Issue 654 July 2025

A Wisp of STEAM SUPREME

Extracts from the Melbourne Steam Traction Engine Club Newsletter

Repairing the Steam Shovel's Coal Bunker on a Bleak Day

Making Axe Handles

Reviving Old Trades at Echuca long week end

Little Grey Diesel Fergy Foibles

Tall Trees

Reviving the Past

Kings Birthday Weekend Echuca

The Flyer advised The Steam, Iron & Trades Revival showcases our rich history & traditions through the Machinery, Vehicles and Trades that built our nation along with the skills and passion of the people who toil in the spirit of yesterday.

The date of the traditional Echuca Rotary Rally has been taken over by this new group . John Mills visited them and found they have taken the opportunity to do things a bit differently.

The Old Trades Revival allowed broadening the scope adding to the interest for those with a mechanical bend . In particular was this :-

Axe Handle Lathe .

Handle Master , Blank , Rocking Cutting Head under the guard

I guess not many people use axes these days let alone ponder on how you would make an axe handle unless you have the misfortune to break one . If you then try to make do with a good piece of tea tree trunk you will find a round shaft is no good at all . A form of copying lathe is needed to produce the oval cross section. In this a master in the shape of a full sized handle is set up in the machine beside a blank piece of wood connected by a chain so the 2 rotate in unison. A follower then rides on the rotating master rocking a cutting head back and forth which knaws away at the blank as it is fed in reproducing the oval shape of the handle . The follower and cutting head then slowly move from one end of the master to the other and lo and behold you have a perfect copy of the master. Fascinating to watch and certainly a crowd stopper . Actually Dutch clogs' are made the same way with an extra operation to hollow them out.

Another lost (nearly) trade is castings, again a foundry man set up has equipment and showed people how aluminium castings can still be made in the back yard. It is a pity our blacksmith was not there they are always talking about having a go .

Tractors

This big Massey Ferguson 1155 caught John Mills attention being a Ferguson man .

Not a Cat but Allis Chambers HD 7 with GM 2 stroke Diesel and a funny sort of way of raising the blade .

Built in the mid 1970's it has a Perkins 8.9 l V8 diesel of 117 hp . Fitted with a multi shift transmission giving 12 forward speeds with a max of 27 km/h . It was perhaps not as impressive a performer or bullet proof as expected. The comment was made to John it only had a 200 litre fuel tank where as other brands had bigger tanks and could do a complete days work without having to come back to the shed to fill up . Actually when Chamberlains were developing their tractors for wheat belt conditions a requirement was being able to do a full days work on a tank combined with a high road speed to get back to the home property .

Subsequent models of big tractors turned to turbocharged 6 cylinder engines for better efficiency in lieu of the V8's .

A number of Historic trucks where on display .
They came either as an exhibit or brought machinery in and then where put on display as well

This Steam wagon and the traction engine were the center of attraction for steam enthusiasts

Yarra Valley boys always put on a good display judging by the crowd and my , do they get around to all the rallies

There must be a story behind this purple tractor .
A close look at it shows it is made from the carcass of an International Farmall A .
I wonder if it is one of the tractors from Brian Smith's auction ?

Cats Twenty Two , Fifteen and Sixty lined up on the perimeter of the arena. This year is Caterpillars 100 th so special displays are being put on

One lost trade that has not changed is the scones with strawberry jam and fresh cream . Always popular at home as a treat for city visitors.

The engine pens look pretty full with lots of displays and visitors

Ferguson Tractors lined u*p on the arena in order of age allows the progression of technology by this innovative tractor manufacturer to be appreciated .*

John Mills photo

Actually the first batch of Fergusons were made in conjunction with David Brown . They soon fell out in particular over Harry's game changing patent 3 point linkage that did more than just drag the implement around but control it's height as well as allowing weight transfer onto the tractors wheels for greater traction . He then turned to Henry Ford and the famous hand shake agreement to make tractors for England's war effort . The one on the right of the line up is identifiably one of these from Detroit USA with it's distinctive cast wheel centers and 4 cylinder flat head engine which used many parts from Ford's V8 engine . Production started in 1944.

