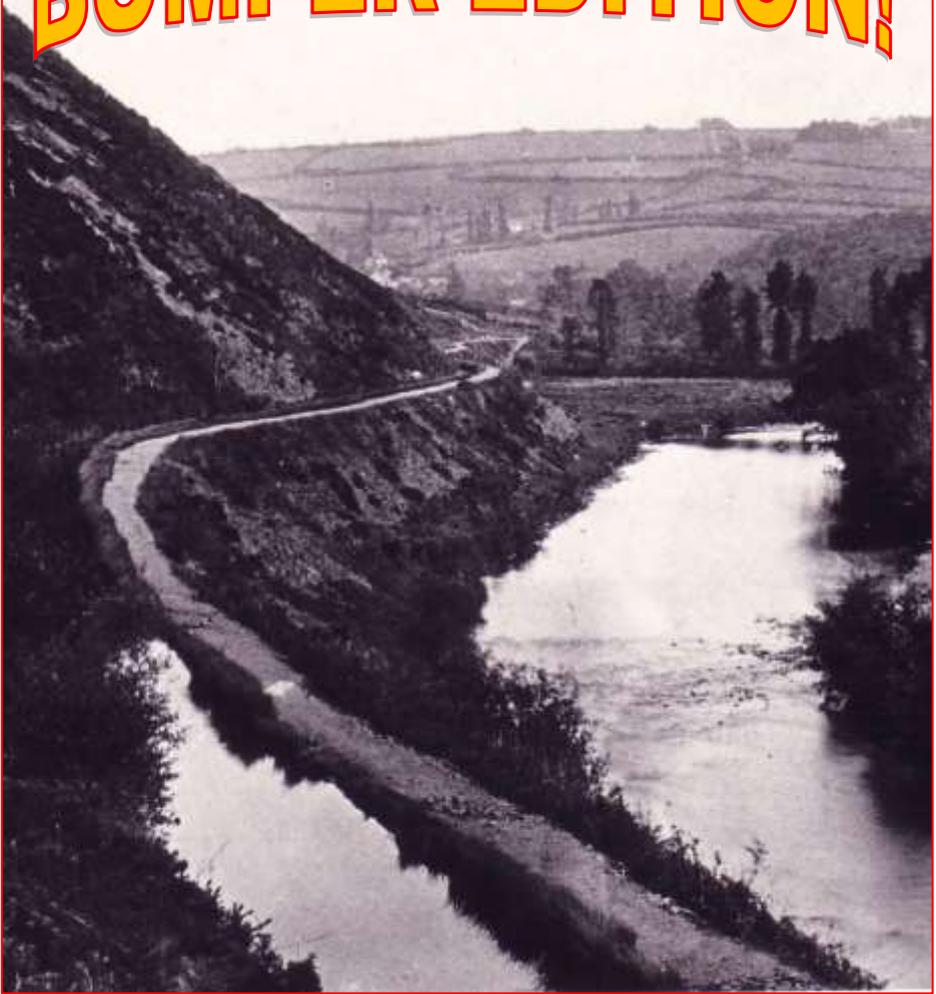


BUMPER EDITION!



The **R**o **I**e **C**ana
& Northern Devon
Waterways Society

SUMMER ISSUE 2011

CONTENTS

COMMENTS FROM THE CHAIR *Page 3*

PENTEWEN - PAST & PRESENT:

Norman Richards reports on a guided walk. *Page 4*

SOURCING LIMESTONE IN THE SOUTH WEST:

an article by Ian Harrison *Page 8*

BUILDING TUB BOATS:

Adrian Wills describes another new project: *Page 17*

DOWN THE CUT:

Forth-coming events /dates for your Diary *Page 22*

The Editor apologies for postponing, until the next issue of the RC&NDWS Bulletin, an article written by Norman Richards which had been advertised as being published in this edition.

A STROLL IN THE PARK:

Norman takes a look at one of the Rolle Estates - Stevenstone Park.

Look forward to it in the AUTUMN edition of the RC&NDWS Bulletin!

RED LETTER DAY? A report from the Chair.

You may be wondering about the choice of picture for this Issue's front cover. It is hardly bright and sunny! The view shows the stretch of canal in its working day, from the point at which it is crossed by the accommodation bridge, (once the main approach to Beam House,) and looks upstream towards Staple Vale and Taddipport beyond.

