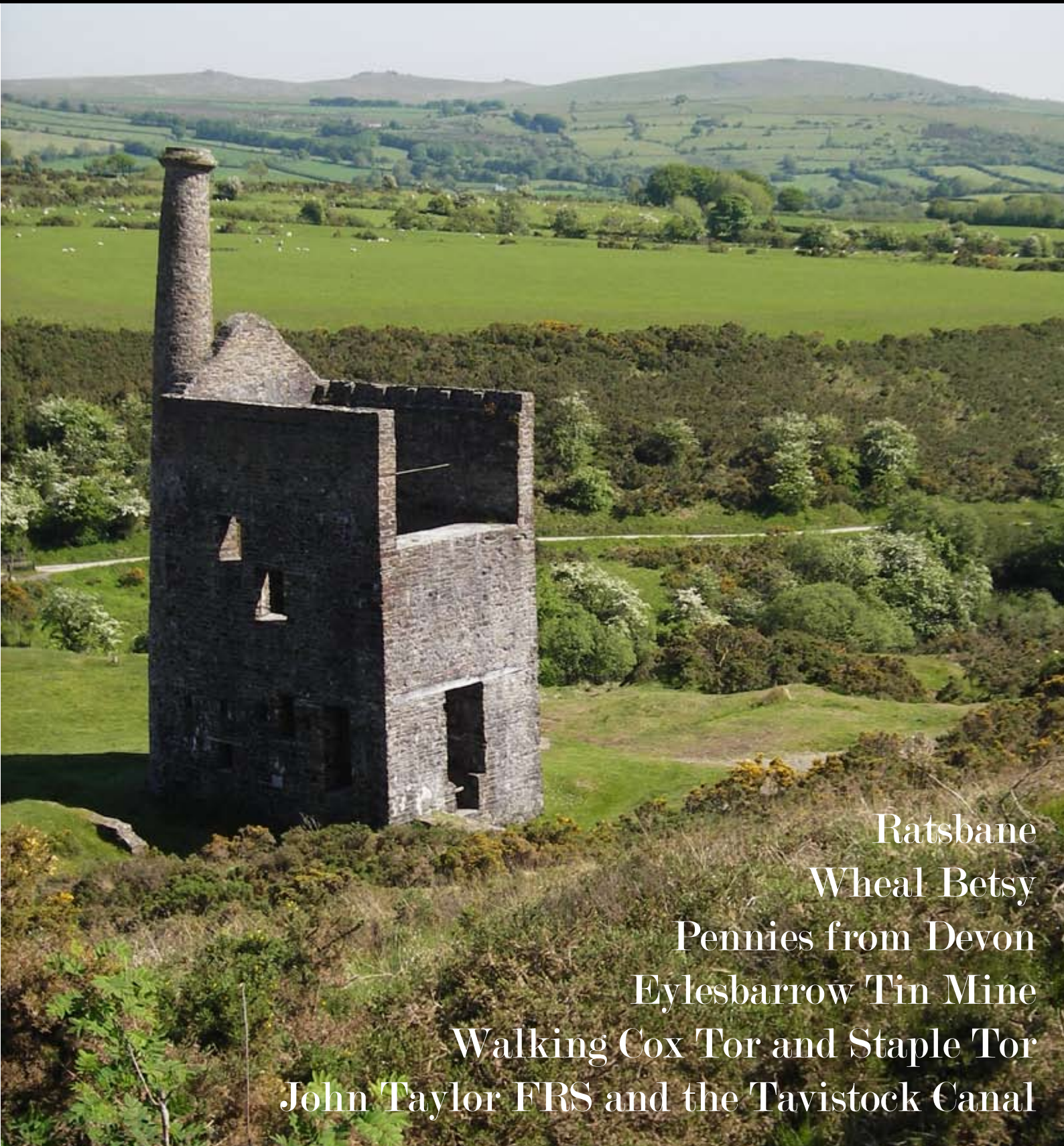


# Margins

Literary magazine Dartmoor



Ratsbane  
Wheal Betsy  
Pennies from Devon  
Eylesbarrow Tin Mine  
Walking Cox Tor and Staple Tor  
John Taylor FRS and the Tavistock Canal

Local Writers

Dartmoor's Mining Heritage

# Dartmoor Awakens

The dawn wind stirs the sleeper;  
Grass-stalks wave and quiver;  
The autumn sun rises – heat-coloured, red,  
But the breeze brings winter's shiver.  
Deep below the monster stirs

In his lair of oozing mud.  
The hawk flies high, sharp-eyed, searching –  
He needs to feast on blood.  
Sheep and ponies graze serenely;

Bees leave their sheltering hive.  
A raven croaks. The monster rises.  
And Dartmoor comes alive.

Gill Saunders

## Poems

- 2 *Dartmoor Awakens*
- 3 *Canal*
- 3 *The Canal in Autumn*
- 17 *Ratsbane*
- 18 *Below Ground*
- 19 *At Wheal Friendship*
- 19 *Autumn Ending*
- 21 *Cornwall*
- 21 *Morwellham's Revival*
- 21 *The Garlandstone*
- 24 *For Jeannette*

Gill Saunders  
Mary Beddall  
Beverly Beck  
Jan Robinson  
Gill Saunders  
Mary Beddall  
Mary Beddall  
Bet Kendall  
Kelvin Stagg  
Joan Cheikh  
Beverly Beck

## Articles

- 4 *Walking the Cox Tor and Staple Tor Ridges*
- 7 *Wheal Betsy's Leaning Tower*
- 8 *Inspired by Dartmoor and Morwellham*
- 10 *The Copper Boom at Morwellham*
- 12 *The Tavistock Canal and John Taylor FRS*
- 15 *Eylesbarrow Tin Mine*
- 20 *Pennies from Devon: Tavistock Penny Tokens*
- 22 *'Gallery 26' Bedford Hotel Tavistock*

Jack Walker  
Margret Thomas  
Tania Crosse  
Rebecca Mansell  
Ann Pulsford  
Colin Kilvington  
Myfanwy Cook  
Ann Pulsford

Front cover: Wheal Betsy looking down the Cholwell valley with Roos Tor, Great Staple Tor, Middle Staple Tor and Cox Tor on the horizon

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Photographs by Ann Pulsford and Jack Walker

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## Canal Mary Beddall

Dark-flowing silence, where the branches bend  
Into slow water, where the reed stalks lie  
And bright birds, darting, break the surface;  
Where, to walk without a passing thought  
For all the purpose and intent that made this place,  
Still means that it exists,  
And, in its quietude, marks a time of progress,  
Bustle, traffic, and the hard graft of mines,  
When barges plied the passage to the sea.

How long-gone and far the time that changes,  
That counts the years, then forgets all  
That passed before. The silken ribbon  
Through the town, into the greener land;  
Lives that long-toiled, some lost along the way;  
And then the cobbled quay and waiting ship,  
And barges making passage to the sea.

## The Canal in Autumn Beverly Beck

It might be plain, this russet, darkly-golden  
fluid pathway of industry, fringed by ferns  
and rooted trees who lend their presence,  
bending to the rhythms and restlessness  
of the hard-earned cargo that once frequented  
its route.

But it is undoubtedly  
an historic stalwart friend.

# Walking the Cox Tor and Staple Tor Ridges: a Classic Dartmoor Route

Jack Walker



1. Pork Hill car park and Cox Tor

Cox Tor looms large on Dartmoor's south-western edge, proudly overlooking Tavistock. Its granite bastions whether shining in sunlight or hidden in cloud offer a gateway to the wild moor.

When viewed from Pork Hill car park at map reference SX532751, Cox Tor is seen to be married to the Staple Tors (Great Staple Tor, Middle Staple Tor and Little Staple Tor) by a continuous ridge, the whole forming a glorious horseshoe flanking the car park. It is a great privilege to sit cosily inside a car facing this magnificent Dartmoor spectacle to see its annual changes, from close up in all weathers.