Harry then tried to get tractors made in England by Ford but had to turn to the Standard Motor Company to put them in production in an empty WW2 engine plant . These can be identified by a number of improvements including wheels with pressed steel centers. Initial production had an American 4 cylinder Continental Z-120 petrol engine of 23 hp until Standard got their own 1.85 litre wet sleave petrol engine in production during 1948 . This engine then went on to be used by Standard for their Vanguard cars so it was the tractor engine that came first not the cars.

The 3 rd tractor is one of these designated TE- A 20 (Tractor England , series A , 20 hp).

The 4 th tractor is the first significant upgrade of the little Grey Fregy a Gold (copper) now 35 hp and with quite a few welcome upgrades like a high and low range gearbox , and hydraulics that stayed in the set position.

Tractor manufacturing was taken over by Massey Harris in 1953 with the colour changing to Red in 1956. The next tractor in the photo looks like a MF 65, the first of the bigger and more powerful tractors . On the end is the 135 the final evolution of the little grey fergy now with 2 stage clutch and magnificent Perkins 3 cylinder Direct Injection Diesel engine

Acknowledgements The Harry Ferguson Tractor Club ..The little Grey Fergy , Gary Anderson

Missing from the line up is the grey TEF the first Fergy with a Diesel engine. Having had a fair bit to do with this model and the sudden cold snap they probably could not get any one of them started ! In other ways a good tractor but starting difficulties still bring misery to unsavy owners to this day . Just read the forums !

A superbly restored TE-F Diesel Grey Ferguson .

There is considerable status in owning one in this condition as it demonstrates the owner's ability to restore while mastering their foibles . Internet pic

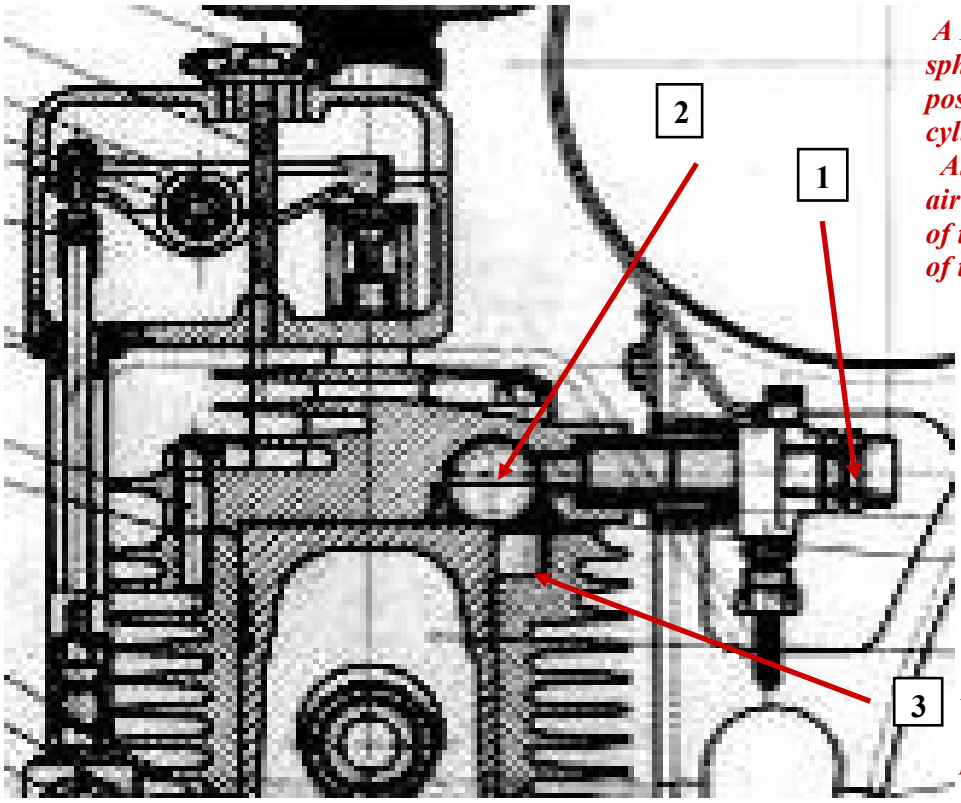
What are the strange habits and characteristics of

The Little Grey Diesel Fergy

Harry identified the emerging trend to Diesel engined tractors because of their greater efficiency. Particularly important in England as supply and price problems with petrol and the various quality issues with their paraffin's exacerbated things . Lamp Oil (Lighting Kero to us) had zero octane and Tractor Vaporizing Oil (Power Kero) 20 octane After evaluating a couple of off the shelf Diesels Harry decided to develop his own and engaged consulting engine designer Arthur Freeman Sanders .

