

Shed

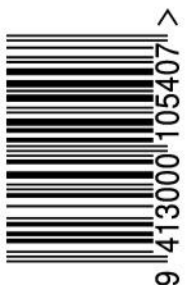
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TOOL COLLECTING

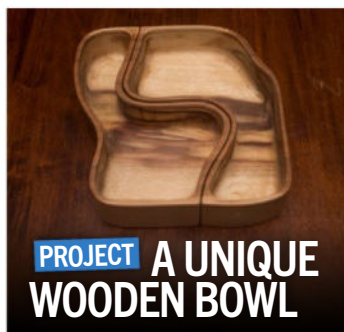
Some Rare Vintage Treasures



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INTERESTS

One key to a long, happy, and healthy life, they say, is to keep both your mind and body active while seeking companionship and friendship.

We each have our own ways of achieving this, but it's clear that the readers of *The Shed* excel in meeting these criteria for a fulfilling life. This issue's cover story is a perfect illustration of that.

Des Barnes is a tool collector, and his shed is packed with fascinating and unique hand tools, some of which are extremely rare and vintage. Not only does he collect these tools, but he also restores and rebuilds those he can. Des is an active member of the New Zealand Vintage Tool Collectors Club.

You can easily imagine the puzzled looks on the faces of younger people who might wonder, "Why would anyone do that?" Thankfully, readers of *The Shed* know the answer: they are missing out.

There is genuine satisfaction to be found in cherishing these rare items, as well as in the processes of collecting and restoring them. As we age, we come to realize the importance of history. Understanding how we got here encourages us to appreciate the efforts and skills of previous generations, and it inspires us to take greater care with our own work today. Hopefully, many sheddies will create something of lasting value to leave behind.

We were truly impressed by Des' shed, his remarkable collection, and his passion, and

we hope you are too. He embodies many principles in that key to a long, happy, and healthy life, and both Des and the members of his club should be applauded for their commitment to preserving tool history.

I may have mentioned before that we rarely receive Readers' Letters here at *The Shed*. We appreciate all correspondence in which our readers engage with us. It can sometimes feel like we are speaking into an empty room when we receive no feedback at all.

However, we recently received a phone call from a reader who felt compelled to share some concerns and errors he noticed in the magazine. He was worried that if he wrote a negative letter, we wouldn't publish it and that it would simply be discarded. I reassured him that this would never be the case. A well-articulated letter is always welcome. This loyal reader felt better after expressing his concerns, and I listened intently, taking his feedback on board.

I also encouraged him to put his thoughts in writing so that others could share their opinions, whether in agreement or disagreement. I sincerely hope he does take up my suggestion, as I assured him – and all our readers – that we produce this magazine for you, not for ourselves. Both praise and criticism are always appreciated and eagerly sought.

Do you have something to tell us?
Email, editor@the-shed.nz
Greg Vincent



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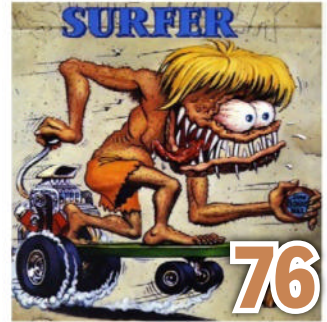
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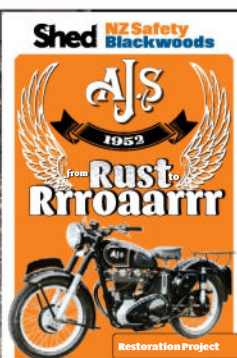
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This MenzShed was on the verge of closure, but now it's flourishing like never before

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Collecting vintage tools

THE TOOL ROOM



At home with vintage hand-tool collector Des Barnes

By Jason Burgess | Photographs: Jason Burgess



A drawer full of fighting blades

Tool collector Des Barnes jokingly calls himself “a magpie.”

While he is attracted to an array of ageless apparatus, his initial collection was founded on necessity rather than a predilection for heritage handcraft. Des began buying tools as soon as he started his apprenticeship as a Cabinet maker and Joiner in 1958. He was a conscientious recruit eager to secure the right tool for the job. Needless to say, many of the tools that were necessary for the trade back then are considered collector’s items today. And he still owns them, including a few he made himself.

The thing that drives Des’s collection these days is his deep respect for the skill and precision-crafting of traditional toolmakers. His beautifully presented tool displays on seven high glass shelves in his carpeted exhibition room certainly do justice to the artistry of their makers. In tool terms, he describes himself as a bit of a hand-plane and chisel devotee, but his quest for vintage utensils does not end there.

A more comprehensive collector’s story

Within Des’s cabinets-within-cabinets and drawers-within-drawers that sit below the shelves of tools, there lurks a more comprehensive collector’s story.



A small selection of tiny Japanese wood planes

"NEEDLESS TO SAY, MANY OF THE TOOLS THAT WERE NECESSARY FOR THE TRADE BACK THEN ARE CONSIDERED COLLECTOR'S ITEMS TODAY"

Here, one finds an exhaustive line-up of everything from cased drawing sets, fountain and dip pens, pearl-handled fruit knives, specialist folding knives, awls and corkscrews, to name just a few.

Over the last few years, his focus has shifted to pre-1900 wooden tools and pre-1925 steel, as well as hand-made and forged tools. Around the walls hang a veritable armoury of Eastern and Asian fighting blades that date back centuries. In this space, an hour of show and tell with Des easily turns to two and even then, he barely scratches the surface.

The storage shed

We never make it to his actual backyard shed as that is less an activity zone and more a storage space for incoming tools from recent buys and auction cataloguing for the New Zealand Vintage Tool Collectors Club (NZVTC).

The restoration and sorting work takes place at his window-lit bench in the garage, flanked by even more shelves loaded with labelled boxes.

"I label them because I forget what's in the boxes. When I became a building inspector, the boss said you don't need to know every clause in the building bylaws, but you need to know where to find it. That sound advice has stood me in good stead."

Most days, Des can be found out here, with the garage door up, patiently cleaning and repairing all manner of collectable tools, either for his personal display, selling online, or for presentation at a meeting of the NZVTC.

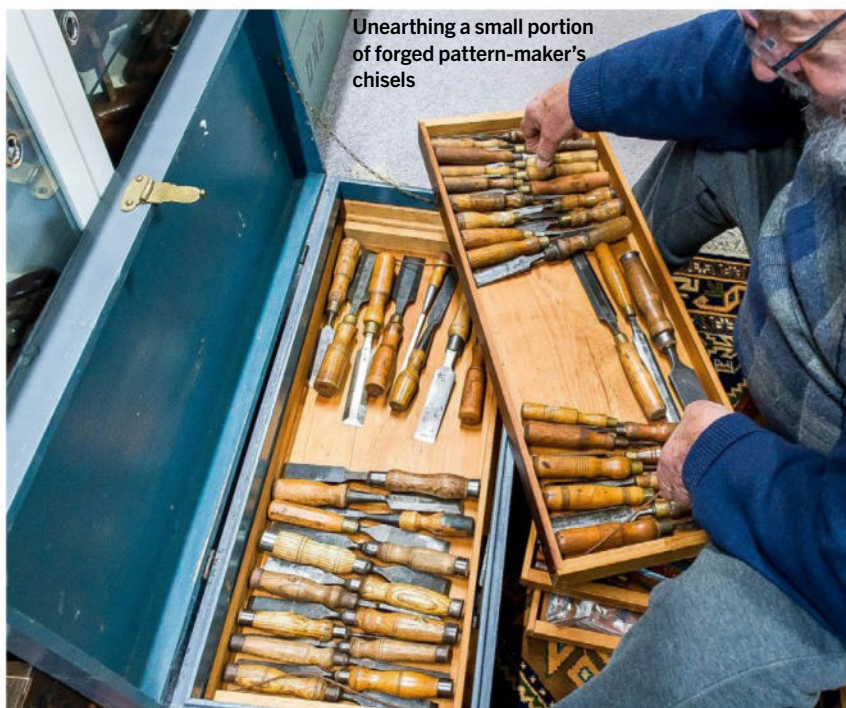
The Vintage Tool Collectors Club

Des is a Life Member, former auction convener and past President of the NZVTC.

After some recent health issues, he regrets having to curb his input into the



Des still on the tools, restoring new arrivals



Unearthing a small portion of forged pattern-maker's chisels



club – particularly the auction activity – at least for the near term.

He says, “I used to write the odd article for the club magazine, look after the auctions and run around picking up the tools. The club is often asked to pick up tools from estates all around the country.” Most of the tools offered to the Vintage Tool Collectors Club come from existing or past members down-sizing their estates or from public enquiries through the club website. Recently, at the request of the family of a Rotorua member, the club drove down and collected over 50 banana boxes from them. Then north for a 20-box donation from a Browns Bay estate.

Great club activities

Des fondly remembers the early club days, “We’d have a regular meeting one month, and the next would be a hands-on, showing how things were done and how blades were sharpened. They were educational evenings that went down very well.”

