Issue 645 Sept 2024

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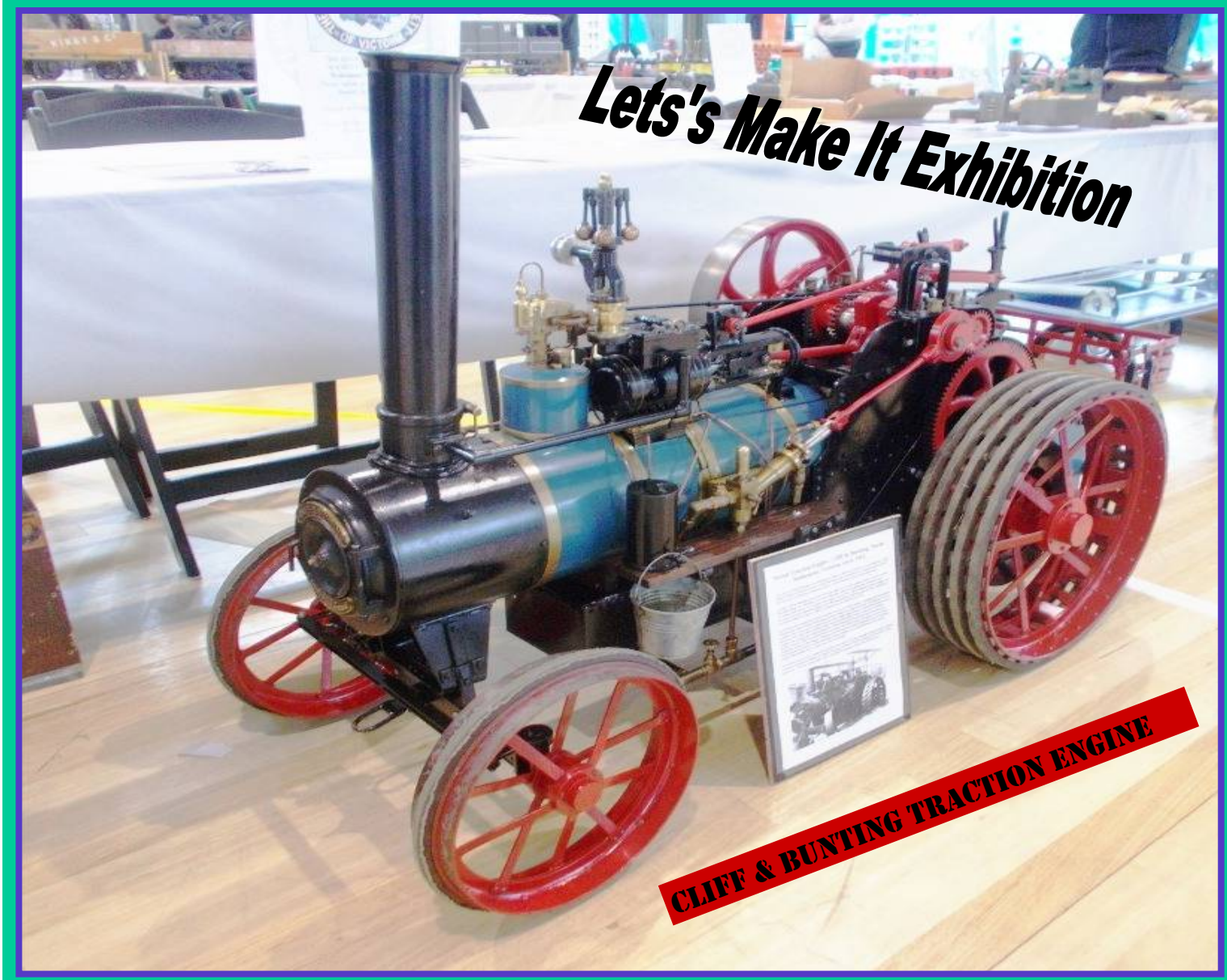
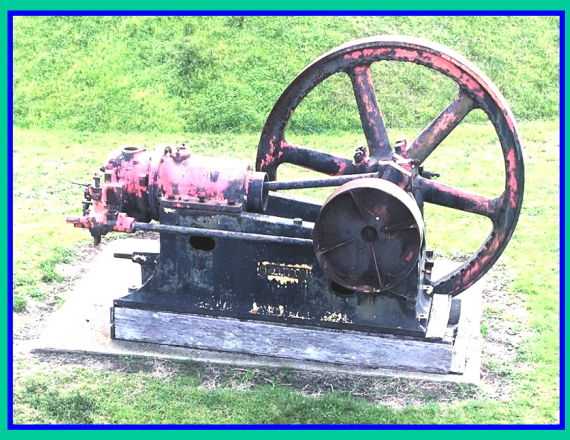
A Wisp of STEAM SUPREME