At this moment this section of Lord Rolle's Canal, which belongs to Clinton Devon Estates, is closed to the general public, although the RC&NDWS is regularly granted permission to lead parties along here.

You will be aware that a combined application with North Devon Area of Outstanding Natural Beauty & Biosphere, the Gaia Trust and RC&NDWS, called 'The Journey Of Life', has been put before the Heritage Lottery Fund. If funds are granted it is planned that some of them will be used to link this length of canal with that already owned by Torrington Conservators to provide a Permissive footpath for all to enjoy.

AUGUST is the month in which a decision is to be made public.

Any time now the news will be released as to whether or not the bid has been successful!

If these funds become available they will also have a major bearing on what is to happen at the site of the inclined plane. It is hoped that a programme of archaeological excavation can be undertaken, interpretation boards erected and the location high-lighted for its significance and the importance for which it once was.

Lord Rolle's Canal is (fingers crossed) about to take another leap forward and its place on the map firmly re-established.

Adrian Wills.

A GUIDED WALK AROUND THE HISTORIC PORT OF PENTEWAN.

A Report by Norman Richards.

On Saturday, 14th May, a group of 10 people including members of the RC & NDWS, the Bude Canal & Harbour Society and 2 others visited Pentewan and Pontoys Mill (near St. Austell). The walk took place with the sun shining and a light breeze blowing. The group arrived at 10am and some, following the long drive down, partook of a quick cup of coffee before assembling in the square around the village pump. The pump, having been moved from its original position, has been fixed in the square as an enhancement feature by the local council. Our walk leader, Mr. Robert Evans, who had previously presented an illustrated talk at our AGM, is a local historian and the only person to have been village-born and still living there. He has written and co-written several books and magazine articles on the history of the area.



The tour started with a brief history about the origins of the village, traced back to the Domesday survey, and some of the families who either bought or inherited the land over the centuries. A description was given as to how most of the properties have altered over the years but many old features still remain. One cottage was demolished and then rebuilt, stone by stone, to enlarge a flood culvert which ran underneath it. The village has suffered from quite serious flooding in the past, as can be

seen in some old photographs. Another cottage has living accommodation over a cobbled underpass which once led to an old dairy farm.

The eastern side of the harbour has a wharf area where incoming cargoes such as coal, limestone and timber were



Harbour Master's house at Pentewan .

unloaded. There are warehouses on this side and the remains of dockside rail track. The north part of the dock basin became narrower and shallow so that ships could be repaired on a dry dock. The harbour is fed by the St. Austell River, also known

as the White River because of discolouration created by clay workings at its source. Just before the river enters the harbour four reservoirs were made to maintain the depth of water, but more importantly to flush away sand deposits and prevent the harbour from silting up. The silting up was an on-going problem as was the 'bar' across the tidal entrance.

The harbour was built between 1820 to 1826 and a memorial stone in the tidal entrance channel states; 'SIR C.H.BRT. 1826 (Sir Christopher Hawkins. Baronet; the builder). The cost was £22,000 and covered one and a quarter acres. In 1829 a narrow gauge railway was built connecting Pentewan to St. Austell and the clay workings, a distance of four miles. The rail trucks were originally drawn by horses which were subsequently replaced by steam locomotives. The line, which ran alongside the present day road, and river and is now part of a footpath, terminates at the harbour. Water from here was used to fill the

boilers of the steam engines. On the western side was the clay dock with storage sheds and a raised railway. This ran on a wooden trestle about six feet high so that clay could be discharged by side tipping the railway wagons into a chute directly into the ship, saving a lot of manpower. The line closed in 1918 and the last load of clay left by ship in 1929.

In later years a concrete-brick works was established alongside the tidal entrance channel most of which has been washed away. The concrete works had its own narrow gauge railway for moving sand and bricks but was separate and of a later date than the clay railway.

Sea Lock gates at Pentewen



The tidal entrance channel was originally about foot wide lock gates at the

entrance to the harbour. To prevent flooding at very high tides the gates had sluices near the top which could be opened. This entrance waterway is now completely silted up and the gates, which were last renewed at the end of the second world war, now remain closed.

