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The Wessex Stationary Engine Club's Monthly Newsletter

From The Sump

You might recall from last week my little saga abot a simple two stroke Marvil Century that would fire but not run. You'll note, please, that I used to be a race bike mechanic in the 1980's, working on Suzuki square fours and Desmodromic Ducati singles! Even mechaniced for my mate in the Island one year with his TZ250 Yammy and a Triumoh engined sidecar outfit.

Well, I thought a fresh mind might help and Eric Gay said he'd have a look at it for me. So he went though the little beast and rang me to say I was right, basically. He asked if I'd had the lid off – as Harold Willis would have said – and I said no. It had occurred to me that if it was a deflector piston it might be in backj to front, but I didn't really think it would make that much difference.

Would it?

Well, Eric had the head off and lo and behold, the piston WAS in back to front and it DOES make that much difference!

So the fresh mind defeated the smart ar*e! Thank you Eric.

Trickling up to the end of the year again. Before it gets too gloomy to see what you're doing, consider getting a couple of new fluorescent lights in the workshop. I've got a vintage bike on the build stand and invested a few quid in a new double tube six footer. What a difference! I can not only find the things I drop now, but have found several small things I'd lost ages ago, lurking in what had been ill-lit courners. Mind you, it also depresingly reveals the dirt and junk, so now I have a nice new brush too!.

Speaking of workshops, my dad was a great fan of coffee jars full of bits with their lids screwed to the underside of shelves. Me too, and have quite a cluster of them hanging from the underside of the loft floor. My son in law was up there the other day searching for a long lost wheel, trod on the relevant board which flexed, releasing one of the jars. It decided that enough was enough and exited this life by plummeting eight feet to the concrete below. I wouldn't say it just missed me as I walked beneath it, but it did brush my back as it made its headlong descent to a better life as cullet!

It held small ceramic block insulaotors with brass fittings retrieved from an electrical stockists counter years ago from a box with a sign saying "Free to a good home".

I've never used any so perhaps they were bored...

Moving the Metal

For sale

Clarke Pump set, Model CX 50) 30mt. head volume 60 LxM powered by Honda 3.5hp engine all in running order (you may need this if living anywhere prone to flooding £110 ono.

Lister D parts. Piston + con rod, £12. Cylinder head complete, £15, crank case £10.

Lucas AD1 Magneto (fit early Pettey M. Type ect) Needs overhaul £35 ono.

Fellows of London Magneto. Parts missing

BOOK "Mills & Milling", large leather bound volume lots of old adverts for engines, steamlorries, steam engines and much more. Produced by the Ministry of Agriculture Fisheries & Food. I have never seen another copy. £60 firm.

For all the above ring Eric on 01225 754374

A large collection of about 40 old milk bottles all with dairy names on them. Suit someone with a dairy based rally exhibit or collection. No reasonable offer refused. Proceeds to Radstock Museum. Buyer collects from Midsomer Norton. Phone Tom Randall 01761 418926 or email tom.ramdall@dsl.pipex.com.

JAP Vee twin, model unknown but likely to be a railcar engine. **No numbers/letters in the usual places!** Base Mounted. Circa early 20's. Probably never run as there is golden oil in the crankcase, all bolt heads are untouched and there is no carbon in the exhaust ports. Complete wiyh exhaust fir cones, brass carb and square bodied ML magneto. Air corrosion only. Turns freely. Serious offers for a serious bit of kit and I'm looking for at least £1,500. Best offer secures it, the only one known! Photos available by email (below).

Big slate charging panel four foot tall, three feet wide, instruments, rheostats etc. All original and unmolested £250 or near offer. Phone Kim, number below,

Suppliers

. **Recommended Bearing Supplier – very helpful!**
Solent Bearings, Unit 20&21, Test Valley Business Centre, Test Lane, Nursling, Southampton, SO16 9JW
Phone - 02380 667100. www.solent-bearings.co.uk

Fuel Tanks and Crank Guards made.
Tel John Hedges 01635-268359 or 07831-410473 (Newbury Area). Robin Says – "I have known John for over 30 years and he is a good engineer. He has sold all his engines and thought he would have a go at Tanks & guards and is doing quite well, "

