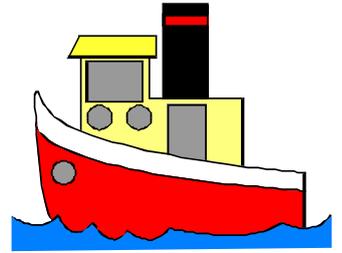


Wheels and Floats



Newsletter December 2017

TAURANGA MODEL MARINE AND ENGINEERING CLUB INC.

The Secretary
PO Box 15589
Tauranga 3112

Palmerville Station Phone 578 7293

Miniature Railway Memorial Park
Open to Public, weather permitting
Sundays in Summer: 10am to 4pm approximately
Winter: 10am to 3pm approximately
Website: www.tmmecc.org.nz

MEETINGS

General Members Meeting every first Tuesday 7pm.
Committee Meeting every second Thursday at 7pm.
Maintenance Tuesday mornings from 9am.
Engineering discussions Tuesday evenings 7.30pm.

COMMITTEE

President: Peter Jones 543 2528
Vice President: Russell Prout 5482881
Club Captain: Bruce McKerras 5770134
Secretary: Rachael Duncan
Treasurer: Owen Bennett 544 9807
Committee: Warren Belk, Shane Marshall,
John Stent, Jason Flannery
Bruce Harvey.
Boiler Committee: Peter Jones, Bruce McKerras,
John Heald, Paul Newton.
Safety Committee: Warren Karlsson, Bruce Harvey,
Peter Jones, Russell Prout, Mark
Duncan
Editor: Roy Robinson 07 5491182
royrobkk@gmail.com

CONVENERS

Workshop: John Nicol
Track : Bruce Harvey, John Stent,
Russell Prout
Marine: Warren Belk
Librarian: John Nicol
Rolling Stock: Murray de Lues
Website:
Driver Training: Bruce McKerras
Club Captain: Bruce McKerras

OPERATORS 2017

17 December M De Lues
31 December B Harvey
7 January N Bush
14 January B Harvey
21 January P Jones
28 January D Harris
4 February B McKerras
11 February R Salisbury
18 February N Bush
25 February M De Lues
4 March M Duncan

Presidents Report

Greeting Members

Sadly I must report the passing of one of our strongest members, Clive Goodley. Clive had been battling with health problems for quite some time and been quite open and honest about his health issues. Clive placed our club second

after family gifting his time generally two to three times a week working on ride cars for our club as well as carrying out training and certification of our drivers, carrying out operators duties and involvement on our committee holding the office of treasurer and co treasurer for a time, newsletter editor, ticket seller, the list goes on. Clive was given life membership in appreciation for the work he did for our club. To Wife Sheila and family I offer our sincere condolences.

Thank you to the members who turned out at our last playday to celebrate Ron Salisbury's 90th Birthday and the presentation of a life membership certificate to Lloyd Breckon. Our City Mayor Greg Brownless and partner Li-Jong Liao, also Councillors Bill Granger and Catherine Stewart joined us for the event and their support and recognition of service of both Ron and Lloyd over the last 30 years is appreciated. It was the best turnout of a playday we have ever had and demonstrated the support within our club. Murray turned up with the show case he crafted for the late Eddie Evans Heisler locomotive, out of swamp Totara thousands of years old, an absolutely splendid effort and a real asset to our club.

The Nelson convention is rapidly approaching and we have a good club contingent planning to attend. Unfortunately work commitments prevent me from attending so I have asked Vice President Russell Prout to represent me at the MEANZ meeting. I wish Convention Organisers all the very best I am sure it will be a very successful event.

Finally Merry Christmas to our members and families, have a relaxing time and all the very best for the coming year 2018.