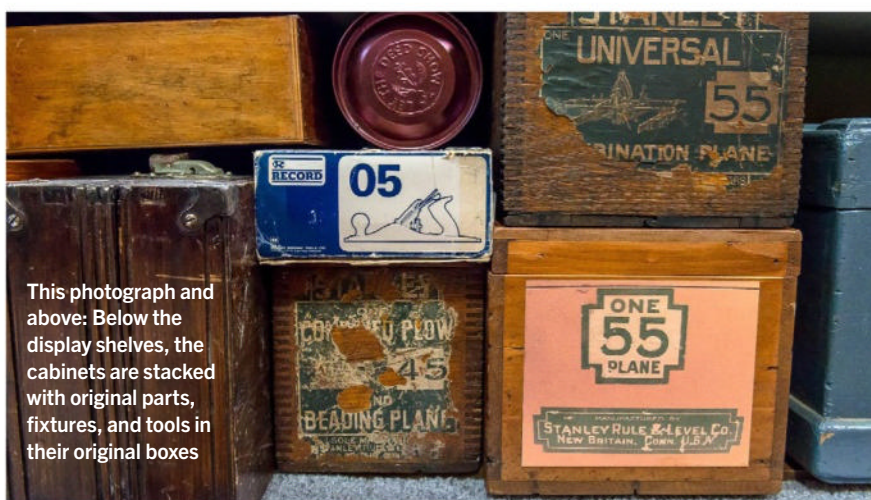
On club nights these days, members talk tools, compare notes and inspect the latest acquisitions. Due to the premises where the club currently meets, he



Des has also belonged to the Antique Arms Association for over 40 years. “But,” he says, “I haven’t been to a meeting for years. I have been a member of an ex-officio group of twenty or so purist edged-weapon collectors called the ‘Academy of Arms’; we are now down to eight or nine members, and some of them are pushing well into their 90s, we haven’t managed any new blood there!”

Des served his apprenticeship with DB Waite Ltd, a building company responsible for many large-scale infrastructure projects.

A photograph of a wooden shelf filled with numerous small, rectangular boxes of Nettlefold's One-Piece Screws. The boxes are organized by size and material, with labels indicating quantities like '10', '8', '9', and '1'. Some boxes are labeled 'ZINC' or 'BRASS'. The labels are in various colors (green, yellow, blue) and some are handwritten.



This photograph and above: Below the display shelves, the cabinets are stacked with original parts, fixtures, and tools in their original boxes



**"YOU FIND
ANOTHER ONE MADE
FROM THE SAME
MAKER, SAME
AGE, IN PERFECT
CONDITION"**

were the building of Auckland's Britomart car park and in the joinery shop, producing formwork (from plans) for concrete bridges at Khyber Pass and Northcote on the then-new Auckland motorway. He recalls being involved in the building of the Number 3 grandstand and terraces at Eden Park, too. Although, he admits. "Like the Britomart carpark, anything we did there has long gone." However, he does have a clear memory of spending one whole day at the park erecting the Haig Whisky clock and a hazier recall about "The whisky we got for our troubles!"

Wairakei Power Station

During his time, he was involved in building the cabinetry for the Thames and Tauranga Hospitals and three transportable houses for the workers building the Wairakei Power Station.

"Prior to Christmas 1960, there was no work in Auckland. DB packed a number of carpenters, two labourers, three foremen and three apprentices away down there. We had a couple of weeks on-site, in the days where six-inch aggregate in the site batched concrete needed a sledgehammer to drive it through the reinforcing."

Des also recalls power station construction workers gambling their week's wages on the toss of a pay packet.

He says, "I don't regret anything about the trade at all. I had some sixteen years on the tools, construction, cabinet making, joinery shop fitting and maintenance work. I worked for Forest Products for a while doing suspended ceilings, demountable partitioning and installing all their various products."

When Des hung up his apron, he became a Building Inspector, a job he held for 25 years, "Working for Mt Eden, Mt Wellington Borough Councils and Auckland City – then Franklin District Council – until the end of 1997, when I moved into private consultancy work doing home buyers reports, fire design, building fault investigation and reports, for litigation until 2011. I officially retired in 2010."

Drawing sets

During Des's consultancy days, he never



This photograph and above: Various boxed sets of drawing instruments, circa 1880s to 1950s

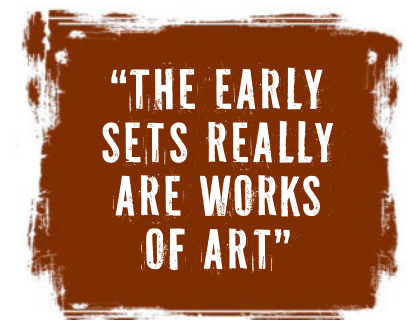


had the need for CAD; everything he worked on requiring plans was drawn in ink by hand, and he was never short of tools for the job.

While his high school tech drawing set was sometimes employed, Des had amassed a raft of other vintage cased sets too. He says, "When I needed a scale rule for something, I had quite a few of them. I would concentrate on collecting the rules rather than the drawing instruments, but I still have about thirty cases of drawing sets. At one auction, I bought a box full of Boxwood wooden scale rules. Then, I started looking at drawing instruments. The early sets



Des inspecting a display shelf of planes



A plentiful supply of new old parts is indispensable

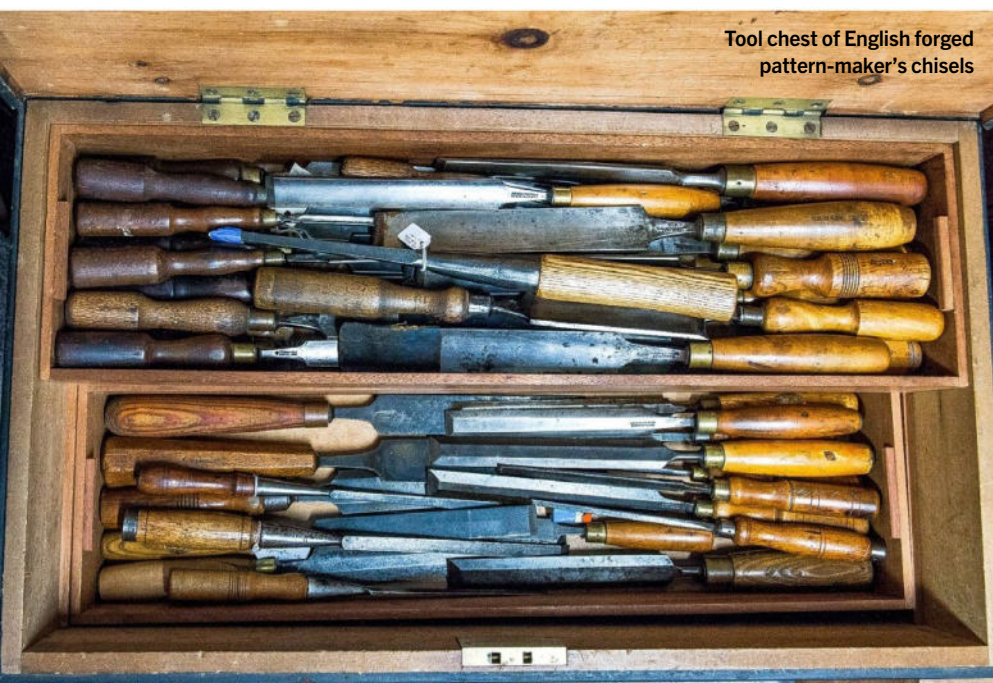
really are works of art; very light, fine work in brass or nickel silver. That's what fascinates me. How did they make them? You get three or four sets of drawing instruments from the same maker, and they all look the same. Then you take one apart to put it with another, and they won't fit, you have got to leave a set as a set. One thing leads to another and if you are patient, then another part-set exactly the same may arrive to complete the missing parts of another."

His most prized sets are very rare. One is inscribed: RH Carpenter 1888.

RH Carpenter was the recipient



A 1887-patent Stanley 113 adjustable circular plane



Tool chest of English forged pattern-maker's chisels

of the three-tiered case of drawing instruments, so Des suspects the set maybe even older. "Some sets," he says, "have original stencils for showing elevations and sable hairbrushes for watercolour washes on plans; quill pens and knives, brass protractors, ebony and ivory rules, parallel rules and even walrus tusk letter openers. One of the things I really like about these sets is that they are almost always made from boxwood. Boxwood doesn't get borer, and it always looks fresh."

Planes

Among some of Des's first buys – that

he sourced as an apprentice – are a circa-1900 vintage Bass-Back tenon saw by Groves and Sons, a Stanley #92 $\frac{3}{4}$ inch Rebate Plane, and a set of five Marples 12inch hexagonal boxwood handle paring chisels.

One of the oldest items in his collection is a Boxwood Screw Stem Plough Plane by John Green circa 1750. "Green started work for his father at age 14 with a seven-year apprenticeship, and in 1724, aged 21, he married. The plane has a beech body and steel skate, with boxwood stems and nuts. It is used to make grooves in boards. Ploughs came with seven or eight different-width

irons. I wouldn't even attempt to make something like this. I picked that up for \$20 at a club auction."