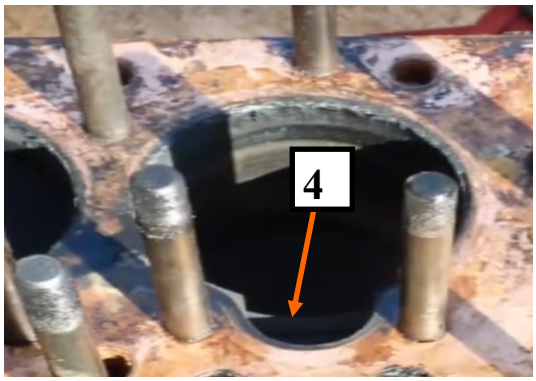
Arthur had a consulting business based in Cornwall and had done engine design for quite a few UK manufactures such as Lister , Fowler and Paxman Howard.

Like most of these people they had their pet ideas and designs for Diesel combustion chambers and Arthur had his own patent swirl design . ***Illustration from Arthur Freman Sanders UK patent***



A Horizontal Injector 1 sprays into a spherical swirl chamber 2 which is positioned in the head off to the side of the cylinder bore .

As the piston rose on the compression stroke air was driven into this chamber from the side of the piston up through the cut out in the side of the cylinder bore 3 See photo below



As the piston approached the top of its stroke remaining air trapped above the piston in the squish area would be expelled horizontally across to the cut-out .

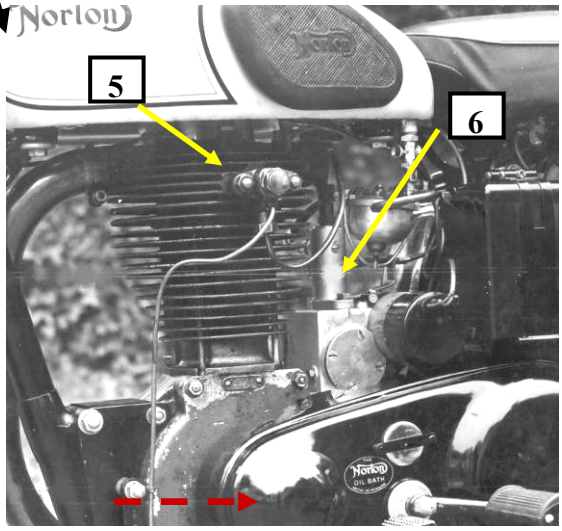
His patent claimed these 2 colliding streams would produce vigorous mixing in his so called swirl chamber so the fuel injected in to it would be sure to find enough air to burn without producing black smoke . While this seemed to work well enough once warmed up and running it was almost impossible to start from cold . Now the secret of Rudolph Diesels patent is " Ignition by the heat of Compression alone . I imagine the high velocity air in close proximity to the large surface areas of the cold metal of the combustion chamber absorbed so much of the heat of compression there was insufficient temperature left to ignite the fuel . Normally above 210 deg C is required for self ignition of Diesel fuel meaning below a certain cranking speed these engines will never start as all owners of Diesel Grey Fergy's will know . By definition this is not true Diesel

On the internet there are reports from Cornwell of Arthur disappearing down the road in a cloud of black smoke on his Norton 500 converted to Diesel as a test mule for his patent combustion chamber for TEF Ferguson and Howard 85 B engine development. see US patent 2,089,577

A close up of the engine fitted with the 85 mm cylinder Note the side mounted injector 5 and Jerk pump 6

The engine would have also had the New Grey Fergy 85 mm piston . This show the top ring many times further down from the crown than normal practice.