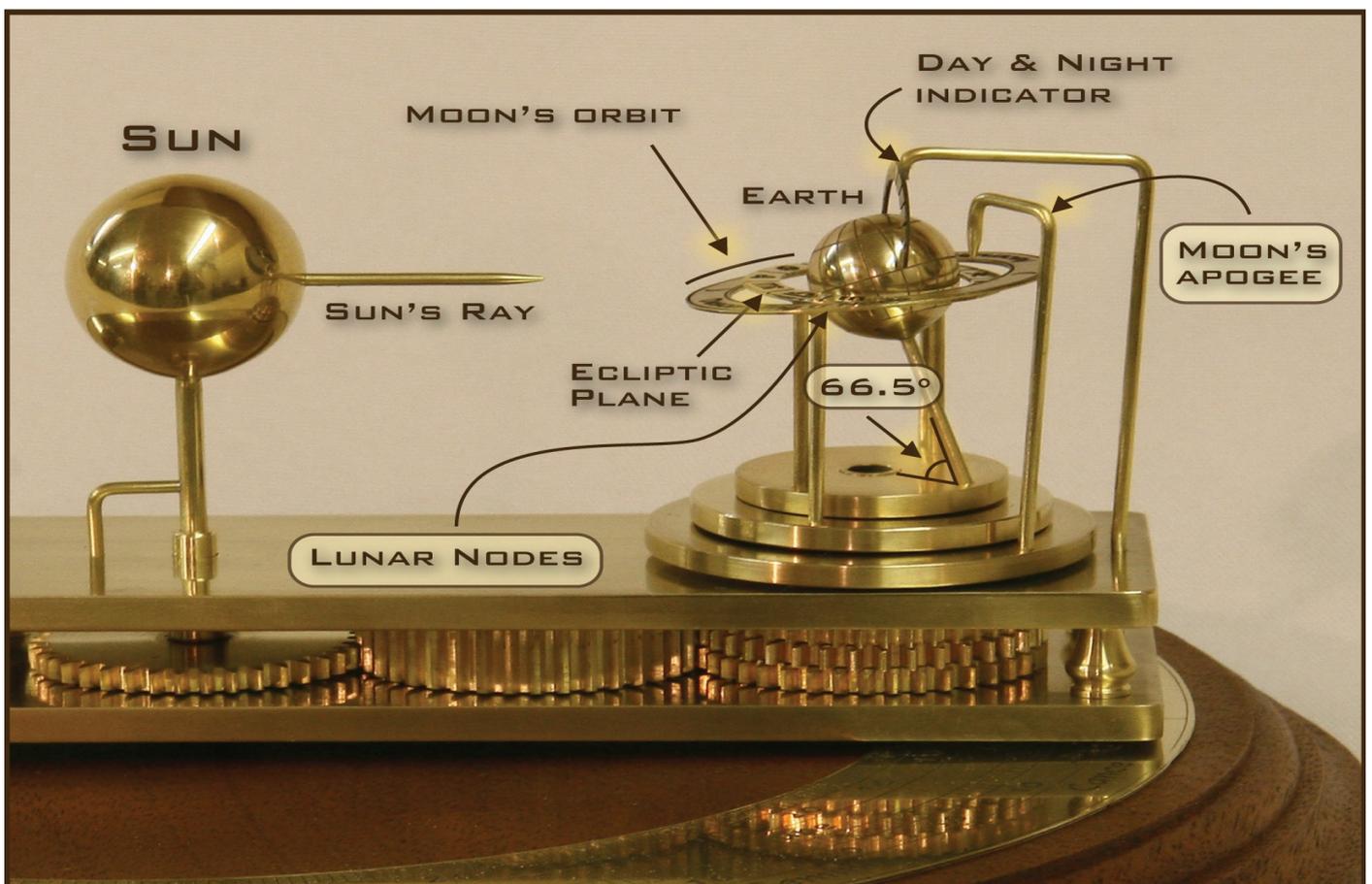
Best Wishes

Peter Jones

Ferguson's Mechanical Paradox

At last months "Show and Tell" I displayed the Orrary which I had built. Judging by the queries and comments I have received it is quite clear that I did not explain the mechanics at all well!!!

This device was "born" in 1764 by James Ferguson to be used to demonstrate in lectures on the solar system. The Orrary demonstrates how the Earth maintains its orientation as it orbits the Sun, why seasons happen, summer and winter are reversed between hemispheres, how an eclipse can happen.



Getting down to the paradox:

You will note the 3 plains beneath the Earth and above the top plate on the right hand side. Each of these plains is connected to one of the 3 gears between the two plates directly below the Earth. The gear below the Sun (left hand side) is fixed to the base and does not rotate. As the assembly is rotated the fixed gear below the sun turns the intermediate gear which in turn turns the 3 gears beneath the Earth. Now as you all know a gear of a certain diameter and a certain DP will have X number of teeth. In the Orrary all gears are of the same DP. The 3 gears below the Earth mate to and with the intermediate gear so will have the same number of teeth.

Well how and why do the plates which the earth , nodes and apogee turn at different speeds?????????

The answer is that the 3 gears below the earth do have differing numbers of teeth, one has 1 less one has 2 more. When one looks at the Orrary the visual difference hardly noticeable but the demonstrated difference is intriguing. Evidentially the ratios are all but correct so the Orrary does demonstrate actually what happens up there in the heavens.

Roy Robinson

Editors Efforts

Firstly many thanks to those of you who have provided script for this magazine. Without your efforts it would be a very boring few sheets.

We (Barb & I) wish yous all a

Merry Xmas

and a great festive time with family and friends.

See ya sometime on the track!!!!

Editor Roy

Thanks

The family of Clive Goodley would like to thank everyone for their cards and good wishes after the loss of their husband, father and grand father.

A special thank you goes to those who travelled to the funeral in Cambridge and to Peter Jones for his lovely words about Clive. All the family appreciated it very much. It is nice to know he will be missed.

Once again thank you all and good luck for the future of the club.

Sheila Goodley

Member profile, Russell Prout.

Born in New Plymouth in the early fifties, I lived most of my first 20 years in a radius of about 2km. I attended West End Primary, Devon Intermediate and Spotswood secondary school.

My first job was part time plumbing, heating and ventilating. I was offered an apprenticeship doing the same but after many blocked drains, working on old buildings and being left on a job by the foreman and getting a 230v shock from bad earthing under a house, I decided the plumbing life wasn't for me.

I chose instead to do an apprenticeship with McKechnie Bros who extruded copper brass and aluminium (nowadays it is only Ali.) it was here that I found a great source (and cheap too) of scrap metal and started building my 1/2" to 1ft model of the tug 'Moorcock', a project which still has some outstanding work to be done, no rush tho'

Not so long after completing my apprenticeship I moved on to Shell Todd where I took on a lead design role working at that time on a drawing board. I spent 21-1/2 years on and offshore in many roles but the most enjoyable involved turn key engineering design, contract and builds. One of the last projects was a 1000 tonne Butane storage system consisting of 4- 55m long x 4m diameter low temperature (slim) pressure vessels concealed beneath a purpose built sand mound paved on the outside. Viewable from the top of Mt Egmont (Taranaki) and can be seen on Google Earth, I chose to pave the company logo and initials 15m high x 55m long on the side of the mound.