Articles, cartoons, photos etc are always very welcome – this is not a one-man band, but an expression of all our thoughts and experience. Submissions should be preferably typed or word-processed or even handwritten, **(if brief)**, - it is the content we're after, not the grammar or spelling, so please don't feel your efforts will be ignored. The editor reserves the right to change, edit, augment or lessen your Deathless Prose and asks all to note that opinions expressed in this newsletter may or may not represent club policy

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Featured Engineer Number 4

Richard Trevithick (13/4/1771 – 22/4/1833)

From Internet Research – Conclusion

"Newcastle" locomotive

Christopher Blackett, proprietor of the Wylam colliery near Newcastle, heard of the success in Wales and wrote to Trevithick asking for locomotive designs. These were sent to John Whitfield at Gateshead, Trevithick's agent, who in 1804 built what was probably the first locomotive to have flanged wheels. Blackett was using wooden rails for his tramway and, once again, Trevithick's machine was to prove too heavy for its track.

"Catch Me Who Can"

In 1808, Trevithick publicised his steam railway locomotive expertise by building a new locomotive called 'Catch me who can', built for him by John Hazledine and John Urpeth Rastrick at Bridgnorth in Shropshire, and named by Davies Giddy's daughter. The configuration differed from the previous locomotives in that the cylinder was mounted vertically and drove a pair of wheels directly with the connecting rods, without flywheel or gearing. This was probably Trevithick's fourth locomotive, after those used at Coalbrookdale, Pen-y-darren ironworks and the Wylam colliery. He ran it on a circular track just south of the present day Euston Square tube station in London. The site in Bloomsbury has recently been identified archaeologically as that occupied by the *Chadwick Building*, part of University College London.

Admission to the "steam circus" was one shilling including a ride and it was intended to show that rail travel was faster than by horse. This venture also suffered from weak tracks and public interest was limited.

Trevithick was disappointed by the response and designed no more railway locomotives. It was not until 1812 that twin cylinder steam locomotives, built by Matthew Murray in Holbeck, successfully started replacing horses for hauling coal wagons on the edge railed, rack and pinion Middleton Railway from Middleton colliery to Leeds, West Yorkshire.

Engineering projects

The Thames tunnel

In 1805 Robert Vazie, another Cornish engineer, was selected by the Thames Archway Company to drive a tunnel under the River Thames at Rotherhithe. Vazie encountered serious problems with water influx and got no further than sinking the end shafts when the directors called in Trevithick for consultation. The directors agreed to pay Trevithick £1000 (the equivalent of £69,441 as of 2014 if he could successfully complete the tunnel, a length of 1220 feet. In August 1807 Trevithick began driving a small pilot tunnel or driftway 5 feet high tapering from 2 feet 6 inches at the top to 3 feet at the bottom. By 23 December after it had progressed 950 feet progress was delayed after a sudden inrush of water and only one month later on 26 Jan 1808, at 1040 feet, a more serious inrush occurred. The tunnel was flooded and Trevithick, being the last to leave, was nearly drowned. Clay was dumped on the river bed to seal the hole and the tunnel was drained but mining was now more difficult. Progress stalled and a few of the directors attempted to discredit Trevithick but the quality of his work was eventually upheld by two colliery engineers from the North of England. Despite suggesting various building techniques to complete the project, including a submerged cast iron tube, Trevithick's links with the company ceased and the project was never actually completed.

Completion

The first successful tunnel under the Thames would be started by Sir Marc Isambard Brunel in 1823, 0.75 miles upstream, assisted by his son Isambard Kingdom Brunel (who also nearly died in a tunnel collapse). Marc Brunel finally completed it in 1843, the delays being due to problems with funding.

Trevithick's suggestion of a submerged tube approach was successfully implemented for the first time across the Detroit River between Michigan in the United States and Ontario in Canada with the construction of the Michigan Central Railway Tunnel, under the engineering supervision of The New York Central Railway's engineering vice president, William J Wilgus. Construction began in 1903 and was completed in 1910. The Detroit–Windsor Tunnel which was completed in 1930 for automotive traffic, and the tunnel under the Hong Kong Harbour were also submerged tube designs.