. Internet pics



It leads one to wonder if his thinking was that the cut out would also direct the sudden pressure rise of initial combustion onto the side of the piston rather than the crown as books of the day warn of this breaking piston rings and bending con rods .

That said there is no doubt that these features greatly add to the surface area of the of the engines clearance volume and subsequent heat loss causing the starting difficulties. Continued

What Happened I do not know when the penny dropped on the starting difficulties but with the Ferguson being the entry model tractor for small farmers the percentage that were Diesels would have been very low and initially easy to ignore.

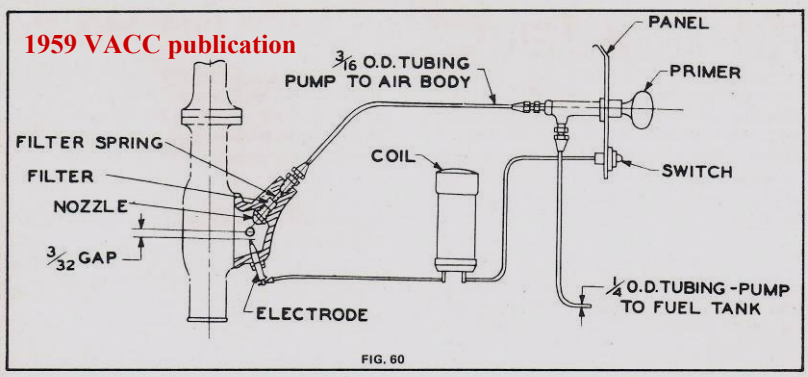
Word must have got around though as when Ford brought out their 1951 EA 1 New Major Diesels (eg Sooty) they were touted to have their "Easy Start " Direct Injection engine which indeed start instantly with no special ritual or equipment .

This must have rattled Ferguson to some extent as they brought out some defensive blurb . " Starting is not a problem as the TE-F has 4 systems to assist in starting . First a 12 volt **oversize electric starter motor** supplied by 2 heavy duty 6 volt batteries . Then there is the **Excess Fuel** button on the injector pump that you press as a matter of course for the first start .A **Decompressor** actioning on the valves whose lever can be reached from drivers seat to cut in cylinders progressively to build up cranking speed . Finally **Ki Gas** arrangement that consists of a dashboard mounted plunger that introduces a small amount of fuel into the intake manifold which impinges onto an electric element that starts a small fire in the inlet manifold to supplement the head of compression

I am told this is effective but most people do not activate it for long enough As a last resort a **Crank Handle "** is provided .

Of course it could not be admitted the real problem was the unconventional combustion chamber with its excessive surface area and low compression ratio draining away too much of the heat of compression .

1959 VACC publication



KI-GASS EQUIPMENT

A hand pump constructed with inlet and outlet ports is used. On the upward stroke of the pump, fuel is drawn through a copper pipe from the Ki-Gass tank into the pump body. On the downward stroke fuel is pressure fed through the outlet port and a copper pipe to an atomiser, causing it to be sprayed into the venturi body.

A resistance wire on a heater plug is heated by an electric current when the heater button is pressed on the "Heater-Starter" switch.

As the pistons travel down on the suction stroke the fuel spray, which has been fired by the hot resistance wire on the plug, is drawn into the cylinder to assist in easy starting.

Excessive use of the Ki-Gass pump is liable to be harmful to the engine and could damage the piston rings.

Nothing much really seemed to be have done about it . Later models of Freeman Sanders engines had electric glow plugs built into the combustion chamber which , in hind sight has proven to be the way to go for all prechamber engines but was too later for the Ferguson .

The next model Diesel Fergy was the Red and Gold 35 . I gather it had a French engine in that used a Ricardo Comet prechamber that was not really much better.

Following on from that was the new 135 with a 3 cylinder Perkins engine that made a good account of itself . After that came the 135 with its ungraded Perkins Direct Injection and various transmission options .It is often regarded by enthusiasts as the best tractor Ferguson ever made being economical , powerful long lasting and easy to fix with no electronics and a perfect starter

That said if you want an iconic Grey do not be too put of by the Diesel TE F . Once going they are a pleasure to drive being smooth running , quiet combustion , well governed , economical and reliable. With one in good condition and you understand their foibles starting should not be an issue with judicial use of Start You Bastard providing the urge to tamper with the timing and the injection pump is resisted. Nice ones are certainly sort after .