By this time I was married and a proud father of 4 children. This became a significant influence on my professional career as I had worked very long hours and spent little time with family so it was time to move on.....In 1998 Australia was on the journey (but at that time not the destination) and a possible destination was Aberdeen, Scotland where considerably more oil and gas work was available. By the time we made it to Perth (W.A.) the weather and a the potential of a weeks work signified the start of another experience. Within a week all 4 kids were enrolled at the same school, we had a place to rent and I had some work....that one week turned into a year. By this time we had moved house and bought our piece of WA.

Working between the mining and oil and gas sectors I was kept very busy, yet again. The last 7 years (up till 2013) working contract for Woodside Energy I enjoyed some of the most challenging and rewarding aspects of my professional career. Woodside operated facilities onshore and offshore between Perth, Broome, North West of WA and Darwin. These facilities included FPSO's (Floating Production Storage and offloading facilities) very large tankers with processing

facilities on theme to separate the oil from the gas), fixed offshore platforms and subsea structures and pipelines. Many of these facilities were built when Saturation and air diving operations were the preferred means for installation and maintenance. ROV's (remote operated underwater vehicles) were relatively new and very low powered so not ideal for intervention works. These days ROV's have 150-200HP, two manipulators, massive lighting and sonar for navigation, high definition cameras and even instruments for monitoring sea conditions etc. These vehicles are now capable of many activities (when combined with surface cranes) to perform many activities previously carried out by divers so much so that many DSV's (Diving support vessels) are now equipped with two work class ROV's. Working with ROV's requires different thinking and planning to enable intervention on subsea assets to be carried out. Unlike divers ROV's have no touch or grip pressure feedback so fragile items (like cables and hoses) can be easily crushed or damaged. On the other hand an ROV is not so depth dependent so can move freely between locations in varying depths of water up to approx. 10,000ft or 3,000m. With the right design, structures can be lowered to depth by a DSV crane and located by ROV, released by ROV and even hooked up by ROV. All this with low risk (as opposed to diver activities).

Unlike working on buildings, foundations or fabrication, you cannot walk up and check dimensions, get a new perspective or share the location with your team. Working beneath the sea requires intuitive and mind visual experience and when the cost of operating on a daily basis can be upwards of \$750k/day, costs can escalate rapidly if rework is required during the offshore operations. For this reason the cost of preparation works onshore is often extensive with mock-ups, trials, training etc, even to the point where mock ROV trials are carried out as well. These can be video recorded and be seen by the team but huge structures and a great deal of expenditure is necessary to mimic what is expected to be found subsea.

I have developed many tools for use by ROV (and divers) to perform tasks not previously considered achievable by ROV and whilst these have been very satisfying the most rewarding of all my works to date would have to be taking my design for a handling system and turning it into a \$75 million dollar cash saving to the company and it was above water on an FPSO riser system used to return high pressure well fluids (oil and gas) to the surface from wells 400m below on the seabed..

This project started with a request from one of the management team, "we know we have a damaged outer sheath on a flexible riser, but can it be repaired insitu?" The leak was just above water level and inside a 500mm diameter pipe (the need to be very slender and tread water was critical), The answer of course was yes, but then I had to back that up.

A flexible riser may be used to convey hydrocarbon (oil/gas) from a well several kilometers away

subsea and in 400m of seawater up to and FPSO with internal pressures of 2-3000psi. These lines are very expensive to purchase and even more expensive to install often requiring a shut-down of the facility, disconnect of the FPSO from the mooring system and use of massive winches and a DSV alongside to carry out the repair.

Well in my case I developed a system of ball jointed collars that are clamped (in much the same way a your spine articulates) to the outside of the flowline , raised by two 50t bespoke jacking system and capable of being bent around the steelwork structure that existed within the mooring buoy system. As a result, with no loss in production, no disconnect of the FPSO from the mooring, no DSV alongside, I successfully pushed the end of the 300mm dia flowline (otherwise unsupported) up 10.5m in the air to a point where the outer sheath of the flowline could be repaired, flowline tested and then lowered back into position. All this in just 4 days offshore with no hot work. An achievement that was recognized by the company CEO as having saved the company \$75 million dollars. Of course I had my support team and an enormous list of doubters who from the outset said this could not be done. I was very pleased and satisfied to quietly prove them wrong and present a worlds first in doing so.

Not everything pails into insignificance after that but it was a highlight and after several more worlds firsts (of much lesser value) the demand on my time and wish for my family to return to NZ, I left this ongoing work to others and set up camp in Tauranga.

Soon after my return to NZ I became aware of the activities of the Tauranga Marine and Model Engineering Club, fronted up to a Sunday operation, was nominated, accepted and became a paid member of the club on that day. The rest they say is history, well for me it is just the beginning and I look forward to many more rewarding times with fellow modellers, I hope for a very long time.

Russell Prout

I wish to thank Graeme Carter from the NZ Railway Observer for the following article. Roy Editor

A & G Price Ltd

Wednesday 26 July 2017 was a sad day for the New Zealand engineering industry when A & G Price Ltd of Thames was placed into liquidation. For 149 years the company had been at the forefront of heavy engineering projects in New Zealand and throughout the world. Graeme Carter reviews the company's long history and particularly its association with rail.

ALFRED AND GEORGE

Alfred Price was born in Stroud, England, in 1838 and started work as an apprentice pattern maker at a nearby engineering works. In 1863 he emigrated to New Zealand, arriving in Auckland on 13 December. While travelling to New Zealand he became friendly with a young Scot, John Watson. Alfred soon took up a job with an Onehunga ironworks.