It is possible to walk to the top of Cox Tor and back within an hour, but given two to three hours the averagely fit person should be able to walk the entire circuit from the car park to Cox Tor, Cox Tor Ridge, the mysterious Staple Tors and back to the car park again, without touching a road except to cross it at the start and finish.

The green Volkswagen Golf parked at the Pork Hill car park (Photograph 1) points across the B3357 to the start of the walk which follows the obvious broad and straight path between bracken to the top of Cox Tor.

Photograph 2 shows the entire route which starts and finishes at the Pork Hill car park. Cox Tor is to the left of the photograph. Great Staple Tor is towards middle right with Middle Staple Tor to the



3. The path to Cox Tor

right of this and Little Staple Tor is at the far right of the picture. The route ascends Cox Tor to the top (SX531762) where there is a concrete Ordnance Survey trig point. From here the route follows the ridge from Cox Tor to Great Staple Tor (SX542760) and then on to Middle Staple Tor (SX541757). From here it descends towards the B3357 road, following one of the tracks back to Pork Hill car park. The average walker, in good weather and appropriately equipped, should allow between three and four hours to complete the walk.

*Part 1: From Pork Hill car park to the top of Cox Tor—estimated time 45 minutes*

Cross the road and walk up the wide straight path between beds of bracken (Photograph 3) and continue through to a grassy plateau where progress up the Tor is slowed by a steeper rocky section. There are two main choices here:

1. The more adventurous continue up this and another rocky band to the top of Cox Tor which is marked by a concrete Ordnance Survey trig point.
2. It is possible to turn right on the plateau over easier land and gradually circle left to the top of Cox Tor which is marked by a concrete Ordnance Survey trig point.



2. Cox Tor and the Staple Tors



4. Cox Tor to Great Staple Tor



5. Approaching Great Staple Tor



6. Great Staple Tor—the Western Gateway



7. Great Staple Tor's Northern Gateway



8. Great Staple Tor's, Northern Gateway's Western Rocks

*Part 2: Cox Tor to Great Staple Tor—estimated time 45 minutes*

Photograph 4 shows the Cox Tor Ordnance Survey point with Staple Tor ridge in the near distance. In the photograph the rocks of Great Staple Tor just cut the sky line to the left of the Cox Tor Ordnance Survey point. Following the ridge from Great Staple Tor to the right stand the rocks of Middle Staple Tor.

Pick an easy route heading east from Cox Tor Ordnance Survey point to Great Staple Tor passing a small pond (see Photograph 5) on the way.

Continue up the ridge between Great Staple Tor's Western Gateway (see Photograph 6).

Pass through the rocks of Great Staple Tor's Western Gateway (see Photograph 6)

Stand before the rocks of the Northern Gateway (see Photograph 7)

Turn south through Great Staple Tor's Northern Gateway to face the bulk of Middle Staple Tor, passing the strange configuration of the Tor on your right (see Photograph 8).

*Part 3: Great Staple Tor to Middle Staple Tor—estimated time 30 minutes*

From Great Staple Tor's Northern Gateway follow the easy ridge to Middle Staple Tor (see Photograph 9).

Note: From Photograph 9, see the inlet of Plymouth Sound on the skyline to the south of Middle Staple Tor and the glimpse of the River Tamar. Plymouth was an ancient trading port and man's prehistoric development of Dartmoor would have spread from its rivers, giving significance to sites such as the nearby Merrivale Prehistoric Ceremonial Complex. The ridge between Great Staple Tor and Middle Staple Tor is thought to have played an important part in the ceremonies of the Bronze Age people. Reference: Jack Walker, *Dartmoor Sun*, Halsgrove 2005.



9. The ridge from Great Staple Tor to Middle Staple Tor



10. Middle Staple Tor looking north



11. Middle Staple Tor looking south



12. Looking back to Great Staple Tor from Middle Staple Tor



13. Middle Staple Tor to Pork Hill car park

Photograph 10 shows the notch in the Middle Staple Tor behind which the Summer Solstice sun presently sets when viewed from the marker stone to the north of the Merrivale Stone Circle (SX554746). Reference: Jack Walker, *Dartmoor Sun*, Halsgrove 2005, Page 64.

Photograph 11 shows the view through the notch looking towards the Prehistoric Merrivale Ceremonial Complex (SX555748). Reference: Jack Walker, *Dartmoor Sun*, Halsgrove 2005.

Photograph 12: Looking back to Great Staple Tor from Middle Staple Tor.

*Part 4: Middle Staple Tor to Pork Hill car park—estimated time 50 minutes*

Photograph 13 shows the open ground between Middle Staple Tor and Pork Hill car park. There is no set route but the car park is within sight of Middle Staple Tor and the recommendation is to make your own way down the Tor on a south-west heading keeping to the open ground until you return safely to the car park. End of walk.

Jack Walker was a laboratory manager at the Royal Naval Engineering College at Manadon, Plymouth from 1990 until 1995. Prior to this he taught Technology in Cornwall. Study with the Open University gave him a love for writing and research which led to several articles in the *Dartmoor Magazine* and two books:

*Dartmoor Sun*, Halsgrove 2005. This explores and explains some of Dartmoor's prehistoric ceremonial sites.

*Frypan*, New Millennium 1997. This fictional adventure novel is set in and around Australia, Indonesia and Japan. *Frypan* examines green issues dealing with the important theme of technology versus nature. It predicted the generation of volcanoes and tsunamis and describes what may happen in the event of a major fault occurring in Earth's tectonic plates.

He is a member of the Tavistock Writers' Group, Tavistock Astronomical Society, The Dartmoor Society and Devon Archaeological Society. He will be giving a talk 'Bronze Age Dartmoor' in October at the Wharf in Tavistock.

# Wheal Betsy's Leaning Tower

## Margret Thomas

Wheal Betsy, (SX 510812), which has been called 'The Leaning Tower of Dartmoor', is an unmistakable feature at the side of the A386 road from Tavistock to Okehampton, Devon. It is the last standing engine house on Dartmoor, situated on the steep western side of the Cholwell valley, north of Mary Tavy. The remains of many spoil heaps and water gullies can be seen in the valley close by. Wheal Betsy silver ore was reputedly of high quality and thought to have been smelted locally using peat and charcoal.

The ruined engine house, with its seemingly precarious leaning chimney stack was acquired by the National Trust, made safe and preserved as a heritage memorial to the mining industry of Dartmoor.

The Wheal Betsy mine opened around 1740, producing zinc, lead and large amounts of silver. At first the mine was powered by waterwheels but in 1868 the current engine house was erected to accommodate a steam-powered Cornish Beam pumping engine. This powered the water pumping, winding and ore crushing machinery.

In 1816 the mine was managed, together with the neighbouring Wheal Friendship mine at Mary Tavy, by John Taylor, a young and talented manager and engineer from Norwich. By 1822 lead and silver ore production had risen to over 100 tons per month, but flooding still hampered the deep mining, which now extended to six levels, the deepest at 70 fathoms. It was in this year that work started on the new engine house to pump out the flooding and make extractions from the deeper levels easier. At this time all ores were processed at the mine using a new extraction process.

During the period 1821–1830 Wheal Betsy produced a net income of £102,661.00. Towards the end of this period however, the price of lead dropped drastically, which meant the mine was working at a loss. To make matters worse flooding at the deeper levels was still a severe problem.

John Taylor's answer to the flooding was to drive the nearby Wheal Friendship adit into Wheal Betsy to drain the upper 40 fathoms. Work began on this in 1835, but due to the low price of lead and the huge expenses incurred by the water pumping, the mine continued to run at a loss. But in 1836 the price of lead rose and good profits were forecast.