Des also has a collection of Richard Nelson Infill planes, that are a similar age to the John Green. Des is "amazed" that wooden planes like his Anderson Wedge stem Filister plane circa 1794-1809 (Leeds) either turn up, "Absolutely riddled with borer and not worth tuppence," or conversely, "You find another one made from the same maker, same age, in perfect condition."

A standout piece

A Stanley #171, 1911 Door and Trim router plane may not have the ancient pedigree of some of Des's tools, but it is one of his standout pieces.

He says, "It is only one of two I have seen in the flesh, and it's also the emblem for the club. The Door and Trims Planes were designed to cut mortice pockets for hinges, strike, lock plates and any mortice up to 5/16 inch deep. It fits to the door, and the cutter cuts out the mortice pocket to the right depth. To my mind, I could do it quicker with a chisel, but they were in production for twenty-four years, so lots of people were using them."

When it comes to mass-produced planes, Des often keeps multiple versions from different makers. He picks up a few from one shelf and says, "Sometimes I go overboard, like the seven Stanley circular planes with adjustable bottoms



A trio of vintage 20s: a Sargent, a Record, and a Stanley

on them. They all made them, so I also have three or four Records. That's a Sargeant, here's a Record, those seven over there are Stanley, different patents. If manufacturers modified them, that was a new patent. Quality wise, it is six of one half a dozen of the other."

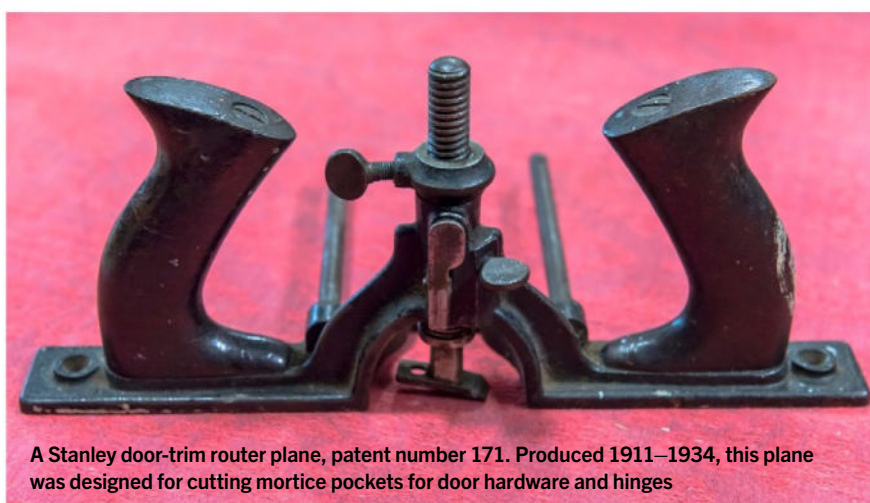
Steel planes

He explains how the American companies transitioned from wood and steel, which they called transitional planes, then to full steel.

"From there on, they produced steel planes for every purpose. The British went from wood to steel with exotic timber (ebony, rosewood, mahogany, walnut, etc) infill. These are referred to as infill planes. The British appeared to prefer heavy planes because they sat on timber and did the work, whereas, with the arrival of Aluminium in 1910, Americans were able to make very light castings, thinner walls and bases that could withstand the knocks and bumps.

The English always stuck with heavier castings. Even now, British steel planes are more robust and heavier. However, dropping any steel plane onto a solid floor will invariably cause serious damage to the body by cracking or a fracture that cannot be corrected."

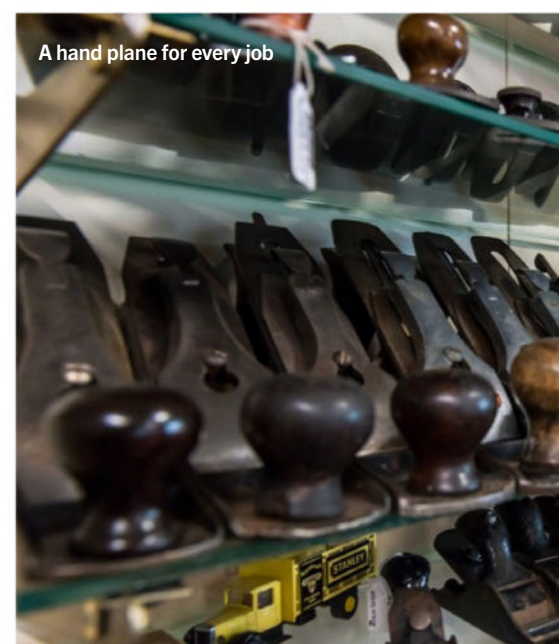
With all this metal about, Des warns, "One of the biggest problems for collectors in New Zealand is rust. If a tool sits directly on glass, it sweats,



A Stanley door-trim router plane, patent number 171. Produced 1911–1934, this plane was designed for cutting mortice pockets for door hardware and hinges



A close up of the nickel-plated Stanley 20



A hand plane for every job

**"PRICE NEVER
CONCERNED ME.
ONCE I BEGAN, IT
BECAME ADDICTIVE"**

particularly if the room is cold. To avoid this, I jack one end of them all up on a bit of timber. If I'm working out in the garage and I need a tool, I will come and use one of these."

Swords

While tools were initially a prerequisite for work, fighting blades might be considered a more impulsive preoccupation. Des has been amassing swords, axes, knives, Kukri's and all types of edged weapons since his teens, and not so long ago, he had around three hundred weapons in his cache.

"Price," he says, "never concerned me. Once I began, it became addictive. What started me off was a visit with my Scout group to our Scout Masters' home and viewing his collection of brass-hilted weapons from about the late 1700s to 1850s, so I decided to get into them."

Right from the start, he made a decision to collect Eastern swords: Eastern Mediterranean, through Turkey,



A set of Stanley rebate shoulder planes, numbered 92 (¾-inch), 93 (1-inch), and 94 (1¼-inch) widths



A boxwood screw-stem plough plane by John Green



A line-up of stag-horn-hilted fighting blades, commonly used by midshipmen in the Royal Navy (see opposite page)



Des holds a brass-hilted 1856-pattern Pioneer sawback sword

Asia, India, Malaysia, and Japan.

"You could buy British bayonets for five-bob at the army surplus in Wakefield Street. But I could buy three Indian swords or daggers for the price of one British sword. Therefore, I was a happy kid. In the 60s and early 70s, I had no competition buying these weapons at auctions; now it's a battle. Those blades now are as valuable as anything British."

A bit of a sell-off

Des admits to selling off a large portion of his swords recently because "Nobody in my family was interested in them. I'll keep one or two of the Japanese swords and the steel sword guards."

Amongst the Japanese collection is a number of Namban *tsuba* that date back to the Portuguese influence in Honshu, "That is, 200 years prior to Japan acknowledging other nations in 1872." Also, there is an original *menpo* steel face guard, used by Samurai and made from paper thin steel; the cheek, mouth and neck guard delicately laced together with silk.

From his sword stand, Des reaches for a barbaric-looking brass-hilted Pioneer



A Japanese display including swords, a painting of Mount Fuji, and above that a steel *menpo* face mask and throat protection



An array of Japanese *tsuba* sword guards



English and European hunting swords with a lightweight Japanese *jingasa* helmet above and vintage Japanese lacquer storage chests below



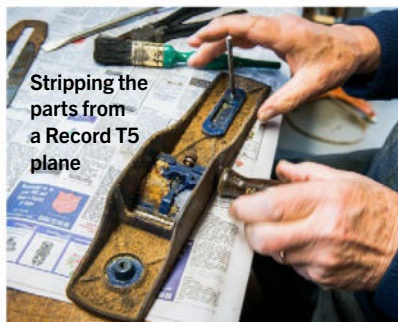
An Indian *talwar* sword (circa late 18th century)



The head of an Indian *zagnal* horseman's weapon (circa early 19th century)



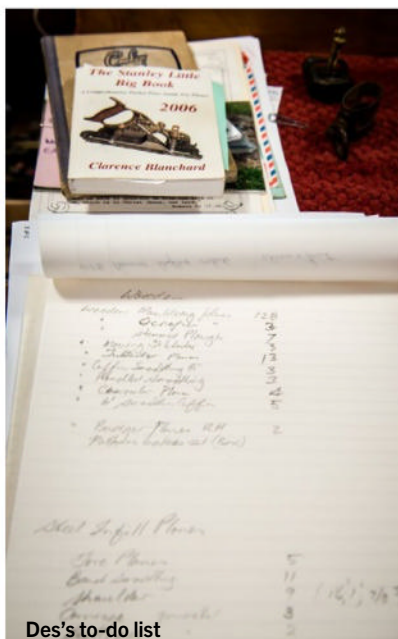
A selection of brass-hilted swords



Stripping the parts from a Record T5 plane



A thorough rub down with wet and dry and kerosene helps bring each part back to life



Des's to-do list

side arm with a saw back. These diabolical instruments of war were later adopted by the Navy as a cutlass. Des reckons that these would rip through four-by-two in about two minutes. "They were made illegal in about 1900 and phased out from military service in 1905." He pulls a *zagnal* fighting axe from India, which he has owned for 50 years, as an intro to his more ornate talwar and koftgari swords. "The steel on a koftgari, is chiselled which gives a burr, then its hammered on gold and the steel flattens out again, with gold embedded in the handle and blade."