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FOR SALE Chonda Powered Hydraulic Log Splitter

Hi all, the Club is looking to move on the original wood / log splitter as there is no need for two of them now we have got the more up-to-date SuperAxe machine.

We are looking for the best offer over $200 from members for the old splitter. The machine is being sold as is where is so please ensure you are familiar with its condition etc. (It worked last time it was used ! Ed.)

Please email your offers to the Secretary at secretary@melbournesteam.com.au. Offers close on Sunday, 20 July 2025. Thanks, Chris **Note under club rules if the reserve is not reached by a member it can then be offered to the general community for best offer. Ed**

Stay replacement on our FOWLER ploughing engine.

Most members are aware that our club has had to replace several stays in the firebox of the club's FOWLER ploughing/ traction engine. Why was this necessary and what are the stays and, why do we use them?
Stays are studs that are usually continuously threaded from one end to the other, with the threads being machined away in the middle producing a slightly lesser diameter, but making it much easier for the stay to be screwed from one boiler plate to the other. As well as this each end of the stay has a "tell tale" hole drilled in centrally for a sufficient distance, should the stay waste or rust away within the water space, then water will run to the outside of the stay alerting the operator that there is a "weakened" stay that has to be replaced. Without going into too much detail, the weakened stay will eventually break and this will lead to elevated stresses in the boiler plate where it is situated. Roy Odgers

This crown stay is still to be threaded on the larger dia sections . The protrusion on the right end is to grip it for screwing in and will be removed once fitted . The extra length is to pass between the water and steam space between the top of firebox and outer wrapper of the boiler

Used for boilers with fireboxes made from copper plate

Used to hold the flat sides of the inner and outer firebox together so they do not bulge apart under boiler pressure

Roy Odgers

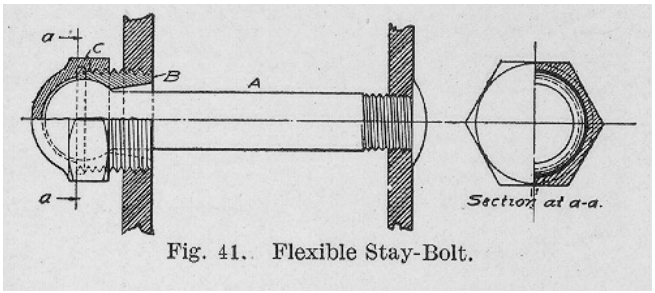
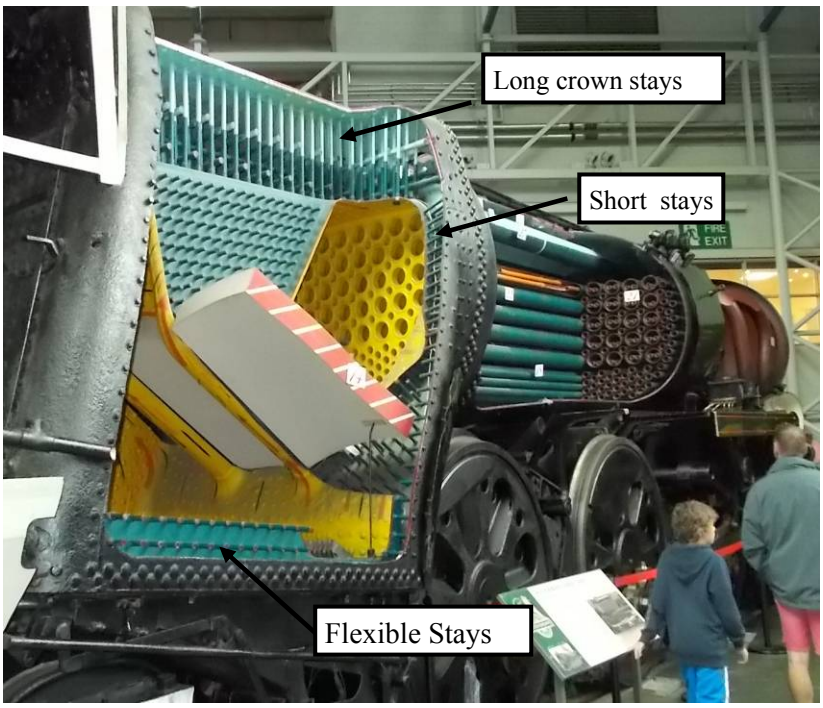


Fig. 41. Flexible Stay-Bolt.