In 1837 a separate company for Wheal Betsy was formed and its association with Wheal Friendship ended. Wheal Betsy was then equipped with four over-shot wheels to power the water pumping and hoisting and crushing the lead ore. Unfortunately



Wheal Betsy

by 1846 the profits were so low it was decided to close the mine.

The mine was re-opened again in 1863 by a Scottish company called Prince Arthur Consols and new equipment installed. Unfortunately, although over 200 tons of lead was extracted the profits did not cover the cost of the new equipment. In 1869 the mine was sold on to another company which worked on the mine on a very small scale until 1877, when finally after 137 years of activity Wheal Betsy was closed.

The reason why the chimney of Wheal Betsy leans at such a precarious angle is not well known. The site is exposed to very strong winds and rain which may have been the cause.



Wheal Betsy from the Cholwell valley

# Inspired by Dartmoor and Morwellham

Tania Crosse



Morwellham Quay

My first book, *Morwellham's Child*, illustrated the turbulent years at Morwellham Quay when the copper industry declined so rapidly and gave way to arsenic production. The Quay is not, of course, actually on Dartmoor, but was physically and economically linked to it by the Tavistock canal. Before the demise of the copper trade, ore from all over this side of Dartmoor was brought to Tavistock by horse power, and was then loaded onto canal barges bound for Morwellham. This important waterway, which stretches for four and a half miles, including a one and three-quarter mile tunnel, was built by young engineer and local hero, John Taylor. Although the canal was principally known for exporting Dartmoor copper, it was also busy transporting all kinds of other important goods in both directions, from fertilizer and farm produce to bricks, tiles, pots and pans, and coal, limestone and iron for the local foundries. The material for the book was endless, and the difficulty was knowing where to stop with all the intriguing facts!

My second novel, *The River Girl*, follows the fortunes of a young girl on a remote Dartmoor

farm, struggling to find happiness despite the forces that beset her. In this book, however, I also wanted to explore more about the mining itself than I had in *Morwellham's Child*. The largest copper mine on Dartmoor was *Wheal Friendship* at Mary Tavy, roughly where the hydro-electric power station now stands, using, incidentally, power from one of the same water-leats that supplied power for the mine. My story is based in and around the 'twin' village of Peter Tavy, and so I use *Wheal Friendship* to illustrate the dreadful and dangerous conditions faced by the miners and their families.

Yet another industry on the moor was the gunpowder factory at *Cherrybrook* near Postbridge. Its isolated site and the hazards faced by the workers, together with the grim and gruesome history of *Dartmoor Prison* in Victorian times, provided the inspiration for *Cherrybrook Rose* and its sequel, *A Bouquet of Thorns*. To be published in October 2009, *A Dream Rides By* tells of the bravery of the quarrymen at *Foggintor* and their existence in the windswept hamlet there. The coming of the steam railway to *Princetown* in 1883 had a major influ-

ence on their lives, connecting them to the outside world. They were also subjected to two major weather events, the flood of 1890 and the Great Blizzard of 1891 when the train was marooned on the moor for two nights. What fantastic material for a novelist such as myself!

More recently, my first 1950s Dartmoor saga has been published in hardback by Allison and Busby, with a paperback to follow in Spring 2010. In *Lily's Journey*, the young heroine who is London born and bred alights from the train at the isolated King Tor Halt one dark November evening—daunting enough for anyone, let alone someone who only knows the city lights! In search of her true identity, Lily is soon enchanted by the moor and comes to meet some well-loved characters. But the moor is changing as the post-war years herald a new beginning, but sadly the end of an era as well, as communities are abandoned and even the railway closes.

But I have yet to exhaust the inspiration that Dartmoor has provided for me. I am still bursting with ideas from the end of the Victorian era to the Great War, while my second 1950s saga—based on snippets of Princetown history and the whole story triggered by events during the Plymouth Blitz in 1941—is to be published next year. The bewitching atmosphere of the moor and its rich and fascinating history never cease to amaze me. Long may this wonderful place continue to captivate all those of us who love and adore it!

Dartmoor, in all her glorious moods. Towering, dramatic tors silhouetted against slab-grey, ominous clouds. Pretty wooded valleys, water twinkling in the sunlight as it rushes over boulders and clear, gravel beds in its hurry to be away to the sea. Fold upon fold of distant hills, ever fainter in a lavender-grey mist beneath a coral summer sunset. Wild and unforgiving, bending to the wind and the rain. Enshrouded in a swirling July mist out of which loom mysterious, ancient stones whose meaning has been lost in time. But always beautiful, thrilling, fearsome, with that sense of timelessness that both frightens and enthral.

Dartmoor is all this, and yet so much more to each individual who loves those bleak, endless open spaces. A place of magic, alive, peaceful, hostile, and yet there have been many travellers through this mythical land: farmers who have scraped a living from the barren hills, quarrymen blasting at the mighty granite. In particular, miners first streamed and then honeycombed beneath the earth in search of metal ores, the moor being littered with mines, especially in the 1800s when West Devon produced massive amounts of copper. Dartmoor over the centuries has yielded a vast, hard-earned harvest for the intrepid men and their families who braved such harsh conditions to survive, and it is imagining their courage and dogged determination to succeed that inspires my novels.

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Bellever Bridge

# The Copper Boom at Morwellham

Rebecca Mansell



Morwellham Quay and the Garlandstone

You've heard of the legend of King Arthur, read all about Sir Francis Drake and the Armada and you've travelled across Isambard Kingdom Brunel's bridge on a train but have you ever heard of the name Josiah Hitchens?

He was a very important man in Devon in 1844 for he was the mining prospector who discovered rich copper deposits above Gunnislake and helped to put the hamlet of Morwellham on the map. As a result of his discovery, the mines that became known as Devon Great Consuls, yielded the richest copper ore in Europe and Morwellham became a busy inland river port for supplies and an outlet for produce and metal ores.

The quay gleamed with prosperity and became an important destination for many to watch the hustle and bustle. Josiah Hitchens's name, the resulting mines named after him and his family and the wealth he discovered in the area, was quickly written into the history books. As time passed and the copper ore became exhausted Morwellham eventually became a quiet backwater after Queen

Victoria's death. People forgot who found the original copper and considered instead how hard the miners toiled, how difficult it was for the very young bal maidens to break the ore with their hammers and what it must have been like to have had so much copper to examine, that they had to place it in heaps between trees, for the quay was overwhelmed with it.

In 1865, the Devon Great Consuls Mine had distributed £900,000 profits to shareholders. Shares that were first valued at £1 were worth more than £900. By the end of that year, production had risen to almost 29,000 tons a year and the Duke of Bedford had been handsomely rewarded financially. When the mines were finally abandoned it was startling to calculate that out of little more than 140 acres of ground more than 730,000 tons of copper had been produced, exceeding £3,000,000 in value, together with the arsenic that was also extracted and sold. The Duke of Bedford, the industry, the shareholders and the employees had much for which to thank Josiah Hitchens.

Morwellham Quay was expanded to cope with the congestion and in 1859 a new dock 290 feet long was excavated. As a result there was never less than 4,000 tons of ore on the quay floor. The people of Morwellham benefited from a church being built, the Wesley Chapel was enlarged and a Sunday school opened. Perhaps this was also an expression of gratitude, as those working the mines in the area had a reputation for being polite and hard-working, singing psalms and hymns as they worked, unlike labourers from mines further afield who used rough language and could be aggressive.

