



The **R**oile **C**anal & Northern Devon Waterways Society

SOCIETY NEWS and VIEWS

**AUTUMN ISSUE
November 2013**

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COMMENTS FROM THE CHAIR

Once again the weather appears to be the main topic of my comments. Having had an exceptionally warm and sunny summer, (doesn't that seem a long time ago already?) we have moved back into a period of prolonged and heavy rainfall.

Work at Sea Lock has continued but the surface of the site has reverted to something resembling a swamp. Even walking across the site is proving to be hard work. Pushing a wheel barrow containing a load of mortar is really taxing. What a difference from the baked, rock hard surface and dust clouds of only a few short weeks ago.

Building has continued but the wet has frequently washed mortar out from joints before it has had chance to harden off despite efforts to cover it up. It is fortunate that the restoration work is not restricted to a time schedule.

The work of volunteers at the sites of the inclined plane and wheel pit has also been hampered by poor weather conditions. Never-the-less both of these sites are looking very different from how they were 12 months ago.

At the foot of the inclined plane Chris Hassall, aided by Greg Smith, had undertaken considerable archaeological investigation and was hoping to find remnants of the 2 channels and separating pier here. Unfortunately work undertaken by SW Highways to repair the watercourse and retaining wall at this point has undone a lot of their good work! It seems that the SW Highways repair crew were not informed as to the sensitivity or historic importance of the site on which they were working!

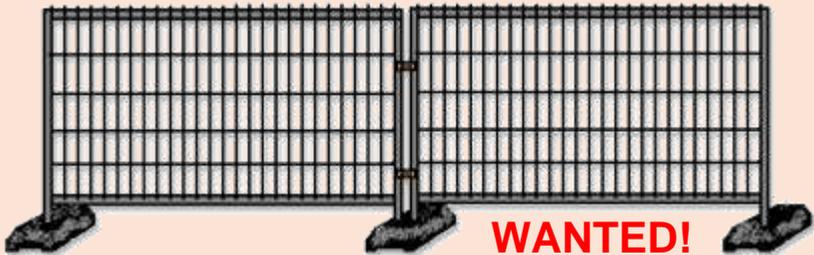
Responsibility for much of the progress at the wheel pit site has been taken by volunteers organised by Tony Barnes. What is slowly coming to light at this site is very exciting. As with the other sites of restoration this site is also hampered by external forces, inclement weather being one but in this case, bats being another!

The cavities within the wheel pit have in the past been used by bats in which to hibernate. Being protected by law bats must not be disturbed during their period of hibernation so efforts to remove any of the material used to infill the void have to be postponed until warmer weather returns next spring and then bats, if any, move out.



Greg Smith and Tony Barnes measuring the dimensions of the damaged wheel pit vault in October, 2013.

Maintaining security and safety around the damaged wheel pit vault is also a problem to be overcome.



Ultimately it will probably be necessary to acquire some of the free standing security fencing commonly seen around building sites, as shown above, to secure this site. Anyone who knows of any of this fencing going spare please let us know, we'd be very grateful for it.

If you wish to make comment or offer help in any way then contact information is to be found on the back cover of this newsletter.

NOW IT'S OFFICIALLY OPEN!

Members of the general public can now legally walk along the tow path of Lord Rolle's Canal, up the newly constructed steps in the cutting on the Tarka Trail behind Beam House, and follow its course through to the foot of Rice Point on Torrington Commons where it rejoins the Tarka Trail without fear of being accused of trespass.

On Thursday, 12th September 2013, a group of interested individuals met at the public car park by the Tarka Trail, adjacent to the Puffing Billy pub for the official opening of the permissive footpath crossing Clinton Devon land.

At 10 am the meeting was opened by Matt Edworthy who greeted all those attending, gave a brief explanation of the Life's Journey project and its objectives before introducing Simon Timms.

Mr Timms, Chair of the Heritage Lottery Fund (South West), expressed his pleasure that HLF was able to fund such a worth-while project. Representing the Rolle Canal & Northern Devon Waterways, I briefly outlined the history and aims of our society, and explained that the opening of this permissive path went a very long way towards achieving those aims.