Extracts from the Melbourne Steam Traction Engine Club Newsletter



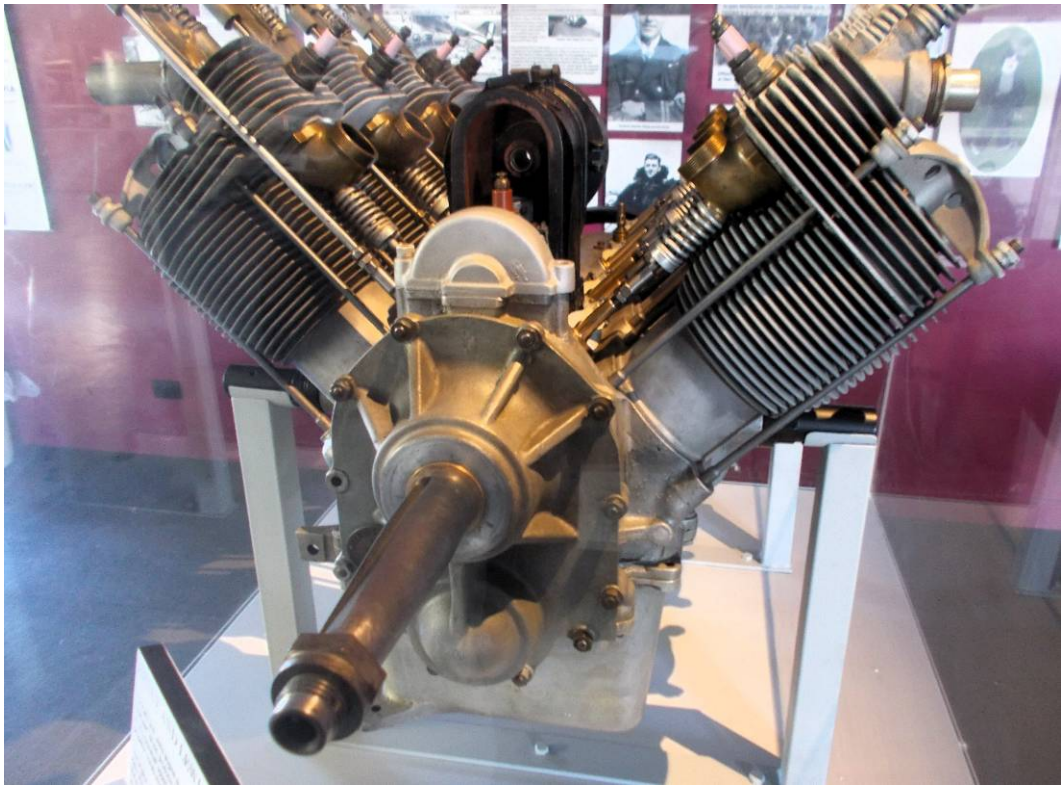


K & L Aeroplane Engine

More Gardners

Spring Pruning

HISTORIC KELLY & LEWIS AIRCRAFT ENGINE



The stylish engine is a 90 degree V8 with light cast aluminium crankcase and finely finned individual cylinder barrels. Cylinder heads are cast iron with overhead exhaust valves and side inlet valves .

The inlet valves cages and ports are combined in a single bronze casting that can be removed to gain access for exhaust valve service .

The 8' 6 " propeller is driven at 1/2 engine speed

On a recent visit to the Moorabbin Air Museum I spotted this rather distinctive and stylish V8 engine . Closer inspection surprisingly revealed it to be a product of Kelly & Lewis a company better known in historic machinery circles for irrigation pumps , engines and clunky Bulldog tractors but definitely not elegant aeroplane engines.

This side view of the engine shows the extremes gone to make it as light as possible . In particular note the star shaped clamp bearing on the center of the cylinder head and long tie bolts running down to the crankcase to hold it all together.