A steep path led the party above the harbour area, past some houses built into the hillside with pretty gardens and beautiful sea views, and on to 'The Terrace'. This is a row of regency buildings, with the All Saints Church at one end, and are said to occupy the site of older buildings. The church still conducts two services a month but sadly the two chapels in the village have been sold off. Returning down a steep hill to the square where

our walk began the party gave a vote of thanks to Mr. Evans and headed to The Ship, the only pub left in the village, for lunch.

After lunch some of the party visited the local bookshop and purchased copies of books written by Mr. Evans.

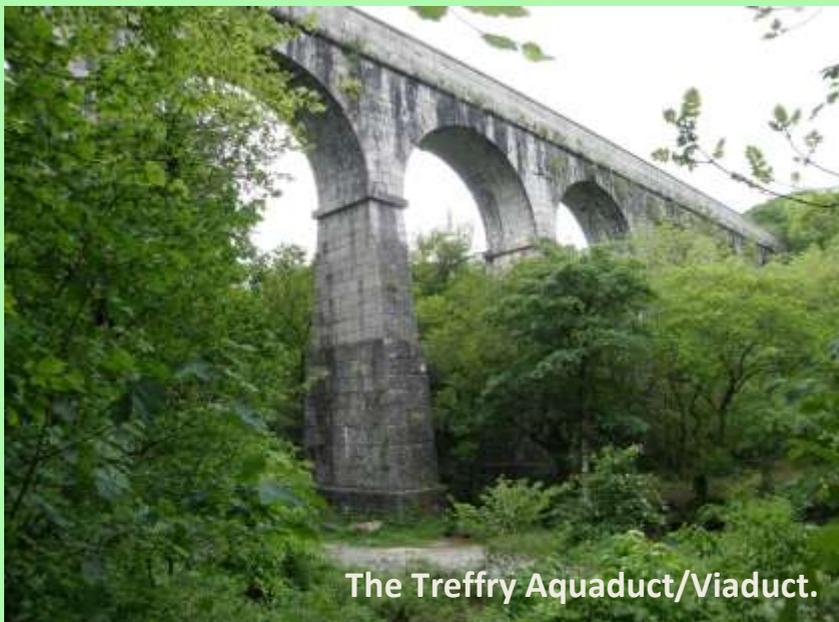
The afternoon walk started at 2.00pm from Pont's Mill, in the Luxulyon valley which lies to the east of St.Austell. Our guide, Mr. John Smith, had actually just retired from the Archaeological dept. of Cornwall County Council but was prepared to lead one last walk. He led the group through deep wooded valleys following tramways, inclined planes and leats. Mr. Smith informed the party about the landowners and the Treffry family who built most of the early works and the canal that ran from Pons Mill to Par Harbour (c1829). Unusually this canal was built in the river bed and a new river course dug, which after about thirty years was superseded by a tramway.

From the top of the longest inclined plane (about three quarters of a mile long) the remains and infrastructure of a very large water wheel can be viewed. Water was pouring from the launder into the wheel pit and one can imagine the spectacular sight seen when the machinery was still working. The wheel was about 37 feet in diameter and was used to draw a rope up the inclined plane towing trucks. It was put to other uses at later times.



Inclined planes crossing.

Some of the stone sleepers, chairs and sections of rail can be seen, not only on the incline, but also on the tramline by the top leat. There are several mines, leats and adits in the area, but the party was led along the top one until reaching to what is known as the Treffry Aquaduct/Viaduct. This is a magnificent structure, built by Treffry to convey clay from the north



The Treffry Aquaduct/Viaduct.

of St. Austell to Par, from where it was shipped to the Potteries via Liverpool and the Trent and Mersey. It is 100 feet high, 650 feet long and was opened in 1844.

Unfortunately the tall trees and leaf cover prevented us from getting a good side view and from below it beggars belief how it was built without the aid of modern construction machinery. This was the farthest point of the walk, so the group returned via a lower track/tramway where it went underneath a modern railway viaduct, carrying the Par to Newquay line.

Farther down this track is a clay drying kiln with a double furnace. The flues under the drying floor are 80yards long with a massive brick built chimney at the end . An explanation of the heavy and hot manual work undertaken was given describing how difficult it must have been dealing with the hot and humid conditions. This 'dry' (a Cornish term for the building) was in use from about 1920 to 1965, latterly owned be the English China Clay Co..