In 1867 Alfred returned to England, married and returned to New Zealand with his new wife and younger brother, George. George was born in 1843 and had completed an engineering apprenticeship. On arrival back in Auckland the two brothers became chief and second engineers on a coastal steamer plying between Onehunga and Hokitika. Early in 1868 they established an engineering and foundry business in Princes Street, Onehunga, trading as A & G Price. They quickly recognised the demands of the flax industry and designed a small flax-dressing machine. In their first year in business nearly 100 machines were built. Staff began to be employed and by 1870 23 men were employed. With such a rapidly expanding business the brothers started to tire of the office work and employed Alfred's friend, John Watson, as the accountant. The Price and Watson families were closely associated with the business for the next 85 years.

As well as providing equipment for the flax industry, the brothers started to do engineering work for the gold mining industry, particularly in the Thames area. Such was the demand from gold miners that A & G Price transferred the bulk of their operations to Thames in 1871.

The Onehunga establishment was retained, concentrating on the needs of the flax industry. At the time of opening of the Thames works, the first railway contract was awarded to A & G Price. Prices built for the Public Works Department three first class carriages at £192 14s each, seven second class carriages at £162 14s each, and 12 wagons at £100 each; a total contract price of £2916 2s (\$383,000 in 2017 dollars). With the completion of the Onehunga branch rail line in 1873, a short spur was laid into the Price works, enabling the delivery of rolling stock. With the completion of this contract, the Onehunga works were closed.

THAMES

The brothers constructed their first building at Beach Road; this is still the site of the works, in the middle of the gold field. It was also the boom era of gold mining in the Thames area, with the works supplying pumps, water wheels, and stampers to the mines. Within a few years of shifting to Thames the workforce had risen to 70. Servicing the gold mines was not the only engineering activities of A & G Price.

Sawmilling became a boom industry from the 1870s, concentrating on the kauri forests of Northland and Coromandel. Prices became active in supplying that industry with timber jacks, boilers and sawmilling machinery. Throughout its life, A & G Price made over 25,000 timber jacks.

Marine engineering was also another area that interested the brothers, and in 1875 a compound steam engine was built for a coastal vessel, *Durham*. This was followed by the construction of boilers, and in 1881 shipbuilding started.

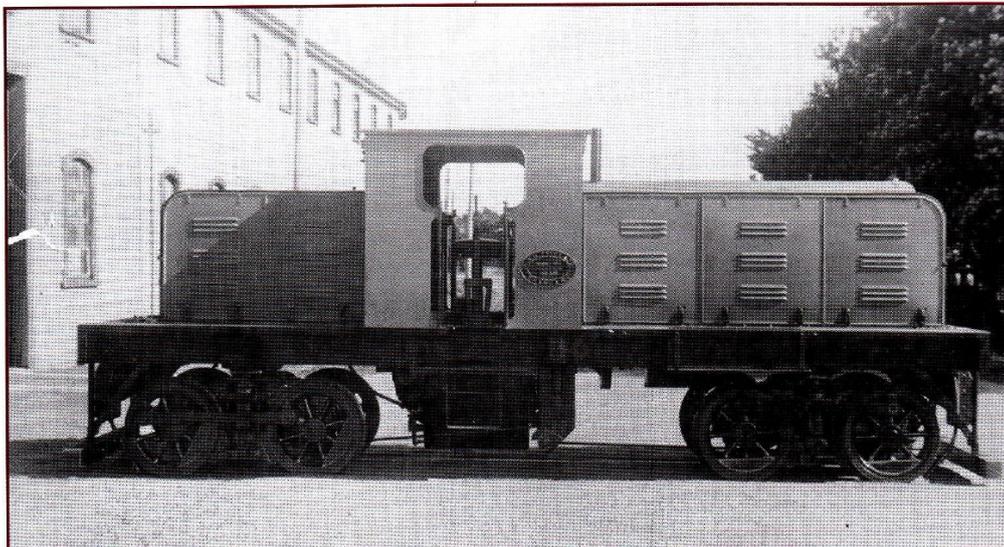
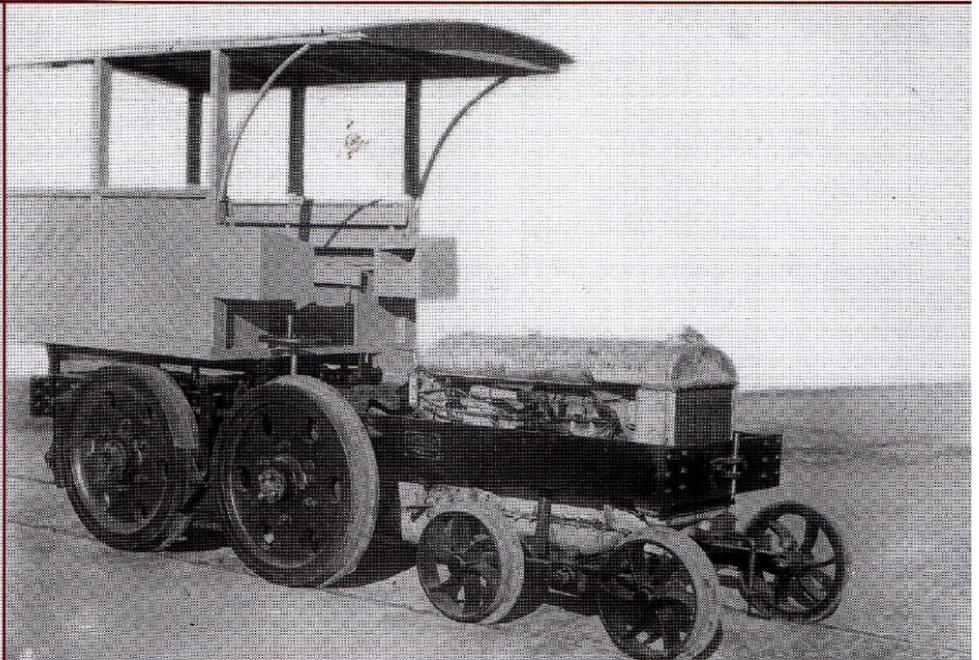
As well as manufacturing engineering equipment for a variety of industries throughout New Zealand, A & G Price would erect such equipment. They sent men to Ross to erect a stamping battery. To help supply the firm's ever expanding demand for steel, A & G Price began buying worn rails and steel tyres from N Z Railways to melt in the furnaces.