The information board advises that 6 of these engines were made for the Point Cook Flying school for their B.E.2A training aircraft . 3 by Kelly & Lewis and 3 by Tarrant Motors . The engines were based on the 70hp Renault engines that came as standard on the trainers already delivered from the Royal Aircraft Factory in England during 1914 but were becoming worn out with all the training plus Australia wanted to go on and make more of the planes for themselves.

An internet picture of an early B.E.2A training aircraft . The student sits in the front cockpit while the instructor sits behind .

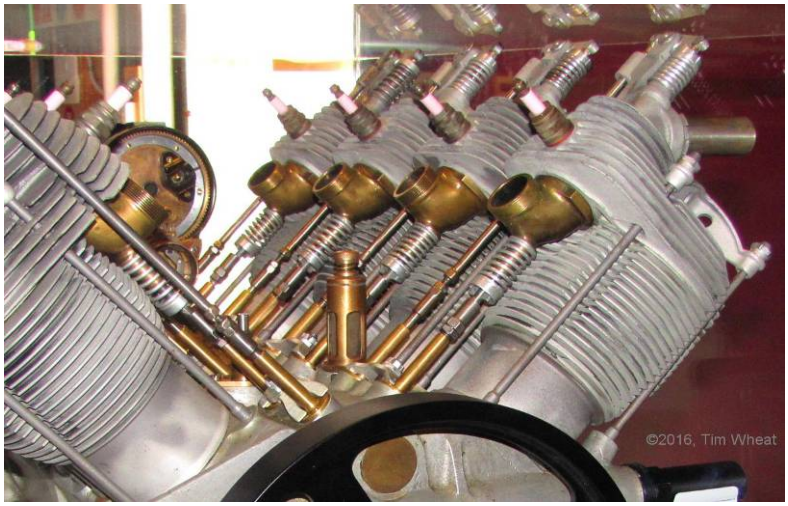
Apparently early planes were a bit unstable making them quite hard to fly particularly when coming in to land . Evidenced by the long skis out the front below and well in front of the propeller.

Later in the 1920's particular this engine was used in various marginally successful experimental aircraft built by Maurice Shorthorn and is now the only surviving example which makes it the 3 rd oldest Australian built aircraft engine in the world.

Technical Specifications

Cylinders	Upright air cooled V8
Cooling	Air cooled
Bore and Stroke	3.78in x 4.72in
Dry weight	396lbs
Inlet Valve	1 side valve per cylinder
Exhaust Valve,	1 overhead with pushrod & rocker
Fuel system	Petrol Single carburettor
Power Output	70 HP
Comp Ratio	4.12 : 1
Power to weight Ratio	5.6 lbs / HP

A far cry from the Bulldog with 40 hp and a weight of 7209 lbs

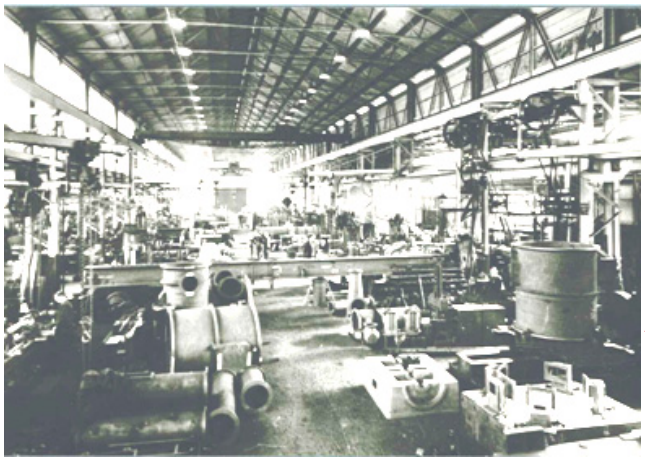


A good view of the cylinder and valve arrangement with all of the mechanism exposed

I was a bit surprised to find such an intricately made engine from a company better known for its rather crude farm machinery so decided to delve into their background a bit more.