The whole valley area is absolutely spectacular with the trees showing many different shades of green at this time of year, hardly a fir tree in sight. Another railway bridge was passed under and finally the group was back to the car park.

Mr Smith was thanked for his very informative walk and talk, and the group dispersed, heading for home. It was a long day but everyone thought it was worth the effort, I certainly did. Perhaps we could have a follow up visit to cover some of the bits we missed.

Thanks go to all of those people who attended and supported this event!

EDITORS' NOTE: FORTH-COMING EVENTS!

Sunday 16th August - A guided walk

Sunday 18th September - A heritage site and a guided walk.

Details on Page 22 - Down The Cut.

Limestone

A short commentary with an emphasis on S.W. England
by Ian Harrison.

In a previous article readers were given a concise commentary on the historic uses of limestone in relation to the Rolle canal. It was thought worthwhile to expand on this theme as limestone is such an important natural resource.

Most of the south-west rocks are from the Devonian and Carboniferous formations of 395-280M years ago. Limestone is a prolific mineral which spans a long, geological time frame. Deposits are found throughout the UK. It is a diverse mineral. Chalk, one of the youngest "relations" (145 to 65 million years ago) is a very soft, easily processed material. Chalk, however, was laid down in the later Cretaceous period; the same era as the dinosaurs. Where as the metamorphosed (deposits that have been affected by severe pressure / heat) types of limestone such as Purbeck Marble (140 million years – Jurassic period) in Dorset or Wollastonite in North Devon are extremely hard. Purbeck Marble for instance has been used for some fine decorative pillars, floor slabs and tombs in Exeter Cathedral. Throughout the South West there are a wide array of limestone types which have been much exploited since at least Roman times.

Dorset sees the most south western extremities of the Chalk Downlands, better known in Wiltshire, Sussex and Kent. Durdle Door and Lulworth Cove are well known names and their physical shape is determined by the chalk's propensity to erode easily. Chalk has been used for a myriad of industrial



Lulworth Cove in Dorset.

uses over the centuries. It has played its part in construction as far back as the Iron Age.

Maiden Castle would not be a wonderful monument for us all to enjoy if the underlying stone had been granite! In more modern times chalk has been

quarried for roads, lime mortar, cob, the by product, flint, and in places as a basic building stone.

Dorset also plays host to probably the most famous of all limestone deposits; the Portland Beds (Jurassic period) upon Portland Bill, south of Weymouth. This stone is a hard, durable stone which only outcrops at this point in the UK. Similar deposits, but not exact, exist in France (such as Caen stone) and have, when used as a substitute for Portland Stone, sometimes caused controversy (recent work at the British Museum). Portland owes its fame to Sir Christopher Wren and his rebuilding of London after the Great Fire of 1666. The Island was quarried for many centuries before this time but its proximity to London and to the sea made it the ideal source of stone for the massive rebuild Sir Christopher took on in the latter half of the 17th C.

To protect ships from vicious storms Victorian engineers devised a scheme to turn the Portland Bay into a "harbour of refuge." The result was two great stone breakwaters sweeping north east from the Isle of Portland. Built between 1848 and 1872 they created the largest deep water port in Europe.

Later, after 1900, two more arms were added to completely enclose the harbour. The majority of the breakwaters were built by convicts and a staggering 5,731,376 tons of stone was taken from Portland Quarries in order to build the breakwaters. H.R.H Prince Albert laid the foundation stone of the first Portland Breakwater in the twelfth year of Queen Victoria's reign.



Portland is still a premier source of stone for heritage buildings and new builds in conservation areas in London and across the world. These include Scotland Yard and the United Nations Building in New York. The raw blocks taken from the quarries are generically called dimension stone.

The uniqueness of the Portland Beds is that they are still “massive”. In lay terms this means they have not been cracked

and distorted by geological movement and therefore the quarrymen can extract large blocks for buildings. Today, these large blocks are generally used in slab form to “clad” - cover – buildings made with a steel frame. Again, Exeter Cathedral has its fair share of Portland stone in its fabric. Another interesting user of the stone has been the Commonwealth Graves Commission which, after WWI, used the stone for all its gravestones and decorative masonry in the graveyards across the world. This is still the case.