The group was guided by Matt along the Tarka Trail, on to the foot of the Commons and along the new path to the end nearest to Beam House. Before leaving the permissive footpath and re-joining the Tarka Trail there was a ligh-hearted formal opening of the footpath with a ceremonial cutting of the ribbon and photos taken by a member of the local press.

The group then adjourned to the Cyder Presse for a hot buffet lunch which was greatly appreciated since it was such a damp day in the open. Following lunch most of the party drove to Annery and parked so that they could walk to the site of the inclined plane and then back to the new viewing platform overlooking Sea Lock.



Since some of the group had never been down to the Sea Lock site itself, I took them down and showed them around. Despite everyone being suitably impressed with all they had seen and heard throughout the day, by 4.00 o'clock the group was happy to return to their cars at Annery and wend their weary way home.

Now that the permissive footpath is open to public use and the Life's Journey project officially finished, the commitment of the RC&NDWS is far from over. Long term maintenance of the path, in terms of invasive vegetation control, is still very much part of our remit and initial agreement. As always we will be seeking volunteers to help keep the path free of obstruction and safe to use. Please don't be shy to offer a hand.

The best way to help keep the footpath clear however, is to use it. Footfall suppresses plant growth. Besides, walking along the Tarka Trail and the new footpath is such a pleasant way to spend time enjoying fresh air, looking at beautiful scenery and marvelling at the wonderful engineering skills of our forefathers.

Adrian Wills

A HOLE IN THE WALL

The course of Lord Rolle's Canal has suffered from all sorts of damage resulting from a number of different causes. The passage of time has naturally resulted in general wear and tear but there have been far greater forces at work.

The section of canal along the foot of Furzebeam Hill shows clear signs of slippage. Cutting a water course into and along the side of a steep hill is fraught with problems and stability is just one. The growth of roots from invasive vegetation into masonry naturally weakens it and allows rain water and frost to further penetrate the structure which can result in catastrophic failure.

The wharf walls at Sea Lock have been the subject of on-going restoration for a number of years now. There is evidence that major reconstruction at this site is not a new thing and signs of earlier rebuilding can be clearly seen.

Running for a considerable length of the wharf wall is a line in the stonework which clearly shows that the masonry above this line is of a different period to that below. The evidence strongly suggests that the original wall at some time began to lean out, or '*Rotate*', as our consultant IWA engineer would say. The wall has been taken down or eventually fell down and rebuilt from this line up.

Whether this rotation was as a result of poor building, soft foundations or pressure from behind the wall is anyone's guess. It is blatantly obvious however, that water is flowing through the wall in a number of places resulting in the lime mortar being flushed out which is not a good thing!

The removal of most of the large, dressed stones coping the top of the wharf wall, presumably by labourers employed by the London & S.W. Railway Company which took over the Rolle Canal Company in 1871, has resulted in water, frost and plant ingress causing much of

the facing stone to lift and fall away. It is this damage that the restorative work at Sea Lock is trying to address.

As you will be aware if you have read earlier editions of the Society Newsletter or visited the actual site, a considerable length of wall is now standing proudly, with a repaired face and new coping, even if it is of concrete not stone.

However, there is still much to do and once again inclement weather has delayed progress.

At present, work is under way to repair a section which has raised a number of questions. Having cleared all invasive vegetation, most of the rebuilding of the wharf wall has involved lifting off loose stones and removing poor mortar until a firm surface has been reached on which to rebuild. In most instances this has been more to the face than the back of the wall since this is less exposed to the elements. In one or two places the mortar was in a very poor state which meant that the whole width of wall needed taking down and rebuilding although effectively the wall was still there.

In the section most recently under repair, it was initially thought that this short stretch of wall was probably damaged as a result of a tree growing in it, falling over and its roots ripping the wall out. The face of the wall had gone but it appeared that much of the back had gone as well. Work started to clear the infill only to reveal that there was no masonry here at all, only a gap. This hole in the wall was excavated until at last firm, level masonry was reached several



feet down and well below the level that water would have been when the lock gates were working properly.