NZR STEAM LOCOMOTIVES

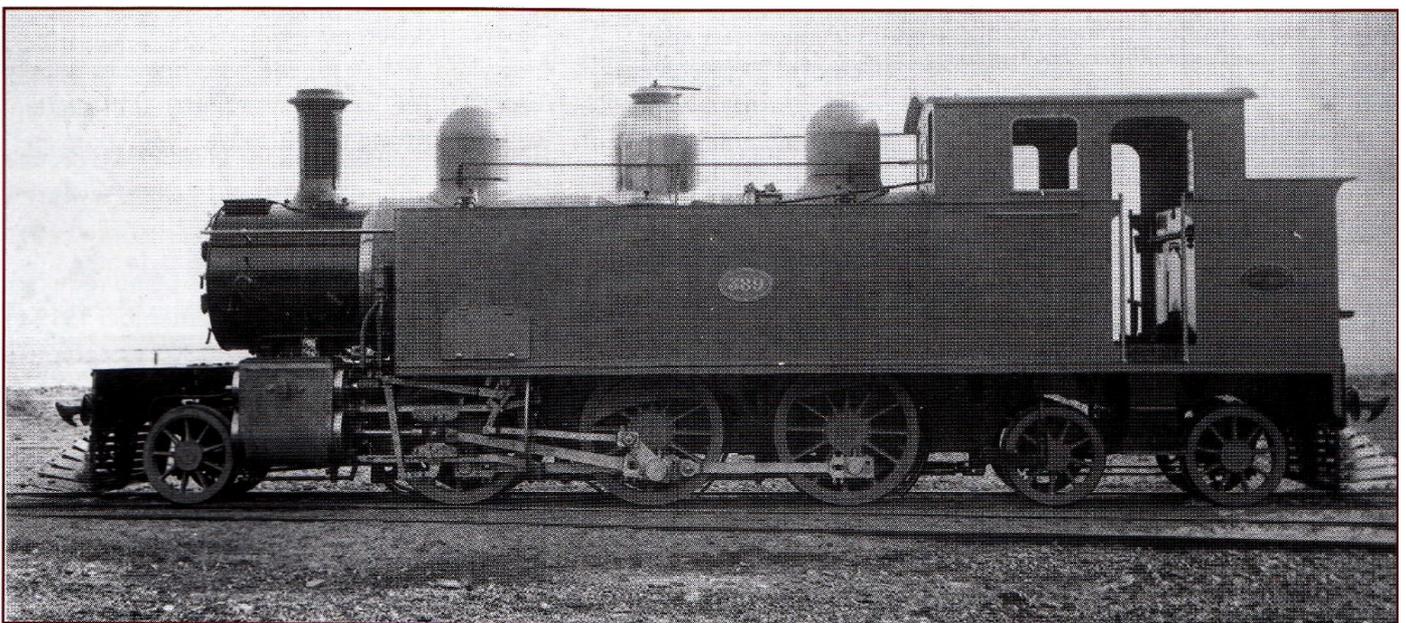
It was Price's association with gold mining that gave them their start in locomotive building. In 1885 A & G Price was involved with a goldmining operation at Waiorongomai that had a tramway linking the mine with their crushing battery. To haul the trucks of quartz to the battery a small locomotive was required, and Prices agreed to build it. This 0-4-0 locomotive was a geared type with horizontal cylinders. It had two cylinders of 6 inches diameter and the boiler had a working pressure of 110 pounds per square inch. The locomotive lasted longer than the gold mine, for it was later used by the Public Works Department in the South Island before being scrapped in 1917.

Although the Thames Branch railway was opened in 1898, it was 1903 before A & G Price would build another locomotive. N Z Railways was in urgent need of motive power, and its own workshops could not keep up with the demand. Railways called tenders for the building of ten W^F tank locomotives. Prices tentatively put in a bid for the work as the firm had not handled a contract of this type or scale before. To everyone's surprise the Price tender was accepted. On 17 July 1903 a contract was signed to build the ten locomotives for a total cost of £28,000 (\$4,870,000 in 2017 dollars). The first locomotive was to be delivered to Thames railway station within 12 months and the other nine locomotives were to follow at two-monthly intervals. N Z Railways agreed to supply all wheels, axles and tyres, crankpins and other components.

*One of the Joughin lokeys built in the mid-1920s based on a Fordson petrol tractor.
Photographer unknown, NZRLS Archives*



*Wanganui Sash and Door's diesel lokey, built in 1939, poses for its maker's photograph outside Thames Works.
Photographer unknown, Richard Stratford Collection*



*The first of a line. Wf 389, the first locomotive built for NZ Railways, photographed at Thames in 1904 before delivery to NZR.
Photographer unknown, NZR Publicity, NZRLS Archives*

In anticipation of winning the tender, Alfred Price had sailed to England to obtain materials for the contract. Before he left Thames he arranged for John Watson to send him a cable with one word – carat – if the Price tender was accepted. Alfred duly received the cable. He was then able to place orders with English manufacturers for steel castings, boiler tubes and plates, and Yorkshire iron for the forgings. He also purchased new tools for the job.