Kelly & Lewis Ltd, a Melbourne based engineering company formed in 1899 through the partnership of Edward Lewis and George Kelly operated from Melbourne premises in Little Bourke Street . The partners gained a reputation of excellence for their products. Kelly and Lewis went on to become one of Australia's largest engineering firms, with half a century of experience manufacturing a diverse range of products from centrifugal pumps to air compressors, steam and internal combustion engines , power station condensers and structural steelwork, including machinery for the Spotswood Sewerage Pumping Station. Engine castings were made in Hobart.

Steel truss bridges of this type were made by Kelly and Lewis



In the 1920's a new production facilities and headquarters were set up on a 124 acre green field site in Springvale not too far away from were Bunning's is now .

In the late 1960's I had an Engineering Class visit to the Springvale works and I distinctly remember them machining up water pump castings big enough to walk through. They had the best pump design and flow test laboratory in Australia at that time . Pic Trove

Scienceworks Australian made KL Bulldog Tractor

Both during and immediately after World War II, Australia faced an acute shortage of tractors severely hampering agricultural production so , with governments keen to stimulate tractor production , they took on manufacturing a copy of the Lanz Bulldog .

It was not a great success as by the time it was put into production more modern post war models were becoming available and the hoped for good sales never eventuated.

In the meantime other heavy engineering products thrived , that was until the government substantially reduced import protection tariffs in the 1970's with the result local pump production plummeted By 1987 with the company in trouble they merged with Thompsons Engineering & Pipe company Castlemaine to become TKL pty . After a number of corporate mergers they became a subsidiary of the USA pump company Flowserve owned by BTR Nylex . The Springvale factory was subsequently closed and a smaller one branded Flowserve was opened in Mulgrave , just over east toll from MSTEC. So they are now one of our closest neighbours

Front view of Flowserve

Warwick Bryce

with acknowledgement to Moorabbin Air Museum ,as well as Flowserve and TKL websites.

Around the Club

Crane with new tyres fitted . Peter Morris pic

We have had a bit of trouble with those big black round things at the club recently .This became apparent when one of the back ones on the little mobile crane virtually fell to pieces. Not abuse or rough handling just that time has caught up with them . Checking showed most of the others where on the way out as well so Peter Morris used his connections and obtained a very keen price for a full set

Brian from BP tyres with his trainee Alistair fitting new tyres to the clubs crane. Peter Morris photo

Whilst having Tyre Fitters onsite new steer tyres were fitted to clubs KL Bulldog as they were in a poor state.

That raised the question just how old the Bulldog front tyres actually were ? Trawling the internet provided an insight.

This picture was found of Rob Blair driving the tractor years ago which shows the distinctive tyre tread pattern and their poor state then .
Found on Flika possibly Peter Lynch photo

This picture shows a very original Bulldog with the same pattern tyres

It is reasonable to assume they are the original factory fitting. Given that, we can hardly complain getting 75 years out of the tyres

By the way this sold for $13,750 2 years ago in WA .

Around the Grounds

The wet Summer meant there was no real wilting off and the following relatively mild winter meant there was no dormant period so everything round the grounds has been growing like crazy since then . As much time in our early days at Scorseby was spent trying to get vegetation established we are not really complaining as our grounds were an industrial wasteland without a blade of grass or a decent tree when we took over

Pumping the lake out Reg Murton Photo . Shed 7 can be seen at the far end of the lake. The trees visible in the background are across the road in Chesterfield farm .

Like lots of things the trouble can be traced to not enough or too much and now with the recent growth and high winds branches have come down and much cleanup has been needed. Fortunately the Morris boys came to the rescue and Peter has been very busy with his machinery making things spic and span again .

Peter Morris using his Zetor tractor with 3pl shredder attached mulching limbs fallen during heavy winds earlier in month. Aaron Photo

This pile was assembly by the Thursday crew

The limbs once turned into mulch have been spread on the embankment opposite Clydesdale station . Aaron Photo

This greatly reduces a pile of limbs to usable material also avoiding the need for another hideous burn pile.

That time of year again. The clubs wood spitter has been splitting logs and limb off cuts ready for future firewood. Arran photo

The front station area had a prune the following weekend. All the low hanging branches were chipped for mulched and usable limbs placed near the wood in the area for splitting.
Aaron pic and words

The front area after trimming. Aaron pick

Next time you are down at the grounds spare a thought for our wonderful Volunteers who rarely get the recognition they deserve and maybe see how you can chip in as well.