It appears that this gap was deliberately cut in the wall and its stone removed. At the bottom of the gap running through the width of the wall were some earthenware field drains. While all this excavation was going on water was draining out of the dug ground. Stating the obvious, water flows downhill. It continues to do this until it meets an obstruction, in this case all along the back of the wharf wall. Building drainage pipes into the wall below water level when the canal was in use would be pointless, so why and when was the gap cut through?



A hole in the wall



Drainage 'pipes'.

The drainage 'pipes' themselves are interesting since they were laid like a child's railway set tunnel. They are 'u' shaped and have a scalloped bottom edge to allow water to seep into the enclosed space and only four very small holes in the 'roof' to allow water in.

This gap in the wall is not far from another odd section of damaged masonry which defies explanation and is again below the level of the water when the canal was in use. I suspect that this odd length of wall was originally the end of the wharf

basin before going into the canal proper, but it was realized that the wharf basin capacity was insufficient for the number of boats using it, so the wall was taken down to below the depth which would cause obstruction and the wharf extended.



The picture above shows the hole in the wall, (centre background) in the process of being rebuilt and the unexplained section running into the middle of the basin to the left of the picture.

If anyone has any thoughts as to the purpose of either the gap or the odd section I would be very interested to hear them.

Adrian Wills.

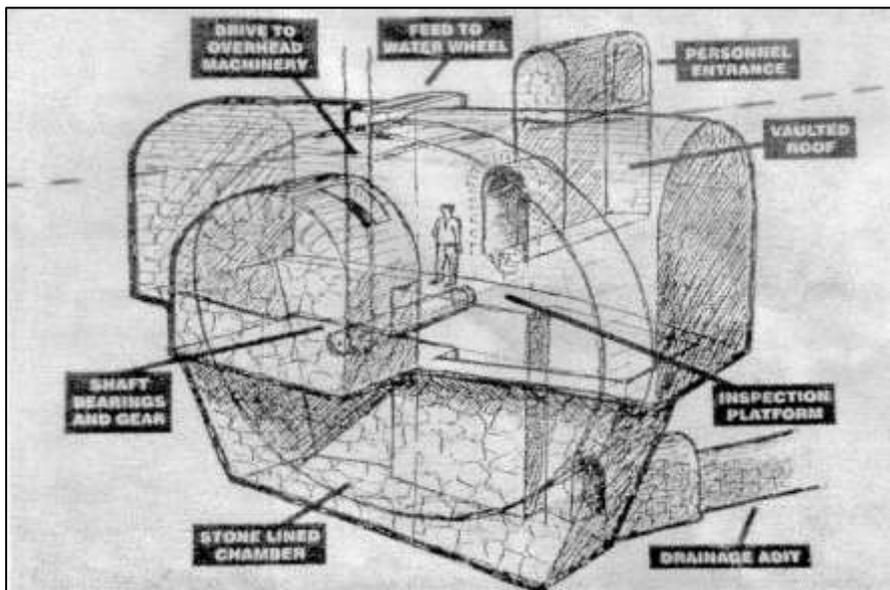
Volunteer days at Ridd inclined plane

Work has begun at the top of the inclined plane, to expose the ends of the wheel vault so that an accurate assessment of its size, damage and impact on the Tarka trail could be accurately determined.

This entailed removing many barrows of soil accumulated over the top of the broken vault, so that the end nearest the Trail could be located.

At the far end soil was removed to expose the side of the vault, and we discovered, to our amazement, that the railway engineers had not filled the space through which the drive shaft from the water wheel operated the overhead chain wheel. The top of this secondary vault, some ten feet down, can be seen in the photo taken from the surface.

It was somewhat scary to realise that we were working at the top of a 30 foot drop albeit partially filled with rubble!



The diagrammatic drawing above is of the wheel pit on the Bude Canal. Since the Bude Canal and Rolle Canal were built by the same engineer, James Green, there is little reason to suppose that the wheel pit at Ridd differs significantly from this one, other than its dimensions.