Back in Thames, George Price and John Watson were busy extending the works to allow the new work to begin. George Price's son, George Junior, had recently re-joined the business after spending more than two years in Britain working in shipyards, and in the United States working for Baldwin Locomotive Works.

The first locomotive, W^F389, was placed in service in September 1904 and the Government Inspector, M E L Haskins, was very complimentary about the workmanship and performance of the locomotive. The last locomotive in this contract, W^F 398, went into service in June 1905. Following this job, the Public Works Department placed an order for two W^F locomotives to be used for railway construction.

In 1906 the Government called for tenders for 20 A class compound locomotives and A & G Price were successful with a contract price of £79,960 (\$13,088,000 in 2017 dollars). These locomotives were delivered to NZR between 12 December 1907 and 2 December 1909. Another successful contract soon followed, this being for ten A class locomotives, delivered during 1910 and 1911 for a cost of £41,480 (\$6,928,000 in 2017 dollars). In 1911 A & G Price began negotiations to build 10 locomotives to be known as the A^D class, but the contract was increased to 20 locomotives with delivery to NZR between 1912 and 1914. In 1915 these locomotives were reclassified as A class.

By 1914 the demand for greater locomotive power was increasing, and in that year NZR asked A & G Price to build 20 B^B class locomotives, mainly for North Island goods traffic. The order was increased by 10 in 1916, and so all of the class were built at Thames.

During World War I there was a skill shortage, and Prices were forced to pay their staff higher wages than had been allowed for in their NZR contracts. After some negotiations, it was agreed that the price for each locomotive would be increased by £500. Then, in March 1917, NZR advised Prices that, owing to the requirements of the British Ministry of Munitions, they were unable for the time being to supply wheels and axles for the locomotives under construction. The matter was resolved and the B^B contract was completed in 1918.

TROUBLESOME A^B CLASS CONTRACT

The return to peace saw more locomotives being required, with A & G Price obtaining a contract in September 1919 to build 20 A^B class locomotives at a cost of £6,305 a locomotive (\$622.880 in 2017 dollars).

A major programme of purchase and rebuild of machinery and buildings at Thames resulted in a strain on Prices' finances with Will Price, the company's Chairman, having to negotiate an increase in bank overdraft from £9,000 to £50,000 in September 1920. The bank would however only agree to half of the proposed increase. As well as heavy plant expenditure, wage rates were also increasing sharply. These two events caused Will Price to ask NZR to cancel the contract and agree to amended conditions. A new agreement was drawn up for the 20 locomotives to be built for a price of £11,400 (\$1,038,365 in 2017 dollars) each. The new contract also included an escalation clause for wages, to be fixed by the Arbitration Court.

Financial troubles continued with A & G Price's bankers requesting that NZR make progress payments on this contract. In May 1921 Railways' General Manager told Will Price that, owing to the tightness of money and the Department's heavy financial commitments for locomotives that were being built in United Kingdom, NZR could only take delivery of a maximum of four locomotives during 1923. The General Manager did promise to give Prices as much repair work as they could handle.

It was not all bad, for in 1922 NZR asked A & G Price to build another 20 A^B class locomotives for £11,400 each, with four to be delivered that year and the balance of no less than four each year after. Progress payments were agreed to.

During the 1920s economic conditions improved and A & G Price was allowed to increase production. Five locomotives were delivered in 1923 and seven in 1924. On 20 November 1924 A^B705 left the works as the 100th locomotive built by A & G Price. By 20 June 1926 all 20 locomotives in this contract had been delivered to NZR; the contract had taken nearly eight years to complete, compared with two years for 20 A class locomotives 16 years earlier.

FAY-RAVEN REPORT

One of the recommendations of the 1924 Fay-Raven Report that investigated all aspects of NZR's operation was that all locomotive repairs were to be done at either Petone or Addington and that 'all locomotives be purchased from outside sources, rather than built in existing shops which are not laid out economically'. NZR management set about modernising and building new workshops with the intention of becoming self-sufficient in the manufacture of locomotives and wagons. The recommendation and implementations were to have a major impact on A & G Price.

Five months before the Fay-Raven commission was appointed, A & G Price had obtained a contract to build eight W^{AB} class locomotives, delivered between 1926 and 1928. This was to be Price's last steam locomotive building contract, and it would be 1955 before another locomotive contract with NZR was obtained.

STEAM LOCOMOTIVE OVERHAULS

With the loss of locomotive building contracts, Will Price made representations to the Minister of Railways, Gordon Coates, and was promised locomotive and wagon repair work and also the opportunity to tender for new shunting locomotives. Wagon repair work started immediately, but new locomotives would have to wait 10 years.

Steam locomotive repair work began in 1946 and lasted until 1964 when A^B816 left the works. 155 steam locomotives were overhauled at Thames, with the 100th being A^B717 which left the works in November 1958. The classes overhauled were mainly A^B, but also B^B and A.

WAGONS

In the 1920s Prices built several petrol tanks that were fixed to U^B double-bogie flat wagons and were used by oil companies, such as Shell and Plume (later Mobil). The tanks were 30 feet long, six feet six inches in diameter and carried 6,000 gallons of fuel. History repeated itself in 1964 when Prices built several more petrol tanks mounted on rail wagons for Mobil. By this time the tanks were 42 feet long and carried 4,280 gallons of fuel.