The many pleasure trips, including a famous visit by Queen Victoria in 1856, that took place to Morwellham, indicated it was a sought after area; humming with constant activity and thriving with glistening copper, in spite of problems with alcoholism and illness. Cholera, due to contaminated water, had been a major problem in nearby areas such as Tavistock and Plymouth, and Morwellham could not escape. In 1849, 44 people died of cholera in Tavistock. All water was collected from a well, so contaminated water could affect all who drank from it. Additionally tea was expensive to buy so the workers drank beer and cider and alcoholism was rife. Miners lost wives in childbirth and wives lost husbands due to accidents and illness from working in the mines. Though there was a copper boom, life was far from easy.

Supplies came not just from Devon Great Consuls mine but also smaller mines such as West Maria and Fortescue. The population in Morwellham trebled to 300 and this led to extreme cramped living conditions for many workers. Regularly 13 could sleep in one room of a cottage. The Duke of Bedford arranged for more miners cottages to be built in an attempt to solve the overcrowding problem.

The weather created further hardships. In 1860 heavy rain meant that great quantities of ore were washed off the quays and in 1881, frost stopped all traffic on the river. However, Morwellham was fortunate to be in the middle of the nineteenth century copper boom and reaped substantial rewards as a result.

Yet, by the end of the 1860s, copper lodes were becoming exhausted. Arsenic production was then concentrated on to allow Morwellham to remain useful and prosperous, though the quantities never matched those of copper ore. Arsenic was used as an insecticide, in dyes and paints, tonics and even used as white face powder. However, cheaper supplies were found to contribute further to the decline of

Morwellham, the Tavistock canal lost its place for transporting ores. The railway could achieve its work more quickly and with less expense. In fact, in 1873, the canal was eventually sold back to the Duke of Bedford.

As a result, Morwellham became quite a desolate place. The railway had bypassed it and its dependence on Devon Great Consuls mine was felt when the copper ore was exhausted. It was 1901 when Devon Great Consuls mine closed for good and many inhabitants of Morwellham emigrated. The boom had passed and Morwellham no longer bustled with activity and copper no longer glistened on the quay floors.

Yet, if it hadn't been for Josiah Hitchins then perhaps the rich copper deposits may never have been uncovered and the great success of Morwellham in Westcountry mining history may never have occurred. Instead, at Morwellham we can imagine that once the quay floors really were overcrowded with gleaming copper ore and that for ten years it was the richest copper mine in Europe. And it is all because Josiah Hitchins has allowed us to step back in time...

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Morwellham Quay

# The Tavistock Canal and John Taylor FRS (1779–1863)

Dr Ann Pulsford



The Tavistock canal originates just above the weir at Abbey Bridge, where water from the River Tavy is diverted into a feeder channel. It is one of the favourite walks in and around Tavistock, as it passes through such a beautiful part of the town and the adjoining Lumburn valley, and is an almost entirely level walk. An open section of the feeder channel can be seen at the back of the gardens behind the car park of the Bedford Hotel. It is visible again at the footpath bridge entrance to the main public car park, where it runs along the northern edge. The canal proper is first seen emerging under the Guide Hall at the far end of the Bedford car park. This building was originally a granary, built over the canal, alongside the quay at Canal Road. The adjacent buildings which are now the Wharf Arts and Entertainment Centre were originally a warehouse and offices. It was here that the four and a half mile journey down to the inclined plane railway connecting Tavistock with Morwellham began. The quay was once the site of nineteenth century industrial activity, where cargoes from the canal barges were loaded and unloaded, and one of the buildings alongside bears a plaque to commemorate John Taylor FRS.

John is best known locally as a nineteenth century mining entrepreneur and engineer, responsible for

the planning and building of the Tavistock canal. Work on the canal commenced in 1803 and was completed in 1817. The canal was a solution to the problem of transporting copper ores from the mines at Mary Tavy on Dartmoor to the port at Morwellham, and then on to Plymouth. Previously transport by packhorse was slow and hazardous.

John had been appointed in 1798 as manager or 'mine captain' of the Wheal Friendship mine at Mary Tavy at the age of only 19. This mine was one of the largest producers of copper ore in Devon at that time, and it seems extraordinary that such a young man would be given such responsibilities. However, he had been apprenticed to a civil engineer and surveyor in Norfolk, and had received a very good education. His family had connections through marriage with the prosperous Martineau family of Norwich, who had also invested in the Wheal Friendship mine at Mary Tavy. It was following a holiday in Devon with them that he was offered this position at the Wheal Friendship mine.

The first of seven children, born in Norwich on 22 August 1779, John was the son of a moderately prosperous textile manufacturer. His mother Susannah had taken a particular interest in his education. Besides encouraging John's interests in mathematics and engineering design, all the

children were encouraged to adhere to a strict moral code and in particular to avoid debt. This grounding must have helped John to become the astute financial manager of the many mines in which he had interests in later life. By 1824 John Taylor had several consultancies and nearly 40 large mining companies from around the country under his direct control. He was also involved in the re-opening of the Real del Monte silver mines in Mexico. His reputation for honesty, trustworthiness and propriety in all his dealings was legendary at a time when this was not the norm. While working at the Mary Tavy mines he lived in Holwell House at Whitchurch Down near Tavistock, 5 miles from Mary Tavy. He married Ann Pring in 1805, they had two sons, John and Richard and three daughters, Anne, Susan and Honora.

John Taylor's parents in Norwich had many social connections through the Unitarian church and varied social and intellectual interests. They entertained some of the leading literary figures of their day, including Dr Robert Southey\* and Sir James Macintosh. His father, also named John, was a founder of the Norwich Public Library in 1784, a hymn writer and a member of the Octagon Chapel.

This intellectual and community spirited background was later reflected in John's achievements. Locally he was a founder of the Tavistock Subscription Library in 1799, and of a Tavistock elementary school. During the 1820s he was involved with the newly formed University College London and became a founder member in 1826, a fellow and later served on their council and gave financial advice. He eventually retired through ill health in 1860.

He was also a founder member of the British Association for the Advancement of Science, and his London home at 12 Bedford Street, Lincoln's Inn Fields was the venue for the Association's first council meeting on 26 June 1832. He acted as their treasurer for the first thirty years and this role kept him in touch with other similarly motivated institutions such as the charmingly named Society for the Diffusion of Useful Knowledge. Through the British Association he was able to make provision for the regular and systematic collection of basic mining data.

John Taylor was one of the most respected and influential men of science and business of his day and was elected Fellow of the Royal Society in 1825. He was treasurer of the Geological Society of London from 1816-1843 and in 1839 became a member of the Institute of Civil Engineers.

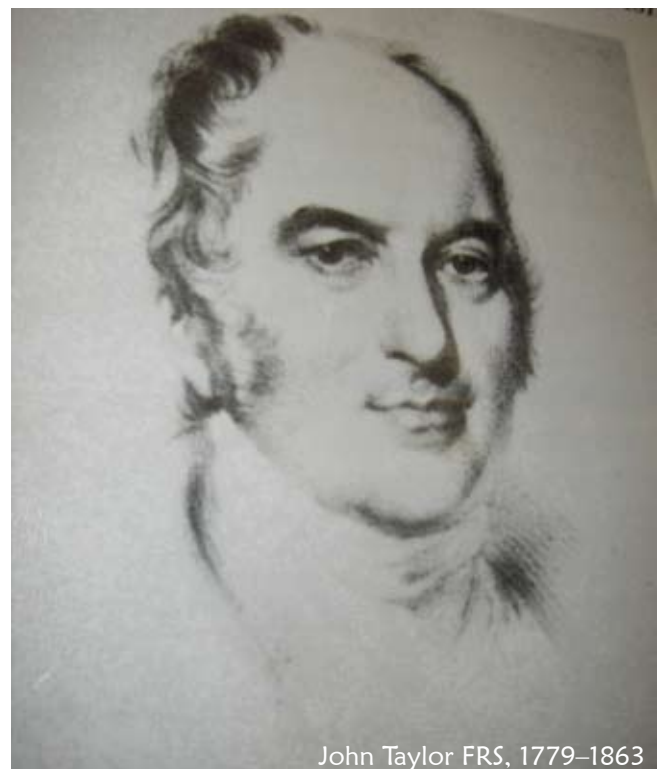
To build the Tavistock canal, which links the River Tavy at Tavistock to the port at Morwellham

on the River Tamar, he had to overcome many engineering problems. Although the canal is only 3 feet deep and 16 feet wide it had to cross the deep Lumburn Valley, which required an aqueduct which was completed in 1809. The canal also had to pass under Morwell Down through a one and a half mile tunnel, which was eventually completed in 1816 and was a major expenditure. The tunnelling however, led to the discovery of more copper lodes and the establishment of another mine at Wheal Crebor. The final engineering problem of the route was solved by an inclined plane railway to transport the cargo from the canal barges down the 227 feet from the end of the canal to the quay at Morwellham.