Whilst on site, volunteers Jeremy Gillbard and Adrian Pope partially rebuilt the stone wall of the basin, so that its extent could be clearly seen.



No more work can take place at the site until the bats (which have not yet arrived) leave in April.

We will meanwhile consider what is the best way of presenting the site to the public . Ideas would be welcome.

Further volunteer days will take place during the winter when weather permits, but at the Furzebeam site, where there are improvements which need making to the surface of the path, and cutting back shrubby growth before it gets too big. Anyone wishing to get involved would be very welcome. Contact email: anthonybar@gmail.com

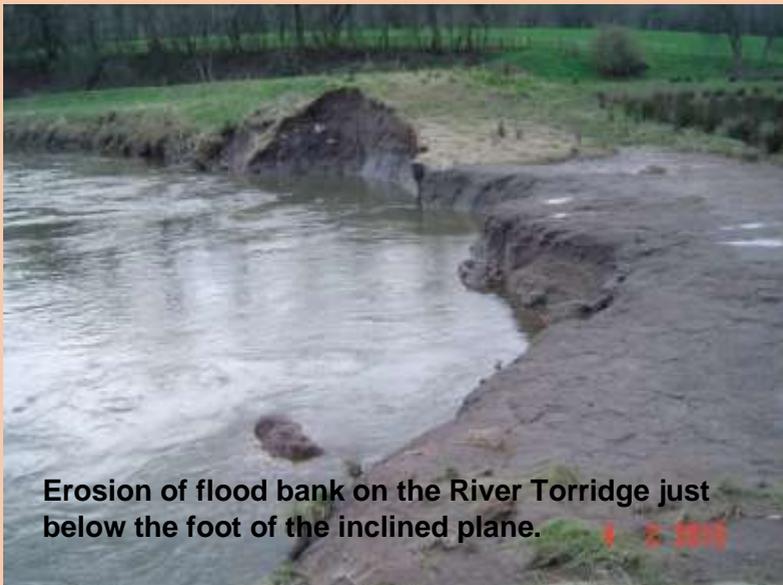
A. Barnes

(Diagram of Merrifield wheel pit by kind permission of Bude Canal)

The Lower Basin of Ridd Incline (Part one)

While **RC&NDWS** have been working on the upper basin and the wheel pit of the Ridd Inclined Plane for about ten years on and off, the lower basin has been inaccessible all that time, being in the ownership of a local farmer. All that was visible was a very muddy patch in the field gateway and the curved hedge line indicating the likely route of the canal. Two events, caused by extreme weather conditions, in 2010-11 changed all that.

First, erosion of the flood bank protecting the field from high tides in the Torridge called for emergency action from the Environment Agency to reinforce the bank with rock armour. (Being a major river, flood protection was the responsibility of the EA. At the last moment, EA realised that it would be cheaper to purchase the field from the farmer and allow it to flood rather than repairing the bank, so that is what they did, and the rock armour was diverted to a storage point beside Halfpenny Bridge where it is stockpiled ready for its eventual use which may be to protect Northam Burrows from the sea.



Erosion of flood bank on the River Torridge just below the foot of the inclined plane.

This deliberate abandonment of low-lying meadows beside the estuary to allow the high tides to flood them on a regular basis has been a policy since the late 20th century. It helps reduce the height of extreme tides at Bideford quay and Appledore, while allowing wildlife-friendly saltmarsh habitat to regenerate naturally on land that was first `claimed` from the sea by farmers two or three hundred years ago. The process was initially called `managed retreat` but that was thought to be too negative so the term `managed realignment` was chosen to emphasise that mankind was still in control of the forces of nature and was not retreating in the face of rising sea levels.

The significance of this development, from the Canal Society's point of view, is that now we have a friendly and co-operative government agency owning the site of `our` canal and the bottom of the Ridd incline. The EA permits us to take guided walks across the meadow from Halfpenny Bridge along the canal route to the foot of the Incline and has allowed work to be carried out at the site of the lower basin to expose and illustrate the original lay-out of the canal basin and the docking bays where the tub boats hitched up to the chain that pulled them on iron rails up the slope to the summit level.