Flexible stays . Often used around the bottom of the firebox on locomotives where the temperature gradients are the greatest to allow slight movement due to differential expansion . The spherical end is capped to avoid leads .

Generally stays are made of hot rolled mild steel because of its resistance to brittleness , cracking and fatigue .



Sectioned boiler of a locomotive at York Railway Museum shows the huge number of firebox stays supporting the flat surfaces Warwick photo

We Welcome new member Phil to the Blacksmith team . A friend of our Stephen Niccoll he is particularly interested in work restoring old machinery and is very keen to build up his skills in all aspects of hands on mechanical and metal working . Here he is shown here assisting Steve straightening out the steam shovel coal bunker. At some time it has been attacked with a large fork lift and is badly battered , presumably in an attempt to get it to slew , which of course it cant without steam . It is not being made to look like new rather straightened out and patched so fully functional but still wearing the scars which are now part of its story . They are finding the big layout plate from Cerberus extremely handy for flattening it out .

Railway Embankment Peter Morris & co have been busy with heavy machinery around the club before the ground gets too soft to work on . Just completed is reducing the angle of the batter along the West edge of the railway embankment to make it safer for those working on the line and also more accessible for mowing .

Top Paddock Access Similarly he has been improving the track up the back to allow all weather passage for the people mover and access to the steam engine fire wood pile . A firm covering has been laid down along the existing route and compacted with his newly arrived multi tyred Diesel roller .

View from the top crossing . Gravelled track effectively encircles the Duck pond and old Horse ploughing Arena .
A flock of at least 30 wild ducks have recently moved into this area and are foraging through the grass .so obviously they have found something good to eat.
Warwick pics

More RAILWAY BRIDGES

The subject of railway bridges came up at the start of last year when we were talking about a bridge for our little train . Well from reader feedback it seems there is still some interest with a couple more being brought to our attention by readers

The first is rather close to home being the **Albion Viaduct** over the Maribyrnong river in the Western suburbs of Melbourne. It size from this Wiki photo only becomes apparent when a very close look shows a freight train 1/3 of the way over.

It was built in 1927–29 by the Victorian Railways Construction Branch and on completion in 1929 was the highest bridge in Australia until the Sydney Harbour bridge was built. Even today with a length of 383 m and a height of 55 m above the water it is still the 2 nd highest of any bridge in Victoria only being 3 m less than the West Gate bridge . This makes it 3 times as high and 1 1/2 times longer as any of the other railway bridges mentioned in Steam Supreme. How did we miss such a monster ? Easy it has always been a freight train bridge and only recently has been carrying std gauge passenger services.

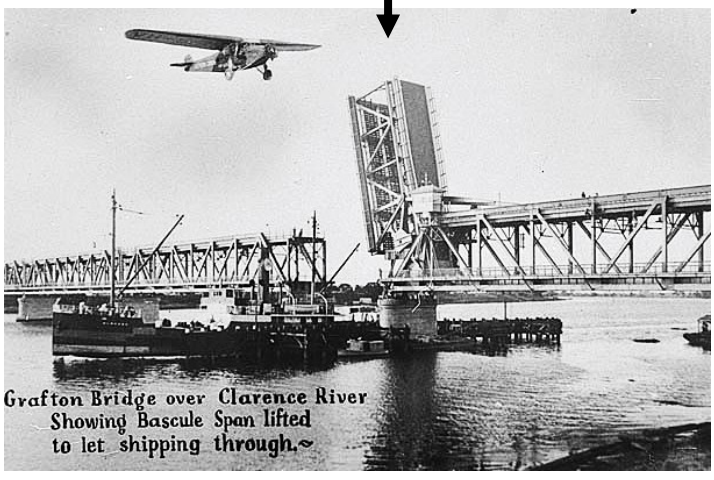
The Grafton Bridge

Club Member Bill Dezenko spotted this most unusual bridge and never having seen anything like it before thought readers would be interested.
A first glance it looks a fairly normal but long box truss bridge spanning the Clarence River .