Restoration work

Des reckons about half of all the tools he has bought have needed some restoration work.

The ones that he displays also need a clean now and again, usually with fine wet and dry and kerosene to rub up the steel bodies and other parts of planes. This process is also used on the blades of weapons, which are also given a final rub with a metal polish. On Des's bench, a recent haul of planes sit waiting for some attention.

The first is a Record T5 that was often used in schools. In many regards, Des's restoration efforts are a labour of love as the Record T5 plane is probably worth \$55 through the club and perhaps a little more on Trade Me.

When it comes to reinstating tools, Des professes, "Some people want them as new, sparkly and shiny. I leave them be; show some age." More often than not, a restore will involve tidying up somebody else's repair. Though the T5 he starts on has seen little action.

Afore ye go

Before he begins that, he remembers something else: "We won't go into this now, but I'll show you something." Off into the display room we go. He sits down and opens another box within a box full of the tiniest hand tools imaginable. "This is all Japanese planes, small stuff. I've got another three boxes like this, in the back shed. I just oil them." As I stand I note Des's lengthy, two-page to-do list on his work table. I figure now might be a good time to leave the man to his T5 clean-up just in case other tool tasks and tales distract him from the tools at hand. 📄

"ANOTHER BOX
WITHIN A BOX FULL
OF THE TINIEST
HAND TOOLS
IMAGINABLE"

Des's tool cleaning tips

- Strip everything off it and put all the bits in one box because if you don't, you will lose something.
- Leave alone any remains of original labels.
- Difficult nuts: use CRC and leave to soak. As a last resort, a Stillson's may be necessary to move them.
- Clean the body with turps and a fine Stainless-steel wire brush and 250 or finer, wet and dry emery paper or nylon poly-pads.
- If a tool needs to be repainted, I use automotive paint.
- I usually spend some time cleaning with a kerosene bath. Wash with petrol to remove any grease then use kerosene and 200-250 wet and dry to finish it off.
- Maybe a quick brush for the nickel-plated parts.
- As always, with all sanding, look after the edges, and the middle looks after itself.
- If a piece is really badly caked with rust, a bath in a mix of diesel, kerosene, and turps will move most of it. As a last measure, I'll put it to the wire brush on the grindstone. But you have to be careful because that can rip too much off. You can tell what it's like by its feel. Doing it by hand is safer.
- I always use newspaper under the tool to soak up the spillage and keep what is scraped off more or less in one place.

For more on the New Zealand Vintage Tool Collectors Club:

<https://nzvtcc.org.nz/>



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Some advice when welding and gas bottle forge improvements

Hi Greg,

I enjoyed reading the article about the gas forge. Well done.

There were a couple of issues that could help make the build a bit better.

Yes, you definitely need a floor; it will hold more heat, therefore improving efficiency.

Good gloves are a must. When I was working as a blacksmith, we tried a number of gloves and found that leather, no matter how thick, does not work well as it heats quickly and is very slow to cool, this includes the thick-lined welding gloves.

We used a cotton glove of the type that had a thick looped design. The cotton dissipates the heat quickly

Some sort of a door would also be a benefit to hold in more heat, as you are trying to get it up to around 900 to 1000 degrees.

Regards

Ray Charles



LETTER OF THE MONTH PRIZE

Every issue, our Letter of the Month winner will receive a copy of *Best of The Shed 1* and *2*. More top projects from 15 great years of *The Shed* magazine.



Spuds for Christmas

A trip to a sawmill helps out with Christmas lunch

By Ritchie Wilson | Photographs: Ritchie Wilson

Our local MenzShed is mainly set up for woodwork, and a perennial problem for us is getting quality wood for things like speaker cabinets, furniture and toolboxes.

Much of what gets used is recycled timber – mainly rimu or oak – which has its own problems, with hidden screws and nails. There are strict protocols for the use of the Shed's saws, jointer and especially its thicknesser. All second-hand timber must be tested with a hand-held metal detector by two MenzShed members before it passes through the thicknesser. Even so, the machine's blades have to be expensively reground on a fairly regular basis to restore the cutting edges after they have suffered damage. An overlooked nail will leave a semicircular divot in

the cutting edges which will prevent the thicknesser from doing its usual exemplary job.

Timber lotto

There was considerable excitement a few months ago when one of the Shed's Committee sourced a trailer-load of Australian jarrah timber salvaged from a very old rural bridge. I thought a couple of planks would be the ideal source of new slats for a garden seat I was making, using antique metal ends bought from a scrapyard, but it was decided that the jarrah was too good to be wasted on such a plebian project.

One of the senior members was chatting about the shed with a mate who happened to own a large timber yard. The mate said that he had bought a small country sawmill a few



Just some of the donated timber – the longer lengths were stacked inside the towing van



“It was universally agreed that this was a very, very good idea”

years ago, which his son managed, and suggested that a group of the MenzShed members might like to visit one morning and look over the operation. He further offered to donate some freshly milled timber if one of the visiting group's vehicles brought a suitable trailer.

It was universally agreed that this was a very, very good idea.

A sawmill odyssey

Six or seven cars made the journey north with one, a large van, pulling a trailer. The twenty or so members were given a tour of the operation, which mainly focused on firewood and timbers other than *Pinus radiata*, *Pinus* being the staple timber of most New Zealand sawmills and the timber used in the framing of virtually all New Zealand houses.

We watched as the Kerikeri-made

Mahoe mill turned a long *Cupressus macrocarpa* log into a single hefty beam specially ordered by a customer. The Mahoe mill has two circular blades which work at right angles to each other so it can work on logs of virtually any size. The unwanted parts of the log, which were cut off, were then fed into a machine which converted the long wooden strips into short slabs of firewood which were loaded into a high-sided truck by a conveyor in a steady stream.

A dream job

One of the guys showing us around told me that he adored working there.

He really liked the variety of timbers he got to work with and the challenging non-standard sizes he had to saw the logs to.

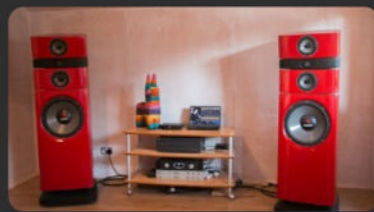
He was also a furniture maker and had definite personal timber preferences. Larch (*Larix decidua*) was very highly regarded, but Elm (*Ulmus procera*) was appreciated above all other woods. A couple of the visiting party had logs from downed trees lying in their backyards, which they wanted to cut into slabs, and the saw-miller explained how he went about this.

He used the Mahoe 'Supermill' to form a flat surface on the log to be milled and then used an 'Alaskan'

THE SHED ONLINE

What's happening online at the-shed.nz

Every week, we upload new content onto The Shed website to add to the hundreds of articles and videos already on the site for readers to discover, learn from, and enjoy. Some uploads of the past few months include:



Project: saving thousands of dollars

A sheddie clones a pair of Focal Utopia loudspeakers
<https://the-shed.nz/diy-audio-utopia/>



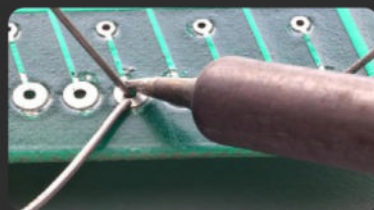
My old car is a BBQ

Old cars don't die, they become BBQs
<https://the-shed.nz/my-car-the-barbecue/>



AJS rebuild video 2

Follow our classic bike resto on video
<https://the-shed.nz/video-of-from-rust-to-rrroarr-part-two/>



Learn how to solder like a pro

Part one of tips and advice, of a two-part series
<https://the-shed.nz/soldering-on-part-one/>





MenzShed members watch a hefty macrocarpa beam being shaped by one of the Mahoe sawmills



chainsaw mill to slice the rest of the log into slabs. This all takes time. Then, the slabs take several years to dry (about a year for every 25mm of slab thickness), so the whole process is neither quick nor cheap. Later, the mill's owner told me how he had milled some blue gum logs (*Eucalyptus globulus*) for the floor of a house he had recently built. Even after a couple of years of air drying, he still had to use kiln drying to get the floorboards dry enough to use. They did turn out fantastically, however.

The rural location, the piles of logs and the stacks of milled timber were all most attractive. The sawmill staff were outgoing and chatty. The trailer load of timber was gratefully accepted and has been well used – much of it was the desirable larch.

The smell of the sawdust and the freshly milled timber was wonderful.

The high quality of the timber produced was obvious.

A project for me

That's not the end of the story, however.

My daughter and her husband wanted to move their portable office into our backyard while they had the builders in. The site they chose was our potato patch, which meant we needed a new garden before the start of the coming growing season.