However, before any of this interpretation work could be started, the second weather event intervened in the form of a torrential rainstorm that blocked the culvert (pictured below) carrying a minor stream under the Tarka trail embankment on its way to the Torridge. With the culvert blocked, the embankment formed a dam, and a great lake filled up between the Tarka trail and the main road, which event brought DCC Highways into the picture in double quick time.



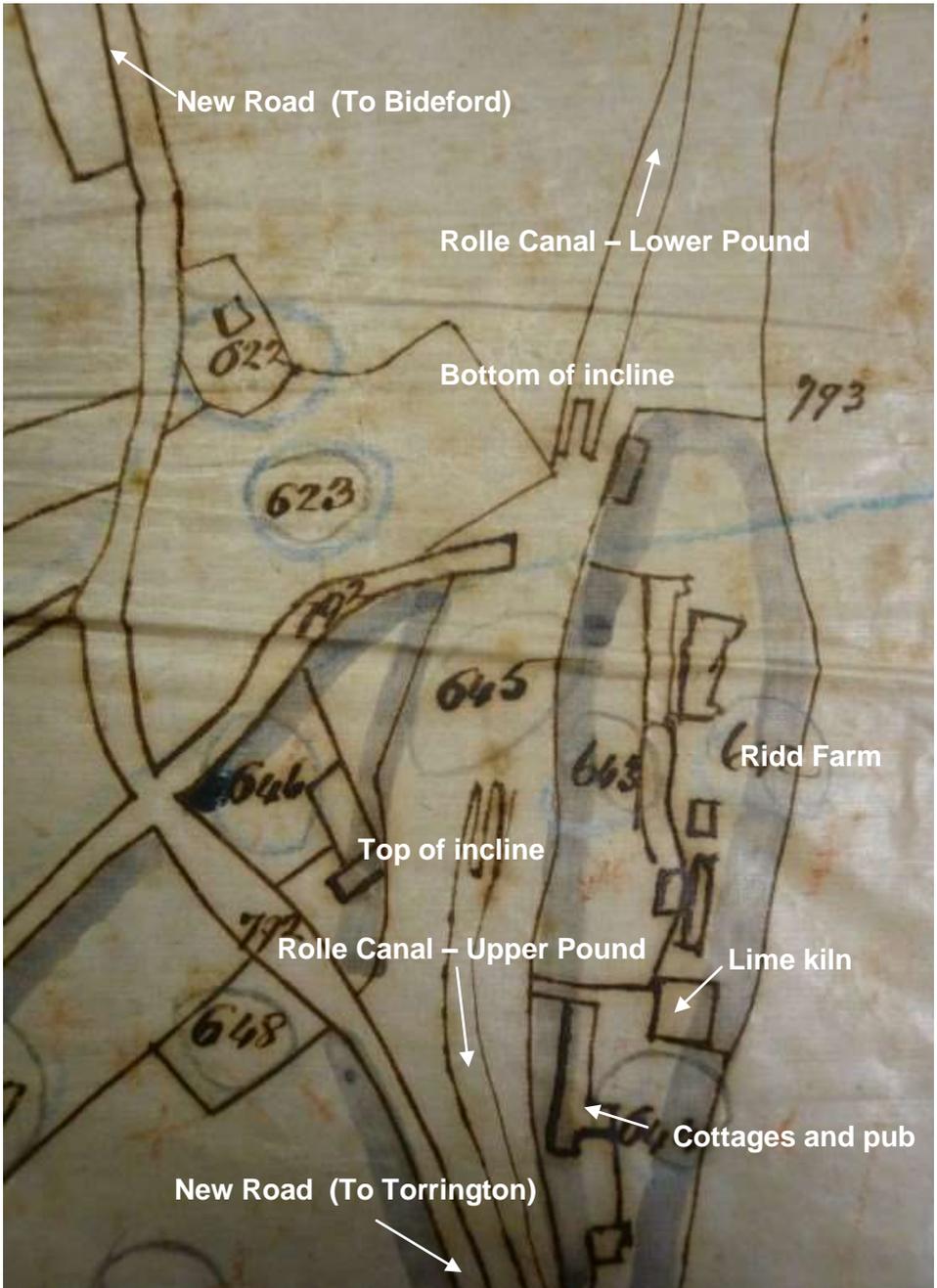
Their emergency repairs, in addition to the un-blocking of the culvert, comprised re-aligning and deepening the stream bed beside the canal basin, with the result that when they left, the site of the basin consisted largely of a great heap of excavated spoil in the midst of a swamp. One exciting revelation was that, projecting from the spoil heap, was a cast iron bar which an archaeologist member spotted and recognised as one of the original iron rails on which tub boats had travelled up and down the incline some 180 years ago.