In 1957 A & G Price gained a contract from NZR to overhaul wagons, principally L^A wagons. This was due to a backlog of wagons waiting to be repaired at NZR workshops. A section of the works was equipped and staffed for this work, enabling up to 10 wagons a week to be overhauled. In the early 1960s an average of 315 wagons were repaired each year. This work continued until 1988 when a rapidly changing rail scene, as a result of land transport deregulation, meant NZR could carry out all their wagon repairs themselves. The rail connection between the Price works and Thames, known as North Thames Branch, was severed shortly afterwards.

A & G Price was awarded a contract in 1960 to build 100 L^C wagons and this was later increased to 400. These wagons were built at a rate of four a week.

INDUSTRIAL STEAM LOCOMOTIVES

While Prices' first venture into locomotive building was for industry in 1885, it was not until 1912 that geared lokeys for the sawmilling industry were built. Between then and 1943 twenty lokeys of nine designs were built, and they saw service on bush tramways throughout New Zealand.

The first bush lokey was a 0-4-4-0 with second-hand boiler and a twin vertical engine in the cab. It was built for B L Knight, sawmiller of Raurimu, and was known as a Price C class.

Then followed four 16-wheelers built in 1912 and 1913. The first two were delivered to Ellis and Burnand at Manunui, the third was ordered by Mountain Rimu Timber Co of Mamaku and the fourth was for Auckland Rimu Timber Co of Ngongotaha. The two Ellis and Burnand lokeys had 20 inch diameter wheels, while the other two had 24 inch wheels. The second Ellis and Burnand lokey was named *Matilda* and cost £850 (\$139,880 in 2017 dollars).

There was a gap in building until 1921 when another C class was built, but with improvements, for Watkins Bros of Kakahi. One year later another C class was delivered to Taringamutu Totara Sawmilling Co of Taringamotu, near Tauramarunui. Also in 1922 a D class was built, a smaller version of the C class, and this lokey was delivered to Matawai Co-op Sawmilling Co of Matawai.

A & G Price closely followed trends of United States-built bush lokeys and designed the New Zealand versions of these lokeys. In 1923 Prices built two of their E class 0-4-4-0 wheel arrangement, which were similar to the American Climax lokey with inclined outside cylinders. The first of the class was built for National Timber Company of Ngongotaha and the second for Selwyn Timber Co of Mangatapu. Also in 1923 Steele Bros of Mamaku took delivery of a Ca class, which was an improved C class with an enclosed cab and bogies fitted with side rods.

Another improvement on the C class was the Cb, again with a 0-4-4-0 wheel arrangement. Two were built in 1924 and two in 1927. They were delivered to Tunnel Timber Co of Tapuwae, Rotoiti Timber Co of Rotorua, Auckland City Council, and Gibbs and Trevor of Hihitahi.

The largest bush lokey built by A & G Price was delivered to the Marlborough Timber Co of Port Craig in 1926. It was Prices' Ar class and again had a 0-4-4-0 wheel arrangement. The lokey was a Meyer type with the double bogies having a two cylinder engine on each bogie, driving through gears to the axles.

In 1929 a Cba class was delivered to Jack Bros of Kotuku, this lokey being a development of the Cb class with the fuel and water bunkers carried behind the cab.

Two more E class lokeys were delivered in 1936 and 1937. George Syme of Edgecumbe took delivery of their lokey in 1936 and Taupo Totara Timber Company (TTT) took the last class E built by A & G Price in 1937. The TTT lokey had an enclosed cab and a higher boiler pressure than the other E class lokeys built.

Prices' last steam bush lokey was built in 1944 for Ogilvie & Co of Gladstone. Known as the V class it was a completely different design to others produced by A & G Price. It had a 0-4-4-0 wheel arrangement and had two cylinders in a Vee formation, similar to the Heisler lokey. Prices did not build the cab or fuel and water bunkers on this lokey; these were built by the sawmiller. It is thought that this lokey was the last geared steam lokey to be built in the world.

NON-STEAM LOCOMOTIVES

A & G Price, while very involved in steam locomotive building in the 1920s, was also very aware of internal combustion as a source of rail power. Between 1924 and 1971 94 petrol, diesel and battery-electric locomotives were built at Thames. At least five railcars / personnel carriers were also built for use on bush tramways between 1925 and 1949.

The first non-steam locomotives were built to a patent held by Robert Joughin, a contractor at Waikino. It had a 4-4-0 wheel arrangement and was essentially a petrol Fordson tractor with flanged wheels. Four of these patented designs were built between 1924 and 1926. In 1929 a 0-4-0 petrol locomotive was built for the Public Works Department in Taumarunui, using a Fordson tractor. Its design was similar to the first T^R locomotive built by NZR in 1924. The Public Works locomotive must have been a success, for NZR ordered a similar locomotive later in 1929 for its Penrose maintenance depot.

During the 1930s A & G Price built seven petrol and diesel locomotives, both for NZR and industry. At the same time the design of the locomotives improved throughout the decade. The last locomotive built in 1939 was for Wanganui Sash and Door Company, used at their Erua mill. It was a 0-4-4-0 centre-cab powered by a 127hp Gardner diesel engine. The locomotive had air-operated brakes and friction clutches and had four speeds in each direction. Ball or roller bearings were fitted wherever possible. The locomotive weighed 18½ tons. It was similar to a diesel-electric locomotive built by Heisler in the United States in 1931.