A week or so after the MenzShed visit, I again visited the sawmill and, after a discussion with Matt Stuart, the manager, bought three 3.6m lengths of 200 x 50mm macrocarpa to form the four sides of a 3.6 x 1.8m garden. Matt's advice was that a narrower – about 1m wide – plot would actually be easier to manage. I've used 200 x 100mm macrocarpa sleepers to make a raised-bed garden in the past, but Matt thought the extra thickness was rather wasteful. He loaded the very heavy, rather beautiful and quite aromatic planks onto our trailer. He also sold us some 50 x 50mm pegs to keep the wood securely in position around the garden's perimeter.

The spuds go in

My wife had chosen a sunny location for the new potato plot, had purchased two varieties of seed potato – rocket and Cliff's kidney – and had decided that soil from a small excavation should be used to make the raised garden bed. It was planned that thick cardboard from the carton of a recently purchased appliance be laid below the new soil to stop weeds from growing up from the original ground surface.

I used my venerable blue Ryobi chorded circular saw to square up the ends of the two long sides and trim them to exactly 3.6m. I cut the third plank



“So the whole process is neither quick nor cheap”

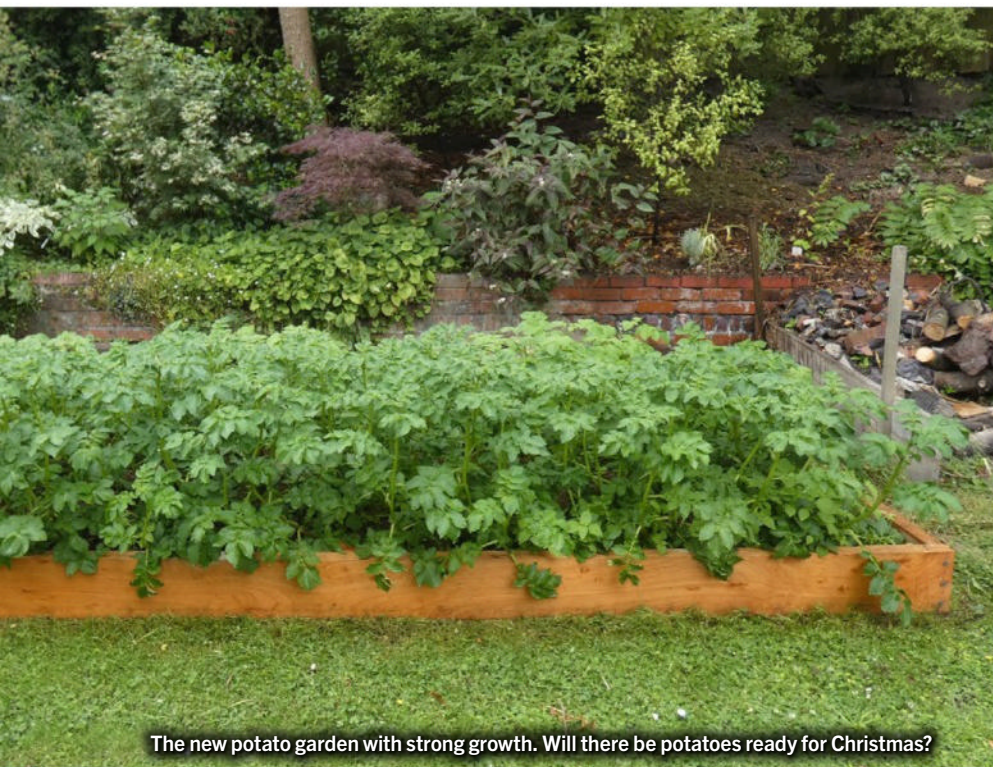
in half to make two 1.75m lengths. The more than 30-year-old saw worked perfectly until there was a blue flash at the edge of my vision, and the saw abruptly stopped. I was flummoxed for a moment. Then, I saw the severed portion of the saw's electrical lead lying on the ground. How had I managed to do that? The electrical outlet the saw was connected to had RCD protection, so I don't suppose I had been in much danger of being electrocuted, but I was shocked nevertheless.

There was a brief delay while the Ryobi's somewhat abbreviated chord was reattached.

I have a leak

The timber was laid in position, and the corners were fastened with three 100mm bugle-headed screws in pre-drilled holes.

120mm screws would have been



The new potato garden with strong growth. Will there be potatoes ready for Christmas?

better, but years ago, I bought a large carton of the 100mm ones cheaply at an auction, and I still have hundreds of them! When the perimeter was finished, it was discovered that it wasn't level, and so the high side had to have soil removed. This removed so much of the original lawn that it was decided to dig out all the grass and not use the cardboard weed stop.

Soil was added, the seed potatoes planted, and a mulch of cut grass was scattered over the top. The early spring was dry, and I watered the plot most nights, but I was worried about the recently instituted council water charges, so I didn't overdo it. A few weeks later, the green potato shoots arrived, as did a \$96 bill for excess water use. How could this be? My son-in-law, who has much better hearing than I, quickly detected the sound of a leak under the house and scrambled between the piles, returning with a photo of a moderate leak in a plastic junction of our water supply pipe. A plumber fixed the leak the next day, and I filled in the form seeking forgiveness from the City Council for the excess water use, asking that the charge be cancelled.

Here's hoping!

Home gardening footnote: We missed



Some of the donated larch timber was used by Antonio Capaldi to re-slat a park bench

new potatoes for Christmas dinner by a mile. Several miles, in fact. Ditto peas from the garden. Some years, the weather just doesn't cooperate.

It probably doesn't make financial sense for most people to grow their own potatoes. Still, home-grown spuds, fresh from the potato patch, are worth the effort for their superior taste and for the satisfaction of putting food on the table which you have grown yourself. 📄

Odd Jobs

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MAKING A ROUTER BOWL

Without a lathe, and not necessarily round

By Stuart Lees | Photographs: Stuart Lees



Using the plunge router



There are a number of proverbs in life that don't hold up under scrutiny.

Such as, "The grass is always greener ...", "No pain, no gain", and "You need a lathe to make a wooden bowl". Oh, and "all bowls need to be round".

If you have a router, you have another perfectly good method available. One of the distinct advantages of this technique is that the resulting bowl does not have to be round (although it can be if you want – it can be any shape you like).

Using a router to make a bowl is a hand-held router technique and although I am generally not the biggest fan of using a router hand-held, routing a bowl is a particularly easy evolution. I know of classes where this technique is

taught to vision-impaired students who come up with stunning creations.

To create this bowl, you need the following materials and tools:

A selection of timber

Although you may think you need a large lump of timber for the full depth of the bowl you want to make, it can be quite visually impressive to glue different timbers together. The timber needs to be dressed flat, particularly if you are glueing multiple pieces together.

A plunge router

Fortunately, for us, this is the standard sort of router available.

The amount of plunge depth of the router will dictate the maximum depth of bowl possible. A ½-inch router is

preferable – there are some significant lateral forces involved in removing so much material, so having a heavy-duty bit is suggested. This requirement isn't a show-stopper, though.

If you only have a ¼-inch router, then take more but shallower passes. It is a trade-off between router power and how easy it is to hand-hold. A 2400W (3HP) router has lots of power and is typically built strong, but they are often a bit top-heavy. I prefer a 1400W router as a trade-off between power and controllability.

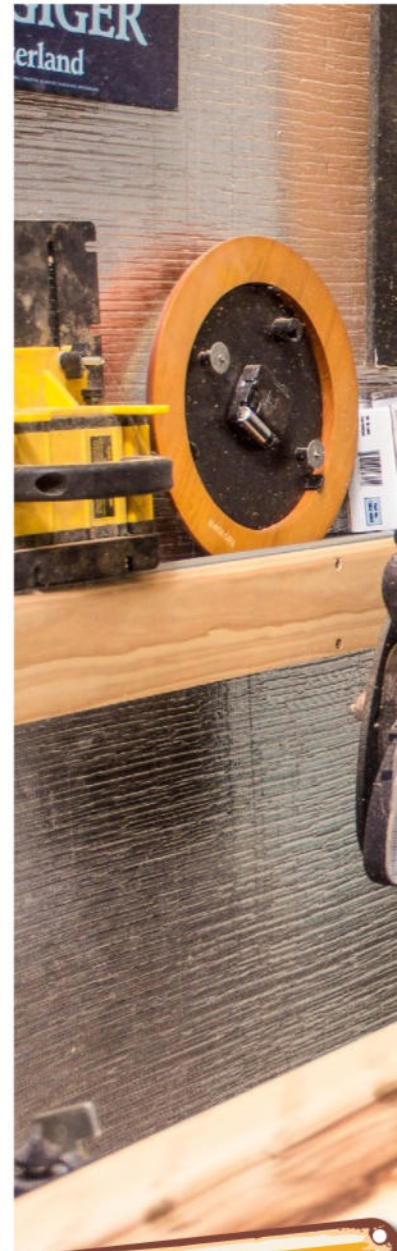
A router bit

Yes, that goes without saying, but there are some choices here.