Portland stone panels record the names of those who have no known grave at the Tyne Cot Memorial to the Missing, Ypres Salient.



I would be particularly remiss if I did not now turn my attention to the other world famous limestone in our Region; Bath Stone, again, a stone known to and widely exploited by the Romans and to all subsequent inhabitants of the area. Bath stone is much more abundant than Portland stone and is widely used across the country. It is not as durable as Portland stone but is, though, still well thought of as a heritage and new build masonry stone.



Bath Stone
quarrying.
Circa 1920

The exhausted mines are worth a mention. In WWII some mines were used to house the British Museum's artefacts, others held vast caches of ammunition, another housed the Enfield motor cycle factory, some are still top secret and still one more is used for specialist, archive storage.

In past times, when mines and quarries were unregulated the miners would take out too large a percentage of the deposit. That is to say the columns left supporting the roof of the mine were too small to support the massive weight above. This would result in subsidence (like coal mine subsidence) Coombe Down mine, outside Bath, was the most recent example of this practise whereby Bath City Council had no option but to inject, at enormous cost, concrete into the voids to ensure the village above did not collapse! Less famous but still well known in the West Country is Beer stone.

The name denotes its location, at Beer, on Devon's south coast. Beer stone, part of the Middle Chalk sequences, has been exploited at least as long as its two prestigious "cousins" and the owners of the exhausted mine are keen to promote the Roman workings which are indeed easy to see even today. Beer stone is still used but is "soft" and historical use, externally, has suffered increasingly from acid rain such as the West Face of Exeter cathedral. It is, however, still seen as an excellent stone for intricate, internal work.

There is a direct link between this deposit and the Rolle Canal as it is still owned by the Rolle Estate. The stone is quarried by cutting it out in large blocks – as per Portland and Bath – it then

is allowed to “weather” in the open for some months to harden off before being taken to masonry yards. Waste material, as it is soft, is used for agricultural lime and for local hardcore for building works.

A conservation “spin off” from these workings is that the mine houses one of the largest Horse Shoe bat populations in the West Country and is therefore an important Site of Special Scientific Interest (SSSI).

The remaining limestones of the Region are not as “glamorous” as those described above but in our modern world are probably much more important. The largest deposit runs through the Mendip Hills in East Somerset. There, a series of very large, open cast quarries work Carboniferous limestone



(360 to 300 million years ago). These include Whatley, Yeoman's Torr Quarry, and Colemans.

The former two have rail links to London and supply the South East with millions of tonnes of basic, concreting aggregate each year. Lorries can be seen leaving this area and feeding large zones of our more south and west counties with the same material. There is also a rail head adjacent to St David's station in Exeter.

The attraction of limestone to the construction industry is that it is the most prolific and adaptable mineral available. It is cheaper to quarry than say granite or similar minerals because it is actually softer, less dense (weighs less – lower transport costs) and is not as “hungry” (uses less powder) when cement powder is added to make liquid concrete.

The South West is littered with limestone quarries but few are now active with viable reserves. In past centuries many started life as building stone, lime mortar and agricultural lime resources. However, as building techniques, farming practise and economies of scale took their toll so the numbers of local quarries declined. Some became early landfill sites, others (such as Lummaton, in Torbay, and Bullycleaves in Buckfastleigh) became small industrial estates and others, the more remote ones, remain silent and unoccupied as SSSIs for conservation use.

Those that are left operating such as Glendinning's Linhay Quarry at Ashburton, Stoneycombe at Newton Abbot and Westleigh quarry near Tiverton are large, modern enterprises. They are purely aggregate quarries but do have “added value” activities adjacent such as concrete block manufacturing and ready mixed concrete. They will supply a wide range of stone products from “armour stone” (large + 1 tonne boulders) to dust for lime spreading.

Plymouth now has only one large commercial quarry, Moorcroft, which has the extra added value enterprise; a tarmac plant for road construction. Plymouth's military engineers and architects heavily exploited the Devonian (417 to 354 million years ago) limestone outcrops throughout the City and many of

the buildings and defences stand testimony to its use. Some of the old quarry faces are still in view in Cattewater and Plymstock.