John Taylor's achievements justify celebration as a local hero of science and education, and I am very pleased to announce that the Dartmoor Local Enterprise Action Fund have awarded a grant of £5,500 to be match funded to £10,000 from local community groups. We will be celebrating John Taylor's achievements in a series of educational and enterprise events entitled John Taylor Festival.

I feel confident that he would be proud that his achievements have stimulated this initiative. The events are being hosted in part by the Tavistock Wharf Arts Centre which was originally a warehouse on his Tavistock canal.

Details of the events will be posted later this year on the Royal Society's Local Heroes website. Visit: [http://seefurther.org/docs/royal\\_society\\_local\\_heroes.pdf](http://seefurther.org/docs/royal_society_local_heroes.pdf)



John Taylor FRS, 1779–1863

\* Dr Southey was Poet Laureate and made a single visit to Mrs Bray at Tavistock in the Christmas week of 1835.



# Eylesbarrow Tin Mine

## Colin Kilvington

Spread across the slopes of a 1500 ft hill on south-west Dartmoor are the conspicuous remains of one of the Moor's largest and most prosperous 19th Century tin mines—Eylesbarrow as it is usually called today.

The place-name is Elysburghe in 1240 when the cairns or barrows crowning the great natural dome were included in a series of Forest boundary marks by twelve knights summoned by the Sheriff of Devon to record officially the King's hunting domain.

The earliest known mining reference to Eylesbarrow in any published source is John Webster's *Metallographia* (1671) from which we learn that a tinner called Thomas Creber of Plympton St Mary parish reported that 'The hills where they get Tin Ore, near that place where he lived, are called Yelsbarrow and Woollack'. Interestingly, in William Crossing's time (1847—1928) Eylesbarrow was 'always pronounced as Webster spells it' as indeed it still is by moormen today. The operation to which Creber referred would have been either streamworking in alluvial deposits or open works where lodes were exploited by means of trenches. Documentation for tinworking in the Eylesbarrow area survives from the 16th Century and it is likely that tanners were active there at least as early as the 12th Century.

Operating between 1804 and 1852, the 19th Century Eylesbarrow tin mine was subject to several spelling variations, among the most common being Ellisborough, Ailsborough and Hillsborough. Some of the company names were simply renderings of the hill name, whereas others were doubtless aimed at boosting speculator support by introducing the solid sounding 'Consols' or 'Consolidated' and thus bringing to mind the pleasing associations of certain spectacularly successful mining ventures as well as a government stock of unimpeachable worth! A chronology of the various Eylesbarrow mine company names is as tabulated below.

The mine is easily accessible by way of Sheepstor village to Burracombe Gate near Gutter Tor, followed by a walk of about one mile over a well-

worn miners' track. A wealth of visible remains either side of the track include a hillside sequence of water-wheel operated stamping mills which crushed the ore\*, their associated dressing floors containing shallow pits for concentrating the finely crushed black tin (cassiterite) for smelting, a smelting house—the last one working on moorland Dartmoor—a massive wheelpit built in 1847 to accommodate a 50 ft diameter pumping wheel, and a somewhat earlier engine-wheel house (dating from 1815) which contained a smaller wheel, also for pumping water from deeper parts of the mine. Transmission of power between the pumping wheels and underground pumps located in shafts at higher parts of the mine site was achieved by alignments of reciprocating flatrods as was common practice in Devon and Cornwall at the time. At Eylesbarrow the paired granite flatrod supports, often streaked with hardened black residues of lubricant used to grease the cast iron pulleys, are well represented among surviving structures.

Traceable infrastructure comprises trackways, tramways and leats—the water supply chiefly conducted from the River Plym and its tributary the Langcombe Brook. The longest of the leats curved round Higher Hartor Tor to feed a long narrow hillside reservoir beside the main track. It is here, a 1300 ft vantage point affording magnificent views of Plymouth Sound and East Cornwall, that the mine manager James Henry Deacon kept a rowing boat to entertain his friends!

The small industrial community had several ancillary buildings: a barrack house, sample house, two powder houses, timber house (probably carpenter's shop and store), blacksmith's shop, a turf house for storage of peat as domestic fuel and an account house. Some time after 1823 the latter became a spacious dwelling for the mine manager/captain. The ruins of this building complex are situated where the track starts levelling off near the top of the rise and part of this area was enclosed in the late 1830s or early 1840s to make fields and a garden.

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Ailsborough Mine	1804–1836
Dartmoor Consolidated Tin Mines	1836–1844
Dartmoor Consols Tin Mining Company	1845–1848
Aylesborough Mine	1848–1851
Wheal Ruth	1851–1852

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\*It is now known that the six hillside stamping mills were not all constructed at the same time; neither were they all operating contemporaneously.

Most underground activity centred on three closely adjacent, parallel, east–west lodes at a comparatively shallow depth that were worked by adits (levels driven into the hillside) and shafts. The longest adits were cut on the course of the main lodes for a distance of 3600 ft. In total there were 30 shafts including at least 6 in the Crane Lake area at the easternmost part of the huge 3 by 2 mile composite sett granted for working. The deepest shafts were about 325 ft. It is likely that much of the Eylesbarrow ore was of very fine quality.

Eylesbarrow was most unusual in having its own smelting house as by the 19th Century metalliferous mining and smelting had typically become separate industries. It worked from 1822 to 1831 prior to which concentrate would have gone to Cornwall for smelting (perhaps to Calenick near Truro). Records exist of the quantities of tin smelted at Eylesbarrow and of the different grades of metallic tin produced—grain, common and refined—which support field evidence of both a blast and a reverberatory furnace. Grain tin was a high quality product particularly sought by the Welsh tin plate industry which by 1815 had become a major importer of tin metal.

Associated with the blast furnace is a 70 ft length of horizontal flue designed to capture particles of black tin concentrate driven from the furnace by the forced draught. This obviated the somewhat drastic earlier practice, described by Richard Carew in *The Survey of Cornwall* (1602) of burning the thatched roofs of blowing houses ‘once in seven or eight years’ to recover lost tin ‘and find so much of this light tin in the ashes as payeth for the new building with a gainful overplus’.

During the ten-year period of its operation the smelting house produced 276 tons of metallic tin in the form of 1807 blocks each weighing approximately 3 hundredweights. The blocks were taken to Tavistock for coinage (weighing, assay and stamping). Not all of this had originated from the Eylesbarrow workings, some concentrate having been sent from the Vitifer and Bottle Hill mines for smelting.