There are commercial bowl-making router bits – many brands have one or two in their line-up, including CMT,



Flattening timber top and bottom



“Fortunately, for us, this is the standard sort of router available”



Cut to length for bowls

Linbide, Carb-I-Tool, and, in this case, Amana Tool.

These router bits are part of a group called 'inverted router bits.' Where many router bits come with a guide bearing at the end of the bit (above the cutter), an inverted router bit has the bearing below the cutter. This allows the bit to plunge into the workpiece, and then the bearing engages with the surface-mounted template.

If you don't have a bowl-making bit, (or any other inverted bits), you can still rout a bowl. With a template guide fitted to the router, any non-bearing bit can be used. A cove bit will produce the rounded corners desired, and you can use a straight bit to remove the remainder of the material.

A bandsaw

This is used to both create a template and also to shape the outside of the bowl.

A template

There are commercial templates out there for routing bowls, but it is very easy to make your own. For that, you need some 6mm MDF and the aforementioned scroll saw or bandsaw.

A drill

With a spade bit or Forstner bit, preferably.

Preparing the timber

Step one is preparing the timber. As I intended to glue multiple pieces

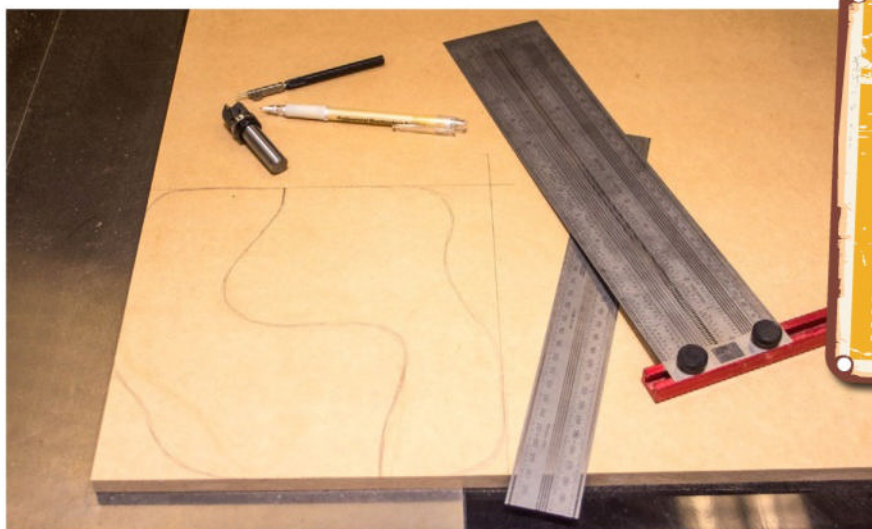
together, it was important to ensure the surfaces that were going to be in contact were dressed flat so the glue had maximum strength and no unnecessary voids were created between the layers.

As I had no intention of having any straight sides in the resulting bowl (or rather bowls in this case), there was no need to dress the edges. Only the top and bottom surfaces were important to flatten.

Next, the board was cut down to lengths approximately right for the bowls.

I chose camphor laurel for the main portion of the bowl – it always has many interesting details and a lot of contrast.

The timber had a few checks in it where it had dried a bit unevenly, so I



Router bit close by can test design corners



Interlocking design

cut around these, but they still made an appearance later, as you'll discover.

A thin piece of timber was glued on top to create a contrasting rim to the bowl. I spread the glue very evenly over the entire surface of each board being glued. I didn't want to risk any portion of the resulting bowl not being properly glued when the majority of the timber was wasted away with the router, leaving the thin sides.

I could have clamped it together, but instead, I just stacked a heap of weight on top. A piece of baking paper stopped any glue from sticking to the weight (a ship's five-inch gun cartridge), and a silicone mat was used to protect the workbench.

The template

While the board was glueing up, it was time to make the template.

I find MDF a good material for this.

It is dimensionally stable and easy to machine. A little soft, perhaps when a router bit bearing is pushed too hard against it, but that just needs to be taken into account when in use.

I had an initial idea to make two interlocking bowls and was going to go with a yin-yang design. This then morphed into a more organic form. I kept the bowl bit close to me during the design phase so I could test the design to ensure the router bit could get into all the areas. I then shaded the material to be removed, leaving a thin wall all around and between the two interlocking bowls.

You don't need a bandsaw to cut out the template, but it is particularly useful. If the bandsaw can cut the necessary radiuses of the template, it will also be able to cut the exterior of the finished bowl as well.

The bandsaw will cut through the side

"I didn't want to risk any portion of the resulting bowl not being properly glued"

of the template to get to the interior, but this will not affect the result. Once, it used to be pretty common practice to cut the bandsaw blade, feed it through a hole in the workpiece and weld the blade up again in situ, but this practice seems to have dropped out of favour in recent times. (Some bandsaws used to come with a welding setup attached, just for this purpose).

Clean-up

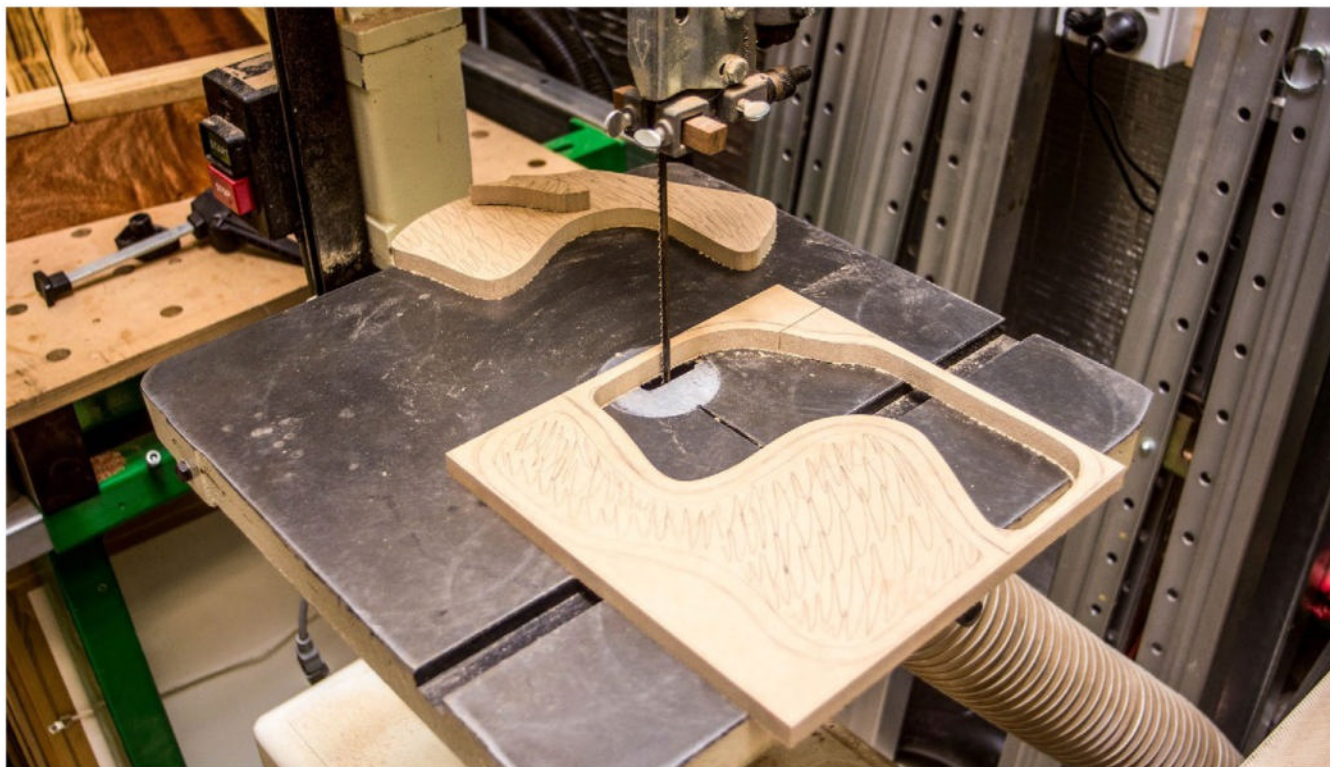
After I cut out the unrequired portions of the template, it was time to clean it up.

Although I have gone for an abstract form here, there is no reason why you cannot make up a template to a particular theme, such as a ghost for Halloween, a Xmas tree for Christmas, etc.

Sanding MDF is very easy (but MDF dust is particularly unhealthy, so remember your dust extraction and filtration). I used a spindle sander here, but if you don't have one available, a basic drum sanding attachment for the drill press will work, or even sandpaper wrapped around a piece of dowel. A spindle sander is much more convenient.

Once the glue was dry on the timber blank, it was time to attach the template. I used a few screws around the circumference – another issue with MDF is it is particularly flexible, especially when thin, so additional screws will help support it.

At each point where the bandsaw had cut through the wall of the template, a screw was placed on either side to support it. If you are having issues with template flex, or insufficient places to use screws, carpet tape is an acceptable alternative, either separately from or in addition to screws.