In North Devon the surface geology is represented by a series of parallel bands of rock running roughly north-west to south-east. These sedimentary rocks were originally formed about 400 million years ago, mostly from mud and sand, with thin layers of limestone made from small coral reefs. About 300 million years ago these rocks were lifted and folded to form a chain of mountains to the north possibly as high as the Himalayas.

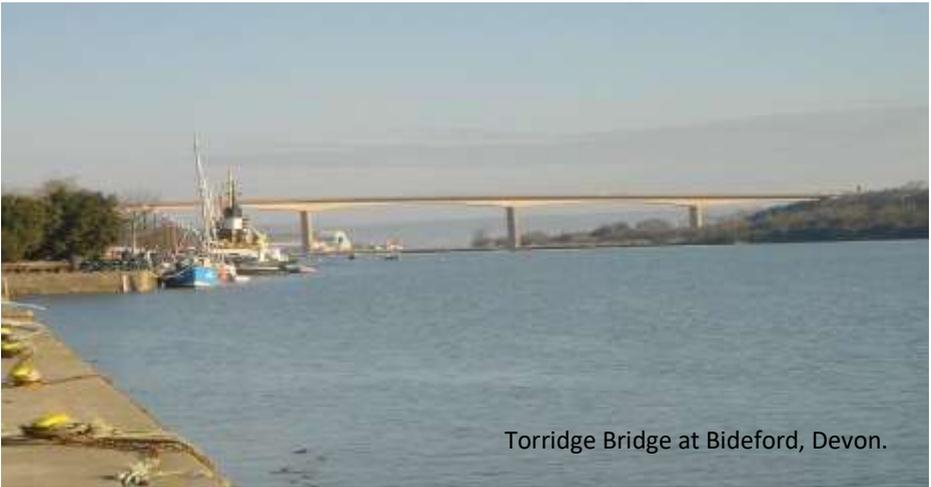
A layer of limestone about 5m. wide, lying nearly vertical, runs across the headlands of Rillage and Hillsborough. This was extensively quarried in the 19th century, particularly at Samson's Beach and Joe Moon's, for lime burning. The Rillage limestone is well known for its fossilized corals (below) which date from very early in the development of life on earth.



Limestone also occurs in thin and infrequent layers near Ilfracombe, Saunton Down and Morte Point. Late Devonian and Carboniferous marine limestones are found intermingled with shales and sandstones of the same age in North Devon.

Good exposures are at four commercially active quarries – Meldon at Okehampton, Westleigh, Bray Valley and Beam.

In the past limestone building stone has been widely used in N. Devon, in like manner to the rest of the UK, such as the Old Employment Exchange in Boutport St., Barnstaple and the Berkeley Hotel in Ilfracombe – both listed buildings. Today limestone is represented in most buildings by virtue of its use of concrete.



Torridge Bridge at Bideford, Devon.

In summary, limestone, as a building and industrial by products material, is just as important today as it ever was. It is prolific in its geological distribution and therefore is likely to continue to play its part in the economic life of the UK for many centuries yet.

THE ROLLE CANAL WEBSITE

The website: www.TheRolleCanal.co.uk owned and published by Adrian Wills, has undergone a make-over. Please visit the new site. He will be interested to receive any comments via his addresses printed on the back page.

Working in Wood at Sea Lock.

A report by Adrian Wills.

After a break of probably no less than 150 years, boat building has returned to Sea Lock. Where the hull of the 200 ton Sedwell Jane was once constructed a plan to build two full sized replica tub boats is actually underway.

I managed to acquire copies of structural drawings of the remains of the tub boat held at the Helebridge Workshop on the Bude Canal quite some time ago, courtesy of BudeStratton Council. A quantity of useful timber was generously supplied by British Waterways in the form of redundant balance beams.

John Bowden, a good friend of mine, owns a portable band saw. John was kind enough to bring his saw, towed behind his Landrover to the Sea Lock site. Helped by Barry Hughes and Trevor Fordham, we cut the beams into sizes suitable for tub boat construction. Unfortunately these beams, being old and worn were suffering from splits and rot so that there was a considerable amount of wood that could not be utilised for construction but can still be used for winter fuel.