Return to London

Trevithick went on to research other projects to exploit his high-pressure steam engines: boring brass for cannon manufacture, stone crushing, rolling mills, forge hammers, blast furnace blowers as well as the traditional mining applications. He also built a barge powered by paddle wheels and several dredgers.

Trevithick saw opportunities in London and persuaded his wife and 4 children reluctantly to join him in 1808 for two and a half years lodging first in Rotherhithe and then in Limehouse.

Nautical projects

In 1808, Trevithick entered a partnership with Robert Dickinson, a West India merchant. Dickinson supported several of Trevithick's patents. The first of these was the 'Nautical Labourer'; a steam tug with a floating crane propelled by paddle wheels. However, it did not meet the fire regulations for the docks, and the Society of Coal Whippers, worried about losing their livelihood, even threatened the life of Trevithick.

Another patent was for the installation of iron tanks in ships for storage of cargo and water instead of in wooden casks. A small works was set up at Limehouse to manufacture them, employing 3 men. The tanks were also used to raise sunken wrecks by placing them under the wreck and creating buoyancy by pumping them full of air. In 1810 a wreck near

Margate was raised in this way but there was a dispute over payment and Trevithick was driven to cut the lashings loose and let it sink again.

In 1809, Trevithick worked on various ideas on improvements for ships: iron floating docks, iron ships, telescopic iron masts, improved ship structures, iron buoys and using heat from the ships boilers for cooking.

Illness, financial difficulties and return to Cornwall

In May 1810, he caught typhoid and nearly died. By September, he had recovered sufficiently to travel back to Cornwall by ship and in February 1811 he and Dickinson were declared bankrupt. They were not discharged until 1814, Trevithick having paid off most of the partnership debts from his own funds.

The Cornish boiler and engine

In about 1812, Trevithick designed the 'Cornish boiler' a horizontal, cylindrical boilers with a single internal .... (page4)

Calendar of Events

key. CN = Club Night. E = Event

Oct 11th Sat. **Wessex Autumn Sortout** At Cranmore Station.
Oct 19th **E. Robert's Open Day. 11-4.** Stationary Engines, Tractors, Motorcycles. Visiting exhibits. Museum and Displays. Manor Farm, Sevenhampton. GL54 5SW. Phone 01242 820408.
Oct 27th. CN."**Engines at the 1000 Engine Rally**" by Kim Siddorn
Nov 8th. E. (Sat) "**Enstone" Autumn Sale.** ***NEW VENUE***
Oakley Airfield. HP18 9JX. The new venue is 22 miles east of Enstone Airfield. Check the distance before you set off! info: Mrs. Anne Harris 01367 810415
Nov 24th. CN. **Decoys On Mendip, World War 11.**
Talk by Mike Chipperfield
Dec **No Club Night.**
~~Dec 7th Sun. **Anti-Freeze Crank-Up** at Nunney Catch~~
Dec 8th. Wessex Christmas Party at the Court Hotel
Dec 27th Sun. **Mince Pie Crank-Up** at The Court Hotel.
This events calendar is prepared by the editor based upon the Wessex SEC calendar produced by Brian Baker.

Chairman's Report

By Eric Gay

At the August committee meeting, the committee had a very full Agenda. One of the main items was how was going to replace Mary Butler as News letter distributor I did not have a rush of volunteer to take on this job but all was not lost as I had spoken to Wendy & Herb Gane and I can only say a great big thank you both for taking on the post of News Letter distributors. So all you members out there in engine land will be receiving your news letter as usual.

The next item being the report on our Midsummer Vintage Gathering, this given by myself. Once again our main event of the year was a great success, but as I have said before, we do need more help from our club members **especially after the event**, stripping down and packing away. The Gathering sub-committee would welcome your input or suggestions.

The Club store that we have had for more years than I can remember - and has been at Semington for the last seven years - is no more, as the land owner wanted it removed. Gary, a friend & myself cut this up with a disk cutter and loaded it into a skip with help from Pauline & Gary Sainsbury. What *we* would do without their help in so many things I cannot imagine, so a great big thank you to you both for all your help.

The committee also discussed the evening meetings for 2015 and again your input would be most welcome.

It may be that Mells Daffodil day may take place in 2015 and if this does happen we will need someone to take on the organising of this one day event *(as Robin Lambert cannot take it on next year - Ed)* so please if you feel that you could help with this show please let me know.