Useful bandsaw cuts out the template

Removing waste

While you could use the router bit to plunge into the workpiece, it is safer – and kinder to the router and bit – to waste away as much timber as possible within the template.

A Forstner bit in a drill (hand-held or pedestal) makes short work of the waste material. I did it in two passes, drilling away waste then routing the edges, then drilling again to near full depth.

The router was set up with the bit to the required minimum depth to expose the guide bearing, and this ran around the perimeter of the template.

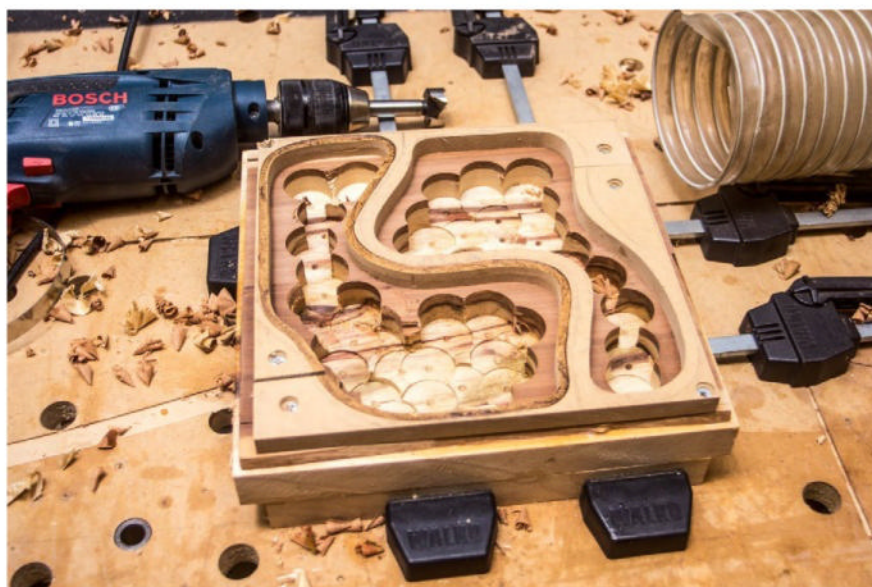
When hand-holding the router, you work in a clockwise direction to ensure the bit does not climb-cut. A climb-cut is when you use a tool in the same direction as the blade or cutter is spinning, and this is a lot more likely to pierce through the workpiece or have the tool pull itself along the template with a lot of force.

After routing away material down to about the depth of the first holes drilled by the Forstner bit, I used the Forstner bit again to get the bowl to near the full required depth.

Additional passes with the router (about 5mm deeper each time) removed the remaining material. If you find you cannot get down as deeply as you'd like, after the first few passes, you can remove



Template attached to timber blank



Forstner bit drills out the first level and ...



... router removes remaining material



The business end of the plunge router ...



... and router bit

the template as its job is done. The initial wall-cut can then become the guide for the bearing as you work deeper. This is not the case if you are using a template guide however.

I found placing a supplementary base on the router was exceptionally handy. It makes balancing the router on the template much easier and, therefore, safer and less likely that you'll tip the router accidentally, routing an area that was not meant to be routed.

It was then time to finish shaping the bowls, so over at the bandsaw again, the material around the exterior of the bowls was removed, leaving around a 6mm wall thickness. As I had a complementary bowl design, the two bowls were cut apart. At this stage, you could really see what the resulting product would look like.

Problem voids

A close inspection of the bowls revealed a problem – the voids and fissures I thought I had cut away were still present and now incorporated into the walls of the bowl. They could be left, but I preferred to have them filled and forgotten.

There has been discussion about sawdust and wood glue to fill voids (and mistakes), but I use another method.

Shellac is a resin secreted by the female lac bug and has long been used for polishing (French polishing is a well-known finish that uses shellac). It also makes an excellent filler for surface defects, nail holes, chips, tear-outs and splits. You can make your own shellac stick or these days, it's possible to buy ready-made and coloured shellac sticks.

An old soldering iron (that you keep reserved for this purpose) is used to heat up the end of the shellac stick, which drips into the crack. You also use the soldering iron to reheat the shellac on the surface so it can run deeper into the void.

You do need to be careful: as shellac is kept heated, it darkens quite dramatically. Having a range of colours means you can take it one step further, cutting grooves in the resulting shellac surface and dripping in contrasting colours to create details, further disguising the repair.

Once the voids are filled, the shellac

“There is no reason why you cannot make up a template to a particular theme”



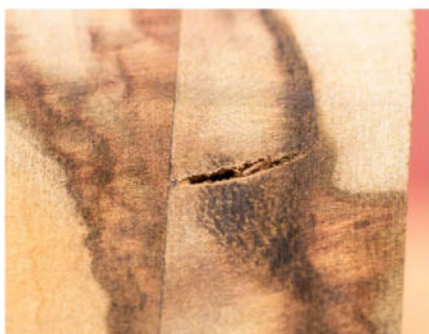
repair can be sanded back so it is flush with the base wood. You do need to be careful not to get the repair over-hot from sanding – the shellac will quite happily melt once again and spread over the surface.

Fillers

One of the benefits of a shellac filler is that you can polish right over the top. Unlike commercial fillers, shellac is not prone to drying out, shrinking and cracking. If you have ever tried commercial fillers, they work well initially, but a few years down the track, they look shocking. When you



Router reveals the final depth



Oops. Fissures in the wood



Shellac repair



Bandsaw finishes bowl shaping



Homemade flap sanding wheel



Tiny round-over router bit finishes the edges

are making something that could last decades (or longer), the last thing you want to do is compromise on filler.

Ideally, you wouldn't need any at all, but in the real world, it is how you repair and disguise faults that set projects apart. In many projects, many master craftsmen have to repair their work. The skill comes in making it so you'd never know.

Sanding

It was then time to start sanding. Having an unusually shaped project threw up some new challenges. Just how do you sand when you are either used to sanding on a lathe or flat surfaces with a random orbital sander? By hand? Sounds like a lot of hard work.

Instead, I took a drill-mounted sander attachment and created my own flap-sanding wheel with a few cuts.

This did a reasonable job, and I was able to get deep into the nooks and crannies of the project. Hand-sanding is still inevitable for this project though.

I did want to round over the edges, and rather than do this with sanding (which can result in an uneven finish), I used the smallest router bit I have, a tiny round-over bit.

Given the wall thickness is less than 5mm, I needed a bit with only a 1.5-2mm round-over. With the bit mounted in my router table, I was able to revert to the way I prefer to use a router: table-mounted. After a great deal of sanding, I applied a coat of Danish oil to finish the project off.

The resulting bowls have a pleasing design, are completely irregular, yet still complement each other. They would be quite a feature piece when you are entertaining, for example, but could be put to all sorts of purposes.

This is just one organic form of an unlimited number of shapes and designs you can come up with for a bowl. And it just goes to show you don't need a lathe to make a bowl, and not all bowls have to be round. 📷

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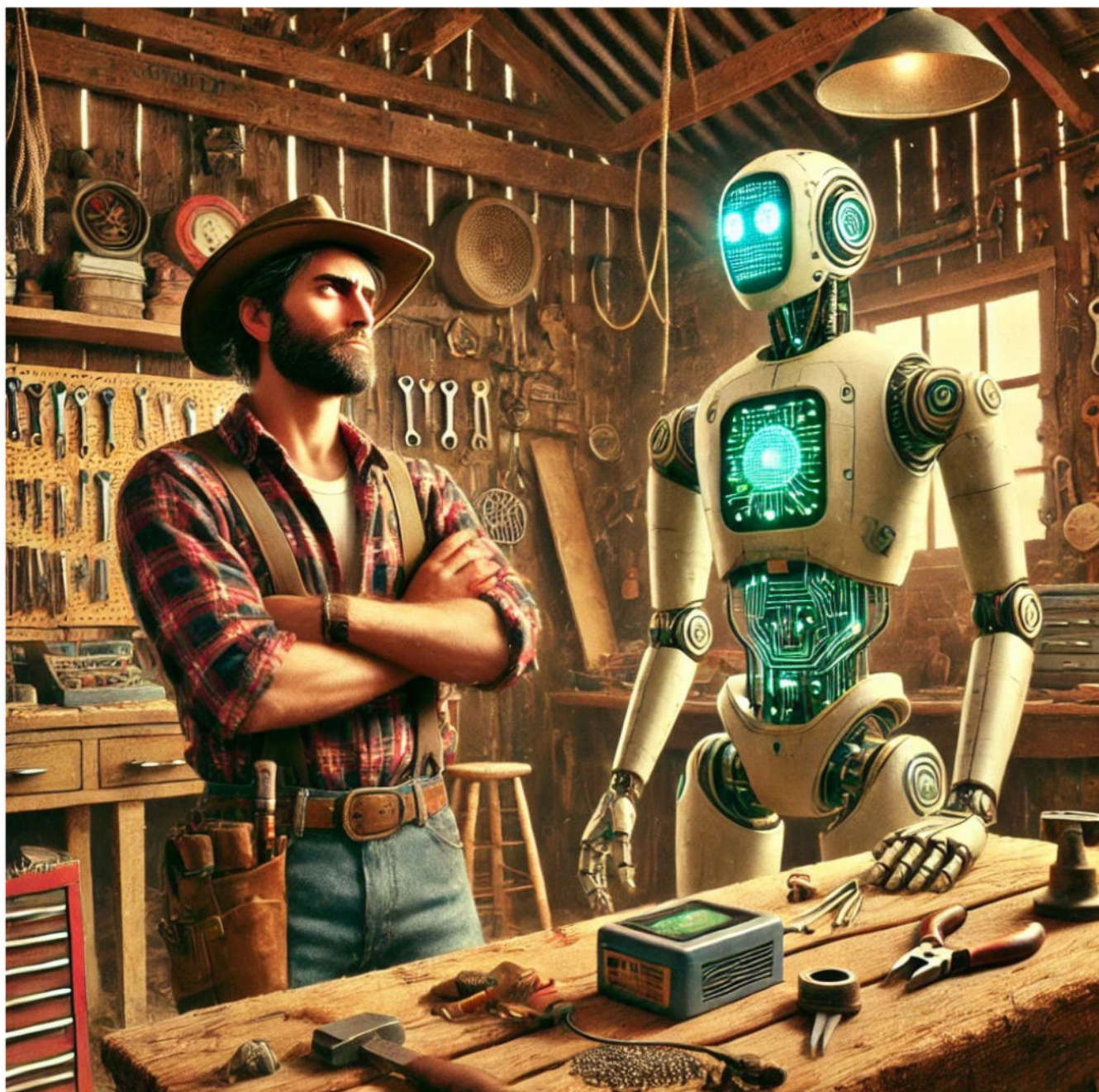
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A retro-futuristic illustration of a rugged, practical sheddie standing in his cluttered workshop, arms crossed, staring sceptically at an AI-powered usurper?