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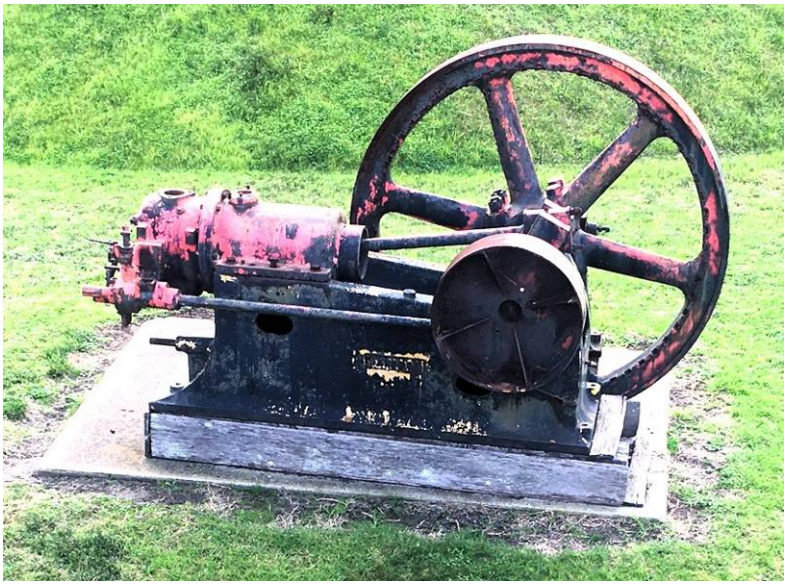
MORE " GARDNERING "

Actually following the recent arrival of the Gardner engine lots of feed back and reports of other Gardner engines **have come in .**

One in particular is the Queenscliff search light engine It is quite a monster with a cylinder bore of 10 inches and can be found in the historic Fort Queenscliff located on the western heads at the entrance to Port Phillip bay . This in conjunction with the Point Nepean fort, on the other side of the entrance, made Melbourne one of the most heavily guarded cities in the empire in the late 19 th century.



A view of the 28 HP Gardner engine today behind the revetment . Actually it is much bigger than it appears from this perspective with the top of the flywheel being well above the head of a man. Warwick photo

Arial view of Fort Queenscliff , the Gardner is just out of sight to the bottom left .

A key part of the defences were powerful electric lights at strong holds around the entrance to the bay to illuminate the area and assist with aiming the guns if necessary.

The old harbour defence shelter for the 60 inch search light post on the cliff below the fort Warwick photo

Originally the lights were powered by 2 steam engines in vaulted underground chambers which are now refurbished as a museum.

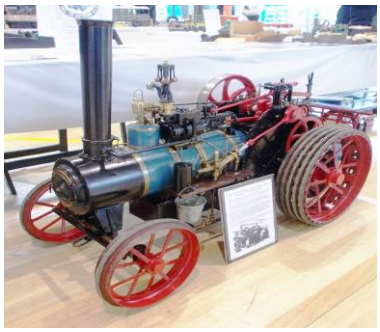
Continued Page 12

"LET'S MAKE IT" EXHIBITION Report

Spinning and Weaving attracted wide interest

This was again put on by our Model Engineer Friends and with the scope broadened to included just about anything anybody gets pleasure from making coupled with the refurbished facilities of the South Oakleigh college, all agree the show was an unqualified success. Following is a snapshot of some of the things to be seen.

Everyone above a certain age can relate to Meccano .
What was on display brought about memories of simpler and happier times for many of the visitors.



This superb large scale model of the Cliff and Bunting Traction Engine probably deserved more attention than it got given the significance of the prototype to Australia's Engineering development .

