiated aimed at draining the mines in the St Day area. In all 30 miles of tunnels were excavated and the mouth is visible to this day disgorging iron stained waters. This adit contributed to the silting of the Camon valley, but it also gave meagre pickings to several hundred labourers, who recovered the tin lost by the inefficient stamping and crushing process at the mines upstream. Very small quantities of gold were found and this was regarded as a perquisite. Ever more sophisticated methods of recovering the tin continued until very recently. The drainage waters contained much copper in solution and in the latter half of the 19th century this was recovered by passing the water over piles of scrap iron deposited in trenches called launders. The copper replaced the iron and pure copper was obtained from the sludge and ochre from the iron. This continued until the 1950's.

Since there are few recorded production figures it can be assumed that the mines in the parish were small and many of the workings were trials exploring the possible potential of narrow veins. As there were so many exceedingly rich mines in the neighbouring Gwennap parish it was natural that the many local miners tried their luck around Perranwell.

The most extensive mine was called Ballemoon, a little below Ponsanooth bridge recorded in 1691 as " a great Tyne Work" Nearby near the present railway viaduct was South Tresavean mine later called Roscrow United and worked in the 19th century. A radioactive mineral called coffinite was identified here in 1847. Small quantities of mine water were bottled and sold as Roscrow Natiural Water, radioactive and billed to work wonders with your health. In 1912 it was proposed to erect a spa, so that health seekers could bask in the radiation. A far cry from present thinking where protective radon barriers are a requisite under new buildings. The onset of the first World War snuffed out fixture operations, but in 1958 the Atomic Energy division of the Geological Survey examined the area as a potential source for uranium. Just across the parish boundary there was a large open work mine called Magdalen or Maudlin worked since the 16th century.

At Crowsmeneggus an adit and shafts explored a vein extending up to Pelyn Cross, which may be represented by a mine registered in 1507 at "Pellean" near Ponsanooth.

A tin stamping mill was operating at Chyvogue " The house of the furnace" around 1538 which indicates that a blowing house smelting the tin also existed there. Both would utilise the water channelled into a leat dug from Trewedna Water to drive one or more waterwheels. The tin vein extended from the Trewedna stream up to Parc an Hallow and was described as " A Great Tyne Mine [64] on a 1691 map. This was called the Perran Downs tin mine later to become South United and surface workings were visible until built over by a new development called[1] &feadow *y* iew. An adit just south of Goonvrea is on the line of this lode and might be either exploratory or designed to drain the workings.

Further east near Perranwell Station an adit at Tarrandean and a line of shafts were developed in the 1830's on a lead -zinc lode with silver recovered as a by-product hence the name Silver Hill. It was a short lived operation, as it was abandoned in 1838.

All these little mines were miniscule compared to the great rich mines in nearby Gwennap.

As a postscript the requirement to have a mineral survey for extensions to houses in the parish, if still in force, should be abandoned as totally unjustified.

Chris Burton. November 2010