Tub boats are built around 2 very large, rectangular timbers running the length of each



John and his band saw.

vessel. Each of these timbers, called a 'chine', is 10½ inches in height by 9½ inches wide and 21 feet long. (Imperial measure is given since this is what would have been used at the time). The timber used to construct the tub boats would probably have been Oak and/or Elm. The balance beams are of Oak but nothing of that size could be salvaged from them. Work could not progress until timber of the appropriate size could be acquired.

After considerable research I managed to find a timber merchant who could provide me with the right sized pieces. Due to the exorbitant price of Oak, (which would have to be imported because of its size) and its weight the timber merchant and I settled on using Larch. Having agreed a price, Trevor, Norman Richards, Hilary and I went to the timber yard to watch and record the timber being sawn.

Only later, when the sawn timber was delivered, did the appreciation of the size and weight each tub boat would have been was fully realised. These tubs are seriously heavy!

Following delivery of the timber, Barry produced a template for the ribs of each vessel. Next he, Trevor and I set about selecting suitable slabs of sawn balance beam and cutting out as many ribs as we could, trying to



A tub-boat D.I.Y. kit!

avoid any large splits and knots where possible. Eventually we had all the pieces we required. We then progressed onto marking the positions on the chines where mortises had to be cut and into which the ribs would later be inserted.



Barry Hughes marking out the ribs.

Using power tools to rough-cut the mortises and saw the ribs helped speed up production enormously. The chines had to be cut to length and because of their large size a hand saw had to be employed. Sawing by hand through timber 10½ inches by 9½ inches and trying to keep the saw cut square takes some time and effort. We were very grateful that it was only softwood and not Oak that we

were cutting through! A large auger drill bit in a powerful electric drill was used to rough-cut the mortises but then each had to be cleaned up using a very large wood chisel and heavy hammer.

The boat is upside-down during the early stages of construction and once provision has been made for the insertion of wheels and the bottom planking attached it has to be lifted and turned over.



Squaring the chines.

The RB22 crane, on site, has the capacity to lift and turn the tub-boat easily and that is now not too far off happening! You will be kept informed of progress in the next issue of the RC&NDWS bulletin.

DOWN THE CUT



DATES FOR YOUR DIARY

Sunday 7th August

Bude Stratton Heritage Day

Featuring displays on the Bude Canal, the Rolle Canal and the Grand Western Canal, supported by other societies of historic interest as well as stalls, live music and entertainment. Open all day. An event for all the family. Free entry

Sunday 14th August

RHS Rosemoor Gardens Woodland Car Park

A guided walk starting at 2.30pm, led by Chris Hassall. The walk follows paths through the softwood plantation to the head of the leat which feeds the Rolle Canal, at Darkham Weir. Then following the leat back through the flood meadows, looking at original features built by James Green and new, wild-life plantings, finally arriving at the lime-kiln complex in Rosemoor Gardens. Refreshments are available from the cafeteria and time may be spent having a look around the gardens.

£2.00 per person is charged but no booking is necessary.

For further information **Phone** 01237 425357 or **Email:**
info@therollecanal.co.uk

Sunday, 18th September

Bovey Tracey Heritage Centre at **09.45**.

Meeting at BTHC car park for a car share to the Kelly Mine for **10.00**, where there is very limited parking.

A guided walk around **the Kelly Mine** led by volunteers of the ***Kelly Mine Preservation Society***.

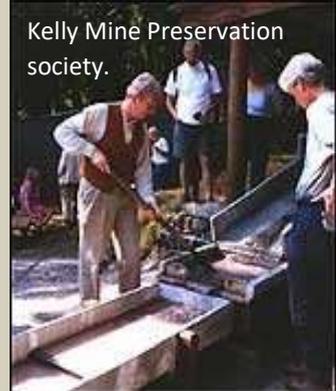
This is a rare opportunity to see part of a very long-term programme to restore, to working order, a haematite mine which was abandoned in 1951.

(Gardening clothes and strong shoes are recommended).

12.00 until 13.30 Lunch in the very pretty village of Lustleigh, where The Cleave Public House offers a very full menu and fine ales or you can bring your own picnic.