Spoil heap left behind following DCC Highways delicate and sensitive clearing of the blocked culvert.

It was this discovery that provided the impetus for the intensive investigative work that was carried out by joint members of the North Devon Archaeological Society and the Rolle Canal Society over the winter of 2012-13 and will be described in the next edition of the newsletter.

Report by Chris' Hassall



A section of a sketch from a Tithe map 1820(?) showing the location of the inclined plane at Ridd on the Rolle Canal.

TUB BOAT BUILDING — Steamy Stuff!

Using an old inner tube from the rear tyre of a tractor is probably not the first item that would come to mind given the problem of bending broad, thick lengths of timber in order to clad a leading tub-boat but that was exactly what Barry Hughes proposed.

A first board had already been fixed in place. This board was bent as a result of soaking and then applying considerable force by means of block and tackle, and a sort of tourniquet. This method worked but not without a huge amount of effort and a degree of strain put on individual's tempers!

A better solution had to be found! Steaming timbers is an age-old, well-proven method but trying to find a steam chamber large enough to accommodate our cladding was something of a problem. Barry solved this difficulty by obtaining the old tractor tyre. Lateral thinking at its best!

He also managed to borrow, from a local boat-builder friend, a homemade steamer – an old liquid gas cylinder with a heavy duty gas burner ring welded to the bottom and an outlet at the top. The old cylinder was filled with water and the burner at the bottom connected to another cylinder containing butane gas. The timber to be bent was



inserted into one end of the inner tube which had been cut across to create a tube, (somewhat curved but beggars can't be choosers!). This was then propped up at an angle and connected to the steamer by means of a length of old washing machine hose.

Heath Robinson would have been proud of such a machine but once the gas was turned on and ignited it wasn't long before steam began to appear out of the top open end of the inner tube, and the inserted wood warmed up. With Trevor Fordham, Bob Renton and Carol

Unwin's help Barry soon managed to get the steamed board clamped to the bow post of the lead boat and pulled around into its final position. Using a variety of clamps, the board was held fast and eventually permanently fixed using a combination of wood bolts and square nails.

Suddenly the tub boat was beginning to look like a proper boat.



From this point it was not too long before both sides were clad. Barry then began putting his mind to making the strengthening knees for the bow. After much measuring he went home armed with various pieces of oak which he was going to introduce to his band saw.

Having roughly cut an assortment of shaped timbers Barry and Trevor later spent time refining these pieces, with planes and chisels, until they fitted snugly into their respective places and where they were they fitted snugly into their respective places and where they were getting himself and just about everyone else covered in bitumastic

which he was using with sisal to caulk gaps between the cladding timbers. Trowelling bitumastic is truly messy stuff!



This picture shows one of the 'clothes peg' style clamps, made by Barry, specifically for holding the cladding while it was being bent to shape and fixed in place.

While all this was going on I managed to keep well clear and concentrated on rebuilding walls. I did stop at times, in order to saw down large pieces of oak to a size which Barry required.