The tin smelter was Walter Wellington. Earlier he had been fortunate to find gold at Sheepstor! Burt in his notes to N.T. Carrington’s descriptive Dartmoor poem tells us that ‘Prills [pearls] of gold have been found in the river and other streams below Sheepstor, and enough of that valuable substance was discovered 4 or 5 years since [i.e. circa 1821] by one person (Wellington, a miner) as to sell in Plymouth for about £40’. Evidently this followed long-established practice since Carew (1602) states that ‘Tinner’s do also find little hopps among their ore, which they keep in quills and sell to goldsmiths’

Among details depicted on an early 19th Century plan of the mine are two parallel lodes quaintly designated as ‘North Dragon Lode’ and ‘South Dragon Lode’. Against the latter where it crosses the extensive Evil Combe streamwork is an intriguing note stating ‘a Fiery Dragon was seen to fall near this place’. Aside from the thought that much of the area is bog and the incendiary monster would have been extinguished pretty soon, one is struck that as late as circa 1820, a thoroughly workmanlike plan should record this item of, what must seem to us, attractively old-fashioned folklore. Indeed, it is an echo of earlier records, like those of Thomas Tonkin, the Cornish scholar who died in 1742 leaving a number of unpublished manuscripts including one on Carew’s *Survey* containing the following note about mineral prospecting: ‘Some say, that on a still night you may see fiery exhalations issue out of such places; and some again, that they see streams of fire to fall on them, which they call fiery Dragons’. The reference to fiery exhalations is probably alluding to will-o’-the-wisp resulting from the combustion of the naturally produced gases phosphine and methane on marshy ground. Furthermore, in R.J. King’s *The Forest of Dartmoor and its Borders* (1856) we read that ‘Marsh fires and nocturnal meteors are thought to hover above undiscovered mines: a most ancient belief -----These “fiery dragons” or “tomb fires” were believed throughout Northern Europe to mark the hiding places of concealed treasure’.

The cessation of on-site smelting in 1831 marked a slowing down of Eylesbarrow’s mining, when it entered a phase of irreversible decline. Sadly, the last three companies failed in quick succession; the final closure being Thursday 30 September 1852 when all materials and equipment were auctioned by Mr William Monk at 10 o’clock at the mine.

### Further Reading

- Cook, R.M.L., Greeves, T.A.P. & Kilvington, C.C. (1974) Eylesbarrow (1814–1852): a study of a Dartmoor Tin Mine. *Rep Trans Devonshire Assoc* 106, 161–214.
- Greeves, T.A.P. (1992) Adventures with Fiery Dragons – the Cornish Tinner in Devon from the 15th to the 20th Century. *Jnl of the Trevithick Soc* 19, 2–17.
- Greeves, T.A.P. (1996) Tin Smelting in Devon in the 18th and 19th Centuries. *Mining History* 13.2, 84–90.
- Neill, A. (1991) Some Notes on Eylesbarrow. *Plymouth Mineral & Mining Club Jnl* 21.1, 3–6.
- Newman, P. (1999) Eylesbarrow (Ailsborough) Tin Mine. *Proc Devon Archaeol Soc* 57, 105–48.
- Rendell, P. (1989) Population at Eylesbarrow Tin Mine, 1814–1852. *Plymouth Mineral & Mining Club Jnl* 19.2, 7–8.



Manganese and arsenic barn at Morwellham

## Ratsbane Jan Robinson

The rich red ore of copper  
Made mine owners wealthy  
As the lodes went deeper  
Their investments looked quite healthy

Not so the families who flocked  
Into Cornwall and Devon  
Seeking work underground  
More like Hell than Heaven.

Along with copper came arsenic  
Which, it was soon discovered,  
Killed boll-weevils in cotton  
So had to be recovered.

The process was Satanic  
Heating up the ore  
The white powder sublimed  
In the flue and over the floor

Cotton-wool in their nostrils  
A scarf to cover their jaw  
Was all the protection  
That the workers wore

The dust got into their clothes  
Their hair and into their skin  
Each day when going home  
They brought the poison in

The children became quite sickly  
Their wives and sweethearts too  
But the men suffered the most  
Working the arsenic flue

An old treatment for asthma  
In quantity stifled their breath  
The men scraping the arsenic dust  
Met an early death

Choked by the work for King Cotton.  
No health and safety then.  
The plantation owners  
Never knew what they owed these men.



## Below Ground

Gill Saunders

Crouched like a dust-encrusted toad  
In a black and airless rocky womb,  
I ask, if there be a miner's god,  
Let this not be my unknown tomb.  
I do not want to die.

As I lay toiling on my back,  
I heard a roar like distant thunder.  
Oh, such treachery that beams should crack  
And mighty rocks be torn asunder.  
I heard my friends all die!

I am alone – no sight, no sound.  
They tell me death comes as a relief  
To those trapped deep below the ground,  
But not to me. Death is a thief!  
God, do not let me die!

And now there comes the faintest noise  
Made by digging, sweating human moles  
Above my fierce heartbeats I hear a voice  
And, peering through a tiny hole  
An eye – a human eye

## At Wheal Friendship

The day is ending – soon the light will fade.  
A creeping mist is rising from the ground.  
The sight deceives – and shadows merge.  
A deep impression where once tracks were laid,  
The stones of broken workings strewn around,  
And over all, the night-wind's dirge.  
What lonesome place is this? What long-lost trade  
Once happened here, where now remains no sound?  
An empty waste, with brambled verge.  
Imagine here, a vast and bustling mine,  
And yet, all lost, to moor and raven's cry.  
How swiftly time exacts its purge.  
Now lonely ghosts and memories combine,  
And misty breezes through the ruins sigh.

Mary Beddall

## Autumn Ending

Mary Beddall

Beyond the secret-silent wood,  
A world forsaken, lost from sight:  
The darkened mystery of crows.

A coarse and elemental cry  
Awakes the pearly dawn of light  
Beyond the secret-silent wood.

Jackdaws and rooks turn and display,  
Never betraying in their flight  
The darkened mystery of crows.

A jay shrieks at the forest-edge,  
Echoing far: menace and fright  
Beyond the secret-silent wood.

The nest concealed upon the tor,  
Where raven hides about its height  
The darkened mystery of crows.

Black shapes are fading to the place  
Where lies, behind the deepening night,  
Beyond the secret-silent wood,  
The darkened mystery of crows.

# Pennies from Devon: Tavistock Penny Tokens

## Myfanwy Cook

In a corner of Tavistock Museum is a glass display case. Inside it is a small collection of what appear to be coins. Their original shiny copper surfaces darkened with age to dark brown.

These are not coins of the realm, but tokens. The Tavistock Token or Tavistock Penny is a typical example of tokens used by companies as a substitute for legal tender in response to a shortage of royal copper coinage. Between 1788 and 1796 numerous tokens were issued by individuals, traders, industrial and mine owners and local councils. Then between 1811 and c.1815 another spate of coins were issued, which may have been a consequence of the Napoleonic Wars. The Tavistock Token seen in the illustration was issued in 1811 and is typical of the period. It depicts the scene of a Devon mine, possibly Wheal Friendship at Mary Tavy, on one side and the plume of feathers of The Prince of Wales on the reverse. These tokens could be redeemed by the mine workers, shop owners and innkeepers at the mine accounts department or Count House.

John Taylor (1779—1863) from Norwich joined the Wheal Friendship mine as an engineer, and as early as 1796 had started to implement practical changes in mining practices such as an improved copper ore crusher. By the time he was 19 he was manager of the mine with its widespread workings both sides of the road leading into the village of Peter Tavy, a quarter of a mile south-east of Mary Tavy. His youthful compassion for the hardships of the children, bal maidens and men who worked on and under the ground stayed with him throughout his life and he was well aware of the subsistence level at which they lived. An existence where not just pennies, but farthings and halfpennies were precious; particularly as hard rock mine workers were paid a month in arrears it was vital that they were paid on time. The main companies were often late in sending the mine the money it needed to pay the workers, owing to shortages of minted coinage, transport difficulties and sometimes indifference and greed. To prevent discontent amongst his workforce John Taylor, with an astuteness that became one of his trademarks, instituted the system of tokens or chips to ensure that his workers were paid.