Our next Club event will be the Bring & Buy sale at Cranmore. The autumn event will be advertised locally and in S.E magazine, so why not dig out those unwanted items and come along on October 11th?

It was a very nice surprise on the 18th August to see many more club members at our evening meeting, thank you all for coming along, I hope to see even more of you at our October meeting when Kim will show photos of engines at the 1000 Engine Rally.

Wallop But no Cod

By Eric Gay

I got an invite the other day to go to the Middle Wallop vintage day. Well. I'm never one to refuse an invite and hadn't been there before so Sunday the 24th August saw us heading out across Salisbury plain to the village of Middle Wallop. My young friend and new club member Ben and his dad came along as well bringing a Lister L type. It ran all day and never missing a beat. The Amanco did like wise and what a grand show this was, with a lot of Wessex members giving their support.

Around 40 engines were on show, a working area, cars, commercials, motorcycles, a huge car boot and auto jumble. This was a great show with lots to see the miniature traction engine line up was quite impressive with some fine engines on display. Tractors and even a early combine harvester filled the show field to capacity, a great day out and I hope to return next year.

Now while I was at Middle Wallop, I met up we my old mate Deadly " 'ere", he said "what be you doing tomorrow,? Come round to my place, I got summut to show thee."

Well, what could I say? I just had to go and see the old chap, "Ccome out into the garage" said Deadly. "Now thee take a look at that ther then what's think of 'ee". Sat on the floor was a great pile of rust and grease impregnate old iron.

"What have you got there?" I said,

"I were give 'ee for nothing said old Deadly,"

" I should think you were" said I.

"Ah, my boy, you just wait a bit I will get 'ee up an running, I just got the blasted piston out, made a right mess of the con rod though."

"What, were the piston stuck then?" I asked

"RUDDY SOLID" said Old Deadly.

"How did you get it out then," I queried

"I never, the young chap from Bradley and his girl friend's dad got 'ee out for I, It was a mixture of lemon juice, brake fluid, and grease mixed up put in cylinder. Then they stuck a gurt Kango hammer on top the piston, the vibration got the fluid down the side of it. Once it had moved, they used a big slide hammer to shift it out the bore."

I was speechless!

"Damned old con rod isn't any good though. must be the gudgeon pin but I got spares of both, so I'm not worried."

"Well," said I, "It's only a Petter 5hp, so you've got your work cut out to get it going."

"I'd better take a look at the fuel tank" - and look at what be written on the side." Just visible on the side of the fuel tank were the words WAR FINISH.

"I had a word with David over Westbury way, but he had never seen that afor"

So old Deadly is going to restore this 1917/18 Petter. I will be going round to see the old boy from time to time just to keep my eye on how things are progressing.

(Conclusion of Richard Trevithick's Life - from page 2)

.....fire tube or flue passing horizontally through the middle. Hot exhaust gases from the fire passed through the flue thus increasing the surface area heating the water and improving efficiency. They were installed in the Boulton and Watt pumping engines at Dolcoath and more than doubled their efficiency.

Again in 1812, he installed a new 'high-pressure' experimental steam engine also with condensing at Wheal Prosper. This became known as the 'Cornish engine' and was the most efficient in the world at that time. Other Cornish engineers contributed to its development but Trevithick's work was predominant. In the same year he installed another high-pressure engine, though non-condensing, in a threshing machine on a farm at Probus, Cornwall. It was very successful and proved to be cheaper to run than the horses it replaced. It ran for 70 years and was then exhibited at the Science Museum.

The recoil engine

In one of Trevithick's more unusual projects, he attempted to build a 'recoil engine' similar to the aeolipile described by Hero of Alexandria in about AD 50. Trevithick's engine comprised a boiler feeding a hollow axle to route the steam to a catherine wheel with two fine-bore steam jets on its circumference. The first wheel was 15 feet in diameter and a later attempt was 24 feet in diameter. To get any usable torque, steam had to issue from the nozzles at a very high velocity and in such large volume that it proved not to operate with adequate efficiency. Today this would be recognised as a reaction turbine.