Once both sides were fully clad, attention was paid to strengthening the bow or *stem post*. Pieces of timber known as '*breast hooks*' have been fixed in place and Barry has planed and now put in place the planking for the transom. The transom cladding is waiting for the rear knee to be located and fixed to the floor before it can be finally attached. Once all the timber work is complete there is still a

considerable amount of work to do. The boat has to be turned upside down so that the wheels and axels can be attached and then once righted again, there is an assortment of metal brackets, metal rubbing strakes and towing eyes to be fabricated and finally attached. However, construction is moving forwards and the end is very clearly in sight. Hopefully an official Launch Day is now not too far away.

The picture on the front cover of this newsletter shows the leading boat complete with breast hooks and the cross member to which the tow rope would have been attached. Fixing the transom was left until last to ease getting in and out of the boat whilst working on the inside.

Report by **Adrian Wills**

VERY EARLY WARNING NOTICE!

I.W.A. National Trail Boat Festival 2014

**Saturday, May 24th - Monday, May 26th
on the Grand Western Canal**

Many organisations, including the **RC&NDWS** and the **Bude Canal & Harbour Society**, will be exhibiting at this event.

Much help is required of volunteers from both societies to help man our exhibitions and help publicise us. This will also be a great opportunity to see and enjoy the newly repaired and rewatered canal, with a large variety of boats on it.

Your help on one, or all of these dates, will be greatly appreciated.

Full details will be given closer to the time.



On Tuesday , November 19th 2013, members of **IASDA** (Industrial Section of the Devonshire Association) were treated to a fascinating talk by Michael Messenger on the ‘North Devon Ball Clay Industry and Railways’

The wooden viaduct shown in the print above is one of a series which carried the light railway from the clay pits at Peters Marland to the station at the foot of Torrington Commons. The course of the now defunct and in-filled Rolle Canal runs underneath this viaduct through the middle of the scene.

Quite coincidentally Norman Richards chose to write the following article for this month’s RC&NDWS newsletter about the man responsible for successfully engineering this first line.

Further details can be found in Michael Messenger’s book North Devon Clay - The story of an industry and its railways

TWELVEHEADS Press Truro 2007

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JOHN BARRACLOUGH FELL

1815 — 1902

John Barraclough Fell was the engineer for the narrow gauge railway from Torrington to Marland. He was engaged on this project in 1880 after building a similar structure at Pentewan, Cornwall. This line was already laid, and moving clay trucks towed by horses but Mr. Fell designed the steampowered locomotives and the trestle viaduct at the harbour to facilitate the tipping of clay from the railway trucks into boats.



The line from Torrington necessitated ten viaducts to reach the Marland clay works, each varying in height and length. Included was the high trestle bridge and viaduct over the river Torridge, a total length of 266 yards and about 40 feet high. (See *print on previous page.*) The rails were 3 feet gauge and the trestle system did away with the need to make expensive cuttings and embankments. The line was opened on the 5th Feb. 1881 where the clay it brought from Marland was transferred to the main line railway. The canal having previously been closed.

Mr. Fell was a renowned railway engineer patenting a narrow gauge guide rail system that ran on a single wooden and iron track supported on trestles. The steam locomotive had a boiler and cylinder which hung one on each side, pannier fashion, the drive wheels being on top of the track. On each side of the track were horizontal wheels which ran against wooden side rails to keep the engine in line and

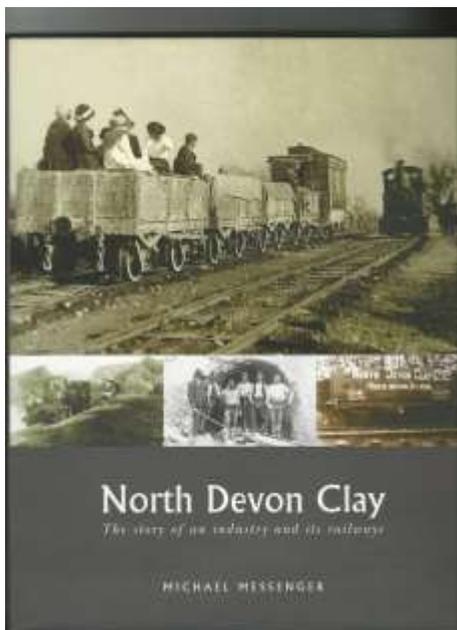
made for a low centre of gravity. The width of the tracks on this system were 12 to 18 inches wide whilst those on a normal narrow gauge system like the Marland railway were 2 feet or more. This could be said to be a forerunner of the more modern mono rail system.