The first commercial tokens date, in the British Isles, from the 1640s and 1660s, but it was the Parys Mines Company on the Isle of Anglesey who initiated the practice in the mining industry. Thomas Williams (1737—1802) known as the 'Copper King'

between 1787 and 1793 issued penny, halfpenny and farthing tokens. These had the cipher PMCo on the reverse side and the veiled head of a druid on the obverse side. He produced some 250 tons of pennies and 50 tons of half pennies, all minted in Birmingham. No doubt John Taylor was aware of Williams's successful use of tokens as the ore from his copper mines was often destined for the Anglesey area for smelting. The use of tokens, however, could lead to further exploitation of the miners, as in some places the tokens could only be exchanged at mine shops, which meant the shopkeepers had a monopoly and could charge higher prices.

However, in the Tavistock area they were no doubt vital to the economy, as the workforce of the whole of the West Devon and Tamar areas increased dramatically. At Princetown, the Dartmoor Depot was being built to house French prisoners of war, and between 1803 and 1817 John Taylor was overseeing the construction of the Tavistock canal linking Tavistock with Morwellham.

John Taylor's simple solution to this economic challenge was undoubtedly an effective, practical, but somewhat weighty answer to the problem as the Tavistock Pennies are very heavy and more than a few would have quickly worn a hole in the strongest pocket!



### Tavistock Museum

Fascinating exhibits about many aspects of the history of Tavistock.

Opening Times: Easter Saturday to end of October Tues—Sun 11–3. Mondays in August. Free entry (donations appreciated)

Contact Mrs Susan Davies, Court Gate, Guild Hall Square, Tavistock, Devon, PL19 0EA.

Tel: 01822 612546

<http://www.tavistockhistory.ik.com>

Tavistock Penny Tokens at Tavistock Museum.

## Cornwall

There's mystery, magic, covens and charms  
Around Cornwall's hills, her coves and her farms.  
You're viewed with suspicion when you first arrive.  
'You'll not change us,' say locals. 'We won't contrive.'  
You caress the granite, admire the flowers,  
And watch the sea for hours and hours.  
One day, quite suddenly, you feel in your heart  
The Celtic beauty, and you've become a part  
Of this mystical wonder. You're accepted at last  
By Cornwall's heart that beats in her past  
Of men of the mines, the sea, and their wives  
Who toiled and sweated most of their lives.  
You know you can never leave or roam  
Away from her wonder, her beauty. She's home.  
Her heart and yours are closely entwined  
In the psyche of this mystical mind.

## Bet Kendall

## Morwellham's Revival

Bread from Arsenic and copper  
Fulfilling man's need  
To rape and plunder the land  
To fuel his hungry greed  
Your Arteries are the Incline Railway  
And your veins John Taylor's Canal  
  
You bled your bounty around the world  
For progress and design  
With maidens like the Garlandstone  
You fed the coffers of time  
When profit and progress was the lord  
You fell into decline  
You were left to rot and decay, festering with  
time

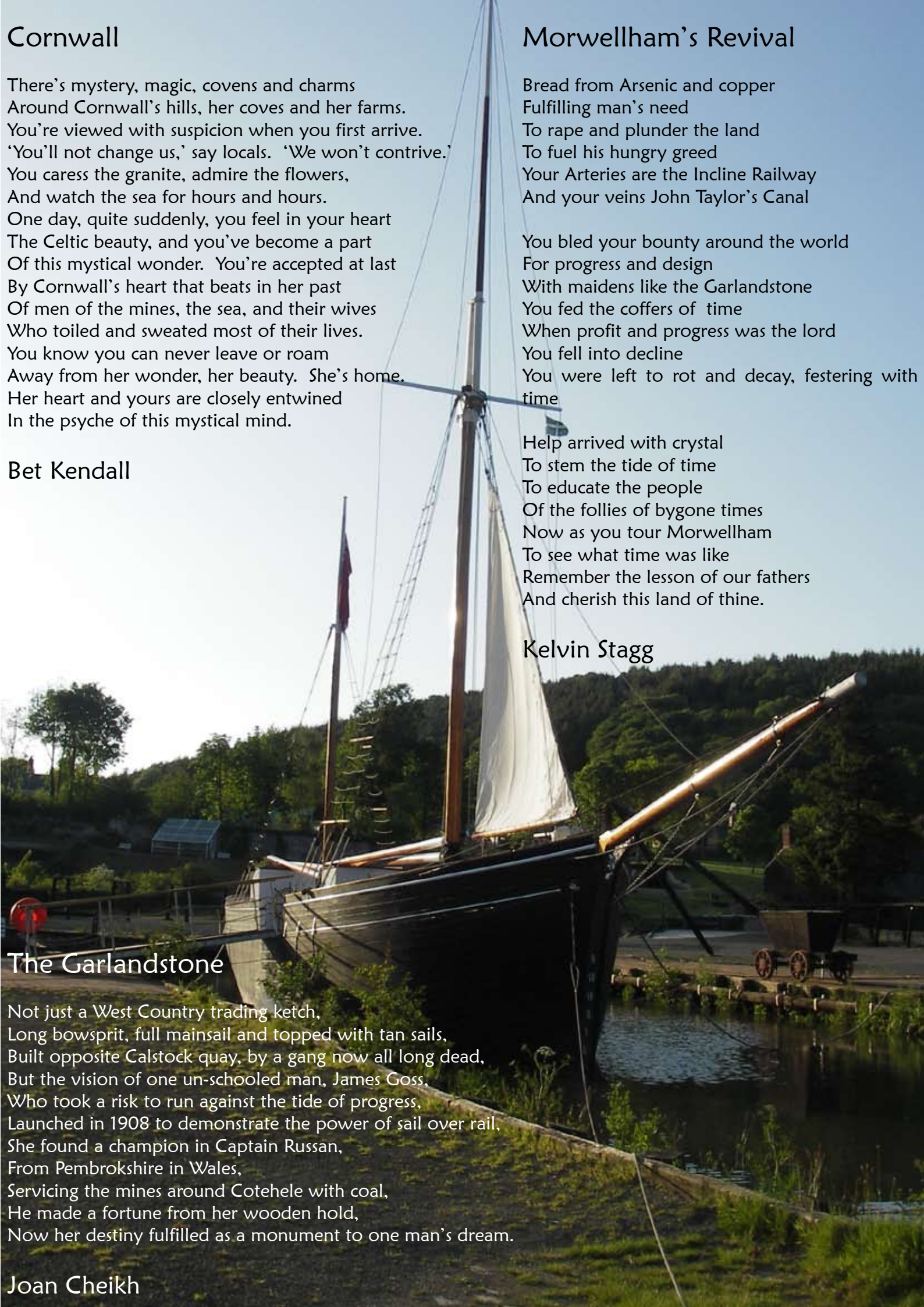
Help arrived with crystal  
To stem the tide of time  
To educate the people  
Of the follies of bygone times  
Now as you tour Morwellham  
To see what time was like  
Remember the lesson of our fathers  
And cherish this land of thine.

## Kelvin Stagg

## The Garlandstone

Not just a West Country trading ketch,  
Long bowsprit, full mainsail and topped with tan sails,  
Built opposite Calstock quay, by a gang now all long dead,  
But the vision of one un-schooled man, James Goss,  
Who took a risk to run against the tide of progress,  
Launched in 1908 to demonstrate the power of sail over rail,  
She found a champion in Captain Russan,  
From Pembrokeshire in Wales,  
Servicing the mines around Cotehele with coal,  
He made a fortune from her wooden hold,  
Now her destiny fulfilled as a monument to one man's dream.