A closer look though shows it is double decker with a train line down the middle and a 2 lane road bridge along the top

Once over the bridge the cars are diverted off to one side onto the normal streets

If that is not weird enough a short central span containing both railway track and road lifts up to allow ships through



Being in the construction game Bill was fascinated with the linkage that allows it to all line up again when it goes down . Although heritage listed it is still in limited use today

Tales of Tall Trees

With a number of members interested in the art of steam sawmilling and others having an appreciation of the environment I thought this little story might be food for thought Warwick Bryce

Detouring through Thorpedale in Gippsland , on the way back from the Trafalgar Holden Museum I was saw a fingerboard pointing to **The Site of the Worlds Tallest Tree.** →

I found this a bit surprising because there is not much there except potato paddocks, rolling hills with windbreaks of pine and cypress trees. No giant trees to be seen at all .

Anyway 1 km up a side road next to a gravel driveway into a farm was a plaque claiming to be the site of The worlds tallest tree. →

The tree grew on the property of Bill Cornthwaite but I was a bit too late as he chopped it down in 1884 but fortunately his brother George, being a Government surveyor measured the tree so it can be taken on good authority to have been 114 m tall .

This was all a bit new to me as I thought the biggest of everything was in America so I looked up the internet . This advised that indeed a 700 to 800 years old. Giant Redwood 116 m tall has recently discovered in a secret location in a California and is now claimed to be tallest tree in the world . Wiki.

← Never the less South East Australia still does pretty well with a 100.5 m Mountain Ash , with a broken top, called Centurion being No 4

With various other varieties of Eucalypts in Tasmania being numbers 7 , 8 , 9 and 10 there is no doubt South East Australia deserves to be better know for it's giant trees .

A bit more interwebing advises Thorpdale is going through hard times but the current owner of the site Bill Horsdale says it is still a popular stop for motorists drawn in by the red soil and rolling hills on their way to the South Gippsland coast. "Between 500 and 1,000 people come every year to have a look at the site of the world's tallest tree but these days with new information coming to light the claim has been moderated a bit and it is now referred to as 'the site of the world's tallest flowering tree'. It's a case of trying to resurrect a bit of history, trying to keep the town alive," Mr Horsdale said. . (ABS National news)

Anyway I drove a bit further along the road and found a couple of huge piles of sawdust . Not Mountain Ash but cypress and pine .

continued →

With the giant trees gone windrows of pines had to be planted to protect stock and settlers from Antarctic winds .

It seems after the early settlers clear felled the giant trees they had to plant rows of pines to break the wind . These days the old windbreaks are being cut down and others like Bill are replanting planting native eucalypts to their credit.

As for the fate of Thorpdale's worlds tallest tree I cannot imagine how anything that size could be milled. It was probaly left to rot.

Not even by Paul Bunyan ,Americas legendary Michigan Lumber Jack with his incredible strength and endless love of cutting down trees could cut it up wwj newsradio

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Putting Up the Windmill

This Eureka windmill was spotted beside an ornamental lake out the front of a Wodonga retirement village . Still in its working cloths it makes an eye catching exhibit which is a reminder it is time to do something about setting up ours.

It originally came from Allan George , the GMH Proving Ground Foreman before being acquired by John McInerney who used it as a prototype to build his scale model.

Warwick was instrumental in getting it donated to our club and is happy to oversee its erection having the full instructions . The question is should it get a full restoration or just put back into working order which involves replacing several buckled angle irons and missing diagonal ties of the tower . Also several new blades need making for the fan . This is very straight forward for those skilled in sheet metal work Warwick Pic

Regular Events : - MSTEC Social meetings, 8 pm Scoresby. First Wednesday of each month .
Museum open every **Thursday, Saturday** and **Sunday** . Miniature Train running every Sunday 11 am to 4 pm
Museum Machinery in action. Last Sunday of each month **Except end of year December.**