See front cover for a bigger pic
The information board advises

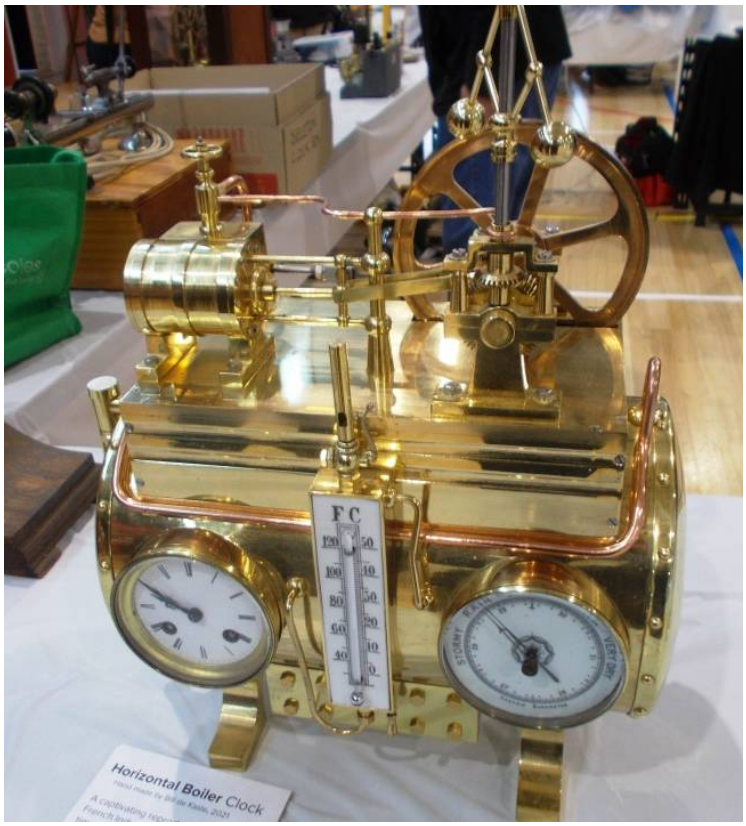
Cliff & Bunting were machinery manufactures of Elizabeth st North Melbourne specializing in a line of threshers and chaff cutters. In 1902 they became agents for O.S. Kelly traction Engines of Buffalo N.Y. in order to be able to offer complete thrashing outfits . Following introduction of import tarrifs they decided to develop their own traction engines .

It was a mixture of British and American practice but , unique to them , incorporated Ackerman steering (king pins like a car in contrast to the usual Billy cart steering using an axle that pivots in the centre.) It is debateable how many engines were built but records can only verify about 6 between 1907 and 1912 . (More details available on Museums Vic website.)

This model took 5 years to build and was based on the only surviving example that ended up in a derelict state at the Inglewood, Eucy distillery and is now preserved at Science works.

Unfortunately the modellers name is not given but he must be given great credit as modelling significant artefacts of Australia's industrial heritage , especially those that no longer exist or are not accessible is an important aspect of the hobby .

MSTEC member the late Peter Bucknell appreciated this and in the last stages of a long illness went to great pains to complete the first model of a Cliff & Bunting and write a booklet as a construction guide. This must have been in the early 1980's . This photo has been of great use to modellers .



Clock making displays are always popular and have visitors agog at the beauty , finish and function achieved when making parts that are so small you can hardly see them and move so slowly they appear to be stopped. This year there was a great variety but one in particular stood out with its combination of form function and beauty while satisfying those with a mechanical bend for steam . The accompanying information card says it all .

Horizontal Boiler Clock hand made by Bill de Caste 2021

A captivating reproduction of a French Industrial horizontal boiler timepiece and weather station by Guilmet Industrial clocks are a group of clocks with the subject based on machines , shipping and industry. The main designer and producer was the firm of Guilmet in Paris during the second half of the 19 th century .

Studying it carefully reveals it is in the form of a portable steam engine with horizontal boiler . The left wheel is a clock with Roman characters to show the time , The right is a Aneroid Barometer with scales for warning of weather . Between them , in the guise of water level gauge glass , is a mercury thermometer with scales in F and C . (I always chucle when the junior radio weather girl reports .." currently the mercury is 38 degrees " How long ago is it since you saw a mercury thermometer in a shop ? Now for the model itself careful inspection shows lots of scale plumbing , Horizontal double acting cylinder with slide valve even a Bevel gear driven flyball governor . Anyway that is not all , the owner moved a small lever and the whole thing chuffed around with piston reciprocating , Flywheel spinning and governor whirring to everyone's delight and amazement . No doubt there was more clockworks concealed in the boiler barrel !