## Joan Cheikh



# 'Gallery 26' Bedford Hotel Tavistock

Dr Ann Pulsford



Gallery 26, Bedford Hotel

I am an enthusiastic fan of the Bedford Hotel, and consider it to have one of the most elegant, beautiful interiors in Tavistock. Situated in the historic centre of the market town, within the site of the ancient Benedictine Abbey, it was originally the Abbey House, featured on the 1741 Delafontaine print of Tavistock. Later it became a private residence for the Dukes of Bedford's estate, and has been the Bedford Hotel since 1822.

The Bedford Hotel is a cosy, relaxed rendezvous to take cream teas and gossip, have a drink or relaxed informal lunch, or even just to sit and daydream, beside the open fires in the Russell lounge and Bedford bar. The hotel has a delightful fin de siècle country house ambience, the lounge walls hung with traditional oil paintings and monochrome photographs of traditional Dartmoor life by Chris Chapman.

Generous vases of fresh scented flowers abound and the formal dining room has a beautiful decorated plaster ceiling. There is always something interesting happening, from murder mystery weekends to glamorous wedding receptions. The

kitchen gardens are a favourite setting for wedding photographs. On the roof a hare weathervane, made in nearby Princetown, trumpets the rooftops of the surrounding town.

Now the Bedford Hotel has a new and exciting treat in store for guests and visitors. The traditional interior has been updated with a truly stunning modern architectural development, in the newly-completed 'Gallery 26.' Stepping through the doorway with its red stained-glass overlights, from the comfortable Russell lounge, is like stepping through a Dr Who time warp. Gallery 26 has been built on pillars over the ancient courtyard of the hotel, and draws together the older parts of the building creating a truly breathtaking modern space. It is well named as Gallery 26, as it has the feel of a contemporary art gallery, but with a welcoming comfortable atmosphere, perfect for a range of social events.

The sumptuous deep-red patterned carpet has drawn the historic and modern elements of the room together into a wonderful, magical and unique space. It retains all the charm of the surrounding

old hotel, with the rustic stone walls, but with a distinctive stylish 'edge', which will appeal to those with discerning artistic appreciation. The north wall is entirely composed of triple-glazed self-cleaning glass and gives a clear view of the decorative gothic nineteenth century roof turrets and slate roof of the adjoining wing of the hotel. This roofscape-level view gives a dreamy, magical quality to the room, as if you could fly away over the rooftops.

The east and west walls are hung with colourful abstract paintings by local artist Susan Spenser from Chagford. They are exactly right in the space. Their colours seem to bring to life the more subtle greys and beiges of the slate roofscape adjoining the room.

Modern stained glass windows created from a subtle colour palette by Alan Endacott, adorn the north wall. Below the stained glass windows two original C12th and C14th Abbey windows have been tastefully incorporated into the design. They were discovered during the refurbishment and juxtaposed with the design of the stained glass are elements which give the room a distinctive 'edge'.

I think this is a truly innovative and exciting design which updates the Bedford Hotel's range of venues, while at the same time retaining all the historic and traditional elements of the hotel. It has become a memorable and photogenic venue for wedding receptions and a stunning conference room or inspirational artistic events space. It is a sensational unique new space, which has been created right in the heart of Tavistock.

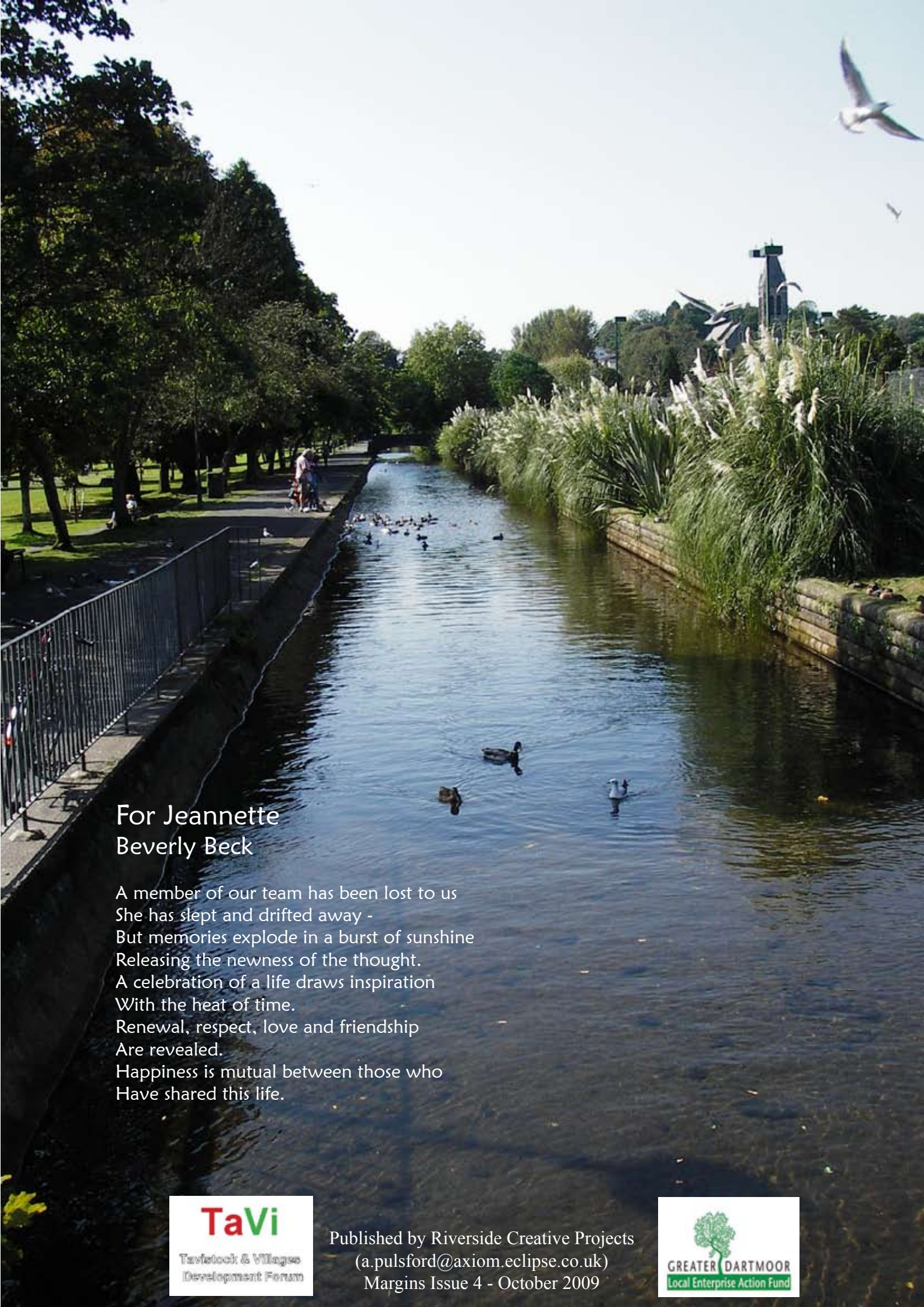


Plymouth's official Francis Drake

The staff under the leadership of Simon Rowe, and local management of Michael Healing, are all charming and welcoming and make guests and visitors feel relaxed and truly at home immediately on arrival. To mark the completion of the room Michael Healing was presented with a scroll from Plymouth's official Sir Francis Drake and wife, Brian and Monica Whipp. They've been long associated with the Bedford Hotel. Brian is currently the town crier at Saltash.



Bedford Hotel, Tavistock



## For Jeannette Beverly Beck

A member of our team has been lost to us  
She has slept and drifted away -  
But memories explode in a burst of sunshine  
Releasing the newness of the thought.  
A celebration of a life draws inspiration  
With the heat of time.  
Renewal, respect, love and friendship  
Are revealed.  
Happiness is mutual between those who  
Have shared this life.