His main project around this time was for the Royal Engineers at Aldershot to move stores and munitions more efficiently. Another of his designs being at a Haematite mine near Barrow in Furness in 1868, but this was a drum and rope arrangement.

Over a career spanning nearly 60 years, he worked extensively overseas, namely in New Zealand, Brazil, and the Cenis Pass over the Alps between France and Italy, specialising in mountain railways.. The Snaefell Mountain Railway on the Isle of Man, to this day, still uses the Fell System for braking.

Source; E.A. Wade, Narrow Gauge Railway Society

Norman Richards



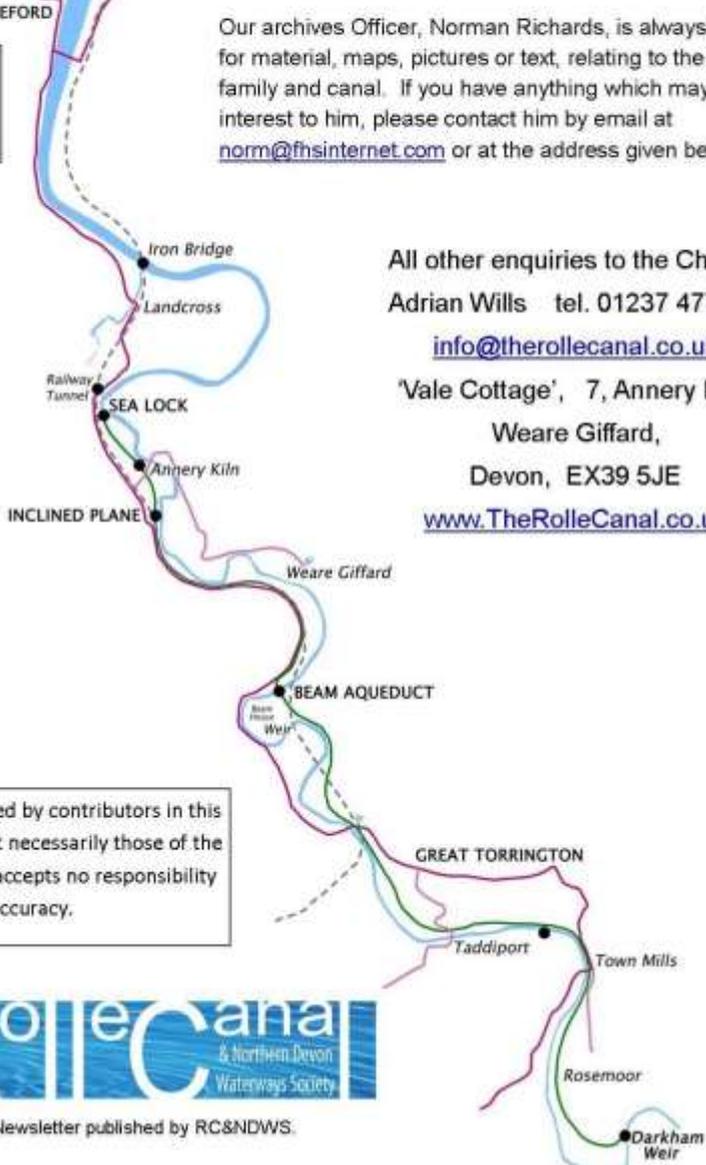
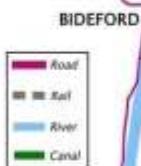
Front cover of Michael messenger's book

NORTH DEVON CLAY

The story of an industry and its railways



The RC&NDWS always welcomes volunteers who are prepared to help with a wide variety of 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, pictures or text, relating to the Rolle family and canal. If you have anything which may be of interest to him, please contact him by email at norm@fhsinternet.com or at the address given below:

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