During the 1940s six small 0-4-0 petrol engine locomotives were built, four for the Royal New Zealand Air Force for use at their bases.

The early 1950s was a very active period for small diesel and battery electric locomotives. Five diesel locomotives of 3 feet gauge were built for the Ministry of Works for use in building the Rimutaka Tunnel. Seven battery-electric locomotives, also 3 feet gauge, were also built for the same project. Three 6½ tons 2 feet gauge diesel locomotives were built for the State Coal Mines at Ohai. Finally in 1952 two battery-electric locomotives of 2 feet gauge were built for the Auckland City Council for use on sewerage works.

THE T^R ERA

In mid-1956, NZR placed an order on A & G Price for ten 107hp (15 ton) and five 150hp (20 ton) diesel T^R shunting locomotives. On 14 November the same year, the Minister of Railways took delivery of the first locomotive, a 107hp model, appropriately numbered T^R100. To assist with the construction of these locomotives A & G Price engaged R J (Reg) Gard as a consultant. Reg had recently retired as NZR's Assistant Chief Mechanical Engineer, and at Prices designed and supervised the building of the T^R Class.

This article will be continued in future mags

NIML kids Xmas Party

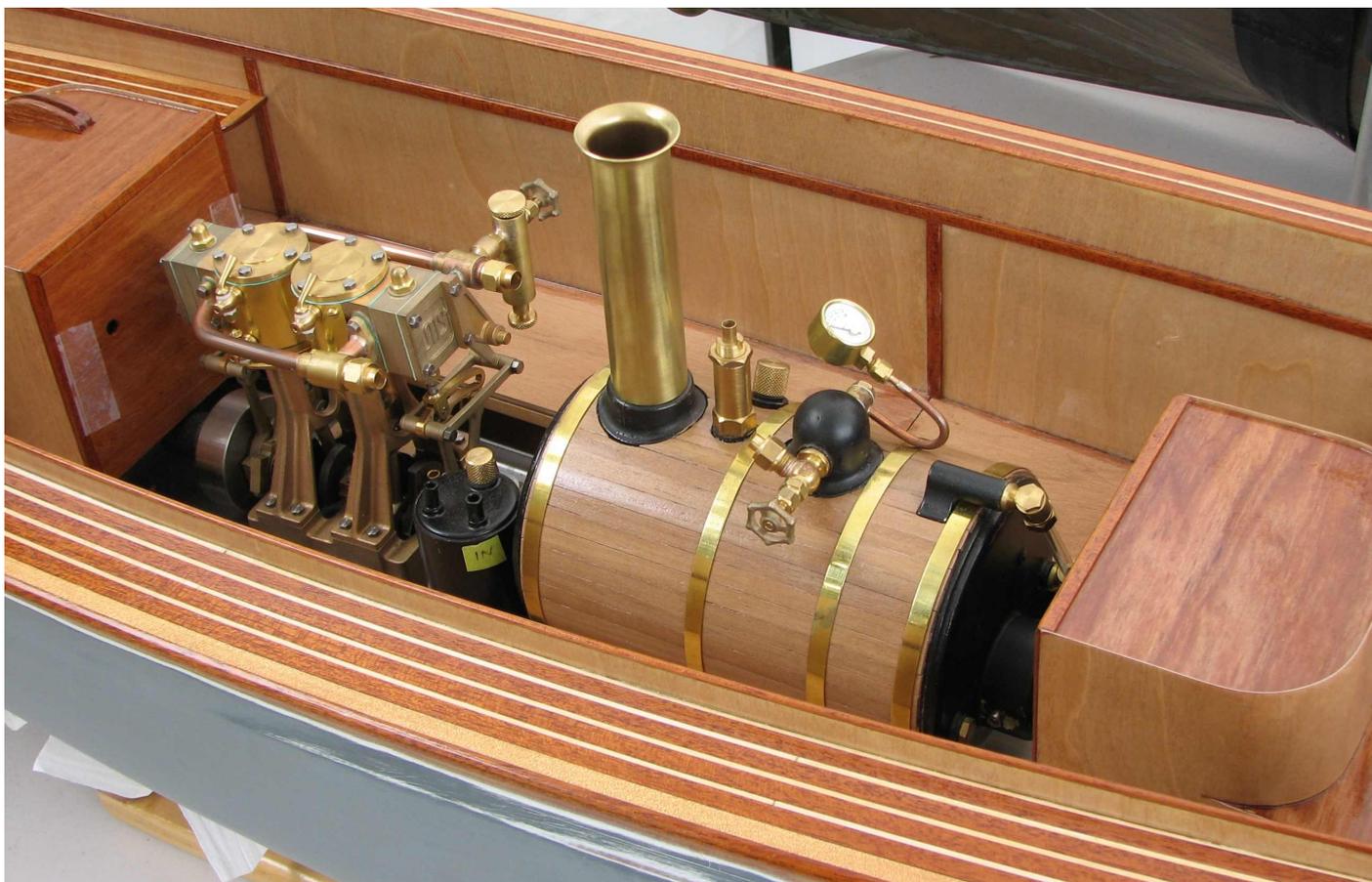
NIML's 1st ever Kids Xmas party

Window Snip 10th December 2017



We had a visit from Santa!!
He arrived on the train!





From the Play Day 17 November 2017

Isn't it beautiful!! Warren Belk's steam pinnace (?)

The "Three Wise Men"





Leggo by Oliver Duncan and Meccano by Dave Shand.

The "bones" of Jason Flannery South African loco.