What Next

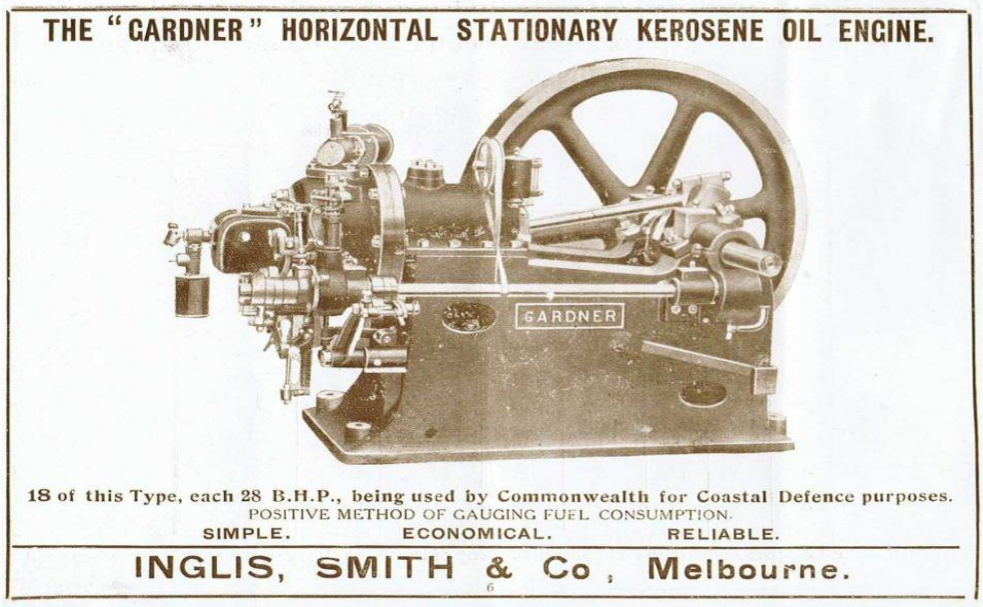
I hear a whisper that the next Make It Exhibition will be in 2 years which coincides with a significant date for one of their supporters so look forward to something special .

That said the Melbourne Model and Experimental Engineers will be celebrating their 100 th birthday next year and with no Make It exhibition a special effort is likely to go into their display at our March 2025 SteamFest so keep your eyes open or even get involved it will be something not to miss .

Gardners cont . ***Entrance to the underground engine room , it is heavily protected by brick revetments Warwick Pic*** →

In 1910 the steam engines were replaced by a pair of Gardners . These are believed to be No. 9 kerosene engines built in 1909 and would take about 30 minutes to start so were not completely satisfactory . In addition as time went on they were unable to supply the required full output to the newer lights that had been installed. Stories suggest spare parts for the engines were also becoming a problem so their days were numbered .

The tour guide could not tell me when the engines were pulled out but apparently 3 languished in a derelict state for many years in a yard . With the establishment of a museum at the fort the best of the remaining bits were assembled into one engine which can now can be seen above the underground engine room although now rather incomplete .



An Inglis Smith advertisement for the Forts large No 9 Gardner engines . ←

These larger Gardner engines of 6 H and above used a gear driven side shaft in contrast to the smaller engines which retained the twin eccentric rods until the end of production . Patrick Knight A to Z of British Stationary Engines.

Another Gardner advertizment by Inglis Smith and Company of Melbourne declaring that after extensive trials they had been adopted exclusively for Commonwealth defence leaving the impression they were well backed up and good. Darryl Killingsworth ↓

Our engines did have their moment of glory thought . The order to fire what turned out to be the first Allied shot of WW 1 was issued from the Fort . This was across the bow of the German freighter Pfalz, as she was attempting to escape to sea on learning that war had just been declared a few hours before.
The ship was subsequently requisitioned and the crew interned for the duration of the war .

Warwick Bryce

Acknowledgement Queenscliff Fort . Darryl Killingworth, Patrick Knight

The "GARDNER" ENGINES.

THE "GARDNER" ENGINE is the result of many years' experience and close study of internal combustion engines. The present output is now about 4000 per year in sizes varying from ¾ to 200 B.H.P. The experience we have gained in the testing of these engines is, to say the least of it, very considerable. This, in addition to constant experiment in the way of research, has led us from time to time to introduce many valuable improvements, and the result is that our present engine is a perfect machine.

After most exhaustive trials of practically every make of engine, the "Gardner" Engines have been adopted **exclusively** for Coastal Defence and other purposes by the Commonwealth Government on account of their superiority as to Reliability, Simplicity, Low-running cost, Non-carbonising and general High class Material and Workmanship.

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