South America

Draining the Peruvian silver mines

In 1811 draining water from the rich silver mines of Cerro de Pasco in Peru at an altitude of 4,330 metres (14,210 ft) posed serious problems for the man in charge, Francisco Uville. The low-pressure condensing engines by Boulton and Watt developed so little power as to be useless at this altitude, and they could not be dismantled into sufficiently small pieces to be transported there along mule tracks. Uville was sent to England to investigate using Trevithick's high-pressure steam engine. He bought one for 20 guineas, transported it back and found it to work quite satisfactorily. In 1813 Uville set sail again for England and, having fallen ill on the way, broke his journey via Jamaica. When he had recovered he boarded the Falmouth packet ship 'Fox' coincidentally with one of Trevithick's cousins on board the same vessel. Trevithick's home was a few miles from Falmouth so Uville was able to meet him and tell him about the project.

On 20 October 1816 Trevithick left Penzance on the whaler ship *Asp* accompanied by a lawyer named Page and a boilermaker bound for Peru. He was received by Uville with honour initially but relations soon broke down and Trevithick left in disgust at the accusations directed at him. He travelled widely in Peru acting as a consultant on mining methods. The government granted him certain mining rights and he found mining areas, but did not have the funds to develop them, with the exception of a copper and silver mine at Caxatambo. After a time serving in the army of Simon Bolivar he returned to Caxatambo but due to the unsettled state of the country and presence of the Spanish army he was forced to leave the area and abandon £5,000 worth of ore ready to ship. Uville died in 1818 and Trevithick soon returned to Cerro de Pasco to continue mining. However, the war of liberation denied him several objectives. Meanwhile, back in England, he was accused of neglecting his wife Jane and family in Cornwall.

The initial party comprised Trevithick, Scottish mining projector James Gerard,[23] two schoolboys: José Maria Montealegre (a future president of Costa Rica) and his brother Mariano, whom Gerard intended to enrol in Highgate School, North London,[24] and seven natives, three of whom returned home after guiding them through the first part of their journey. The journey was treacherous – one of the party was drowned in a raging torrent and Trevithick was nearly killed on at least two occasions. In the first he was saved from drowning by Gerard, and in the second he was nearly devoured by an alligator following a dispute with a local man whom he had in some way offended. He made his way to Cartagena where he met Robert Stephenson who was on his way home from Colombia. It had been many years since they last met (when Stephenson was just a baby). Stephenson gave Trevithick £50 to help his passage home. He arrived at Falmouth in October 1827 with few possessions other than the clothes he was wearing. Trevithick never returned to Costa Rica.

Later projects

Taking encouragement from earlier inventors who had achieved some successes with similar endeavours, Trevithick petitioned Parliament for a grant but he was unsuccessful in acquiring one.

In 1829 he built a closed cycle steam engine followed by a vertical tubular boiler.

In 1830 he invented an early form of storage room heater. It comprised a small fire tube boiler with a detachable flue which could be heated either outside or indoors with the flue connected to a chimney. Once hot the hot water container could be wheeled to where heat was required and the issuing heat could be altered using adjustable doors.

To commemorate the passing of the Reform Bill in 1832 he designed a massive column to be 1000 feet (300 m) high, being 100 feet (30 m) in diameter at the base tapering to 12 feet (3.6 m) at the top where a statue of a horse would have been mounted. It was to be made of 1500 10-foot-square (3 m) pieces of cast iron and would have weighed 6000 tons. There was substantial public interest in the proposal, but it was never built.

Final project

About the same time he was invited to do some development work on an engine of a new vessel at Dartford by John Hall, the founder of J & E Hall Limited. The work involved a reaction turbine for which Trevithick earned £1200.

Death

After he had been working in Dartford for about a year, Trevithick was taken ill with pneumonia and had to retire to bed at The Bull hotel, where he was lodging at the time. Following a week's confinement in bed he died on the morning of 22 April 1833. He was penniless, and no relatives or friends had attended his bedside during his illness. His colleagues at Hall's works made a collection for his funeral expenses and acted as bearers.

Trevithick was buried in an unmarked paupers grave in St Edmunds Burial Ground, East Hill, Dartford. The burial ground closed in 1857, with the gravestones being removed in the 1960s. A plaque marks the approximate spot believed to be the site of the grave. The plaque lies on the side of the park, near the East Hill gate, and an unlinked path.