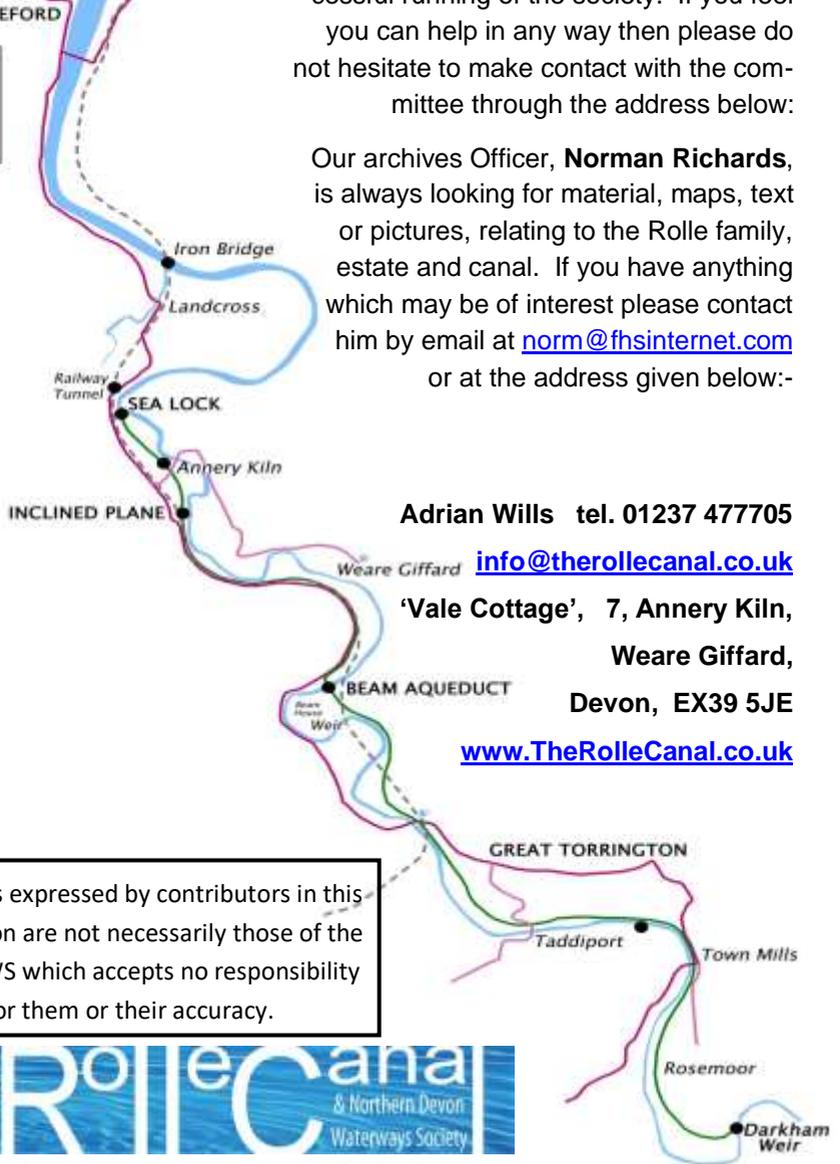
Bovey Tracey Heritage Centre



Kelly Mine Preservation society.

At **14.00** guides from the **B.T.Heritage Centre** will talk about what is on display and then provide a guided walk around the town heritage trail looking at its historic features.

At the end of the walk afternoon tea and cakes will be available, kindly provided by volunteers from the Centre, at a cost of £1 per person. There is a charge of £5.00 per person, excluding lunch and tea, and **booking is essential**. Please use the enclosed form.



The **RC&NDWS** welcomes anyone who is prepared to help run society activities. Many of these tasks do not require long term commitment or massive physical ability but are all equally important to the successful running of the society. If you feel you can help in any way then please do not hesitate to make contact with the committee through the address below:

Our archives Officer, **Norman Richards**, is always looking for material, maps, text or pictures, relating to the Rolle family, estate and canal. If you have anything which may be of interest please contact him by email at norm@fhsinternet.com or at the address given below:-

Adrian Wills tel. 01237 477705

info@therollecanal.co.uk

‘Vale Cottage’, 7, Annery Kiln,
Weare Giffard,
Devon, EX39 5JE

www.TheRolleCanal.co.uk

The views expressed by contributors in this publication are not necessarily those of the RC&NDWS which accepts no responsibility for them or their accuracy.



Bulletin & Newsletter published by RC&NDWS.