DIY – AI

By Nigel Young | Images: AI

You can't stop progress, but embracing something you do not understand is difficult. Nigel Young does the hard yards for us sheddies by trying out a couple of AI software programs to see if they will assist or hinder us in our workshops

Last October, my wife and I were in Perth, where I had the opportunity to attend a TEDx event on the subject of Artificial Intelligence (AI).

Now I had previously played a bit with the free version of ChatGPT, the one most people are probably aware of. It has its limitations – as we shall see – but I wasn't really stretching it in any way. The TEDx event changed all that.

There were four speakers, all very interesting and informative about how AI is being used in and around Western Australia. The fourth, however, the one that impressed me the most, was Sean Oldenburger – a young man in his

late twenties I would guess – who had started a business advising businesses on how AI could benefit them. He was described as “... a dynamic entrepreneur and technology strategist with a passion for innovation”.

As a leader in the startup ecosystem, Sean has a deep understanding of how emerging technologies like AI are reshaping opportunities for new businesses. I came away inspired by the whole event, particularly about AI in business, as SMEs are a passion of mine – particularly in high-end, high-value, niche manufacturing for export – which is where I see our future as a country heading.

I try ChatGPT

The next day, I started using ChatGPT 3.5 in earnest – and promptly came up against the limitations I have mentioned – the main one being content limits. I kept hitting them and being told to come back tomorrow ...

That got frustrating, so I switched to another one called Pi – which didn't have the same limits but also wasn't as well organised, and I had trouble trying to keep track of my conversations.

Back home, I decided to take on a subscription with ChatGPT 4.0 – it's only US\$20 /month (about NZ\$36), and it made a big difference. Two, in particular, were the character input amount – how much you could type or copy and paste into the search field and the conversation limits.

The character limit increased from 4000 to 25,000 – which meant I could paste in something I had been writing, and it would be able to scan through. The second was the daily limit – it had gone. The subscription also meant that I had been upgraded from ChatGPT 3.5 to ChatGPT 4.0 – which was 'better trained' – it had a larger knowledge base among other things.

While using Pi, I asked it the question, “As an AI, how do you appreciate something?” This led to a very interesting conversation, one which I sent through to *The Shed* editor for his thoughts. He enjoyed it and asked if I could write two on the subject of sheddies – one now and the other in twelve months' time to see what had changed.



A photorealistic scene of a sheddie in his workshop using AI-powered tools. The sheddie is wearing work overalls, safety goggles, and has a slightly contemplative look about him

“The TEDx event changed all that”

Conclusion

It's been quite a journey - even in the short time since the TEDx event last November and today – I'm writing this on 11th February 2025 – the world of AI has been turned on its head. A new player from China called 'DeepSeek' has caused chaos because it crashed three core assumptions:

1. America was king of the hill in the world of AI.
2. AI had been shrouded in mystery with a cloak of huge budgets and restricted access to very specific – and costly – computer processors.
3. The proprietary nature of the AI – Big Tech was holding it tight, and the only real access was through a payment model.

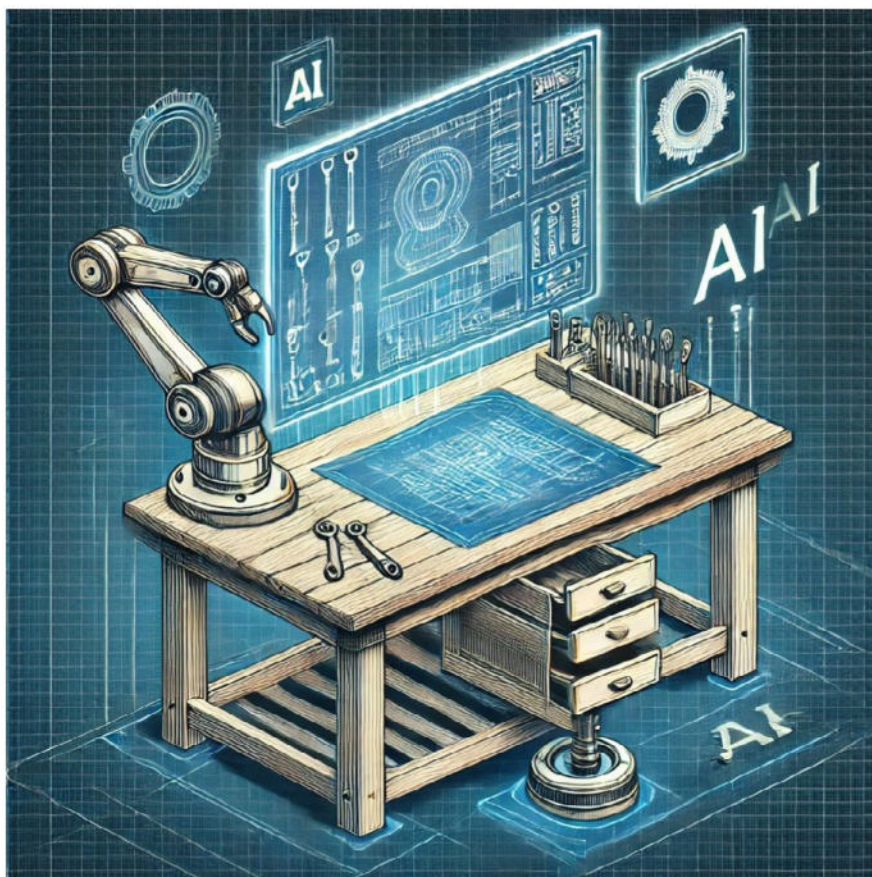
'DeepSeek' demonstrated that by using much lower budgets, using computer processors that were readily available on the market, and by using a

method of teaching the AI, 'DeepSeek' could be made available for a much lower cost.

Then the real kicker – they made it available as open-source – computer-speak for “they gave it away.”

America's cosy AI Big Tech industry was left wondering just what had hit it. Given that under the new president, the USA is already in turmoil, this did not help. Alibaba has since introduced another AI again – Qwen 2.5 – also making it open-source. AI Computer processor company NVIDIA – the manufacturer behind the export-to-China banned processors lost almost 18% of its share value in one day, plunging nearly US\$600 billion and sending its value below the US\$3 trillion dollar mark.

The upside to all this is that AI – as a business opportunity – is now open to anyone with a decent laptop and a good



A stylised technical illustration in blueprint style of a futuristic workbench with AI elements. The workbench features a holographic blueprint display, a robotic arm, and what appears to be a swivel seat made of ... drawers?

idea. So if someone comes up to you and says, “I have a cunning plan, my lord,” it might pay to take them seriously.

Using AI – a test case

Sample one – using Pi

This conversation is with Pi – one of two AI programs I find useful, particularly as a research assistant, sounding board and for peer review purposes. As you read it, you’ll notice the high degree of personalisation along side the depth of understanding and ability to access information. There is a caveat with all AI programmes however, in this case, it says: “Pi may make mistakes, please don’t rely on its information.”

PI: Ah, workshops! A great way to learn new skills, share knowledge, and collaborate with others. Are you interested in attending a workshop, organising one, or just curious about

them in general?

NY: Well, as it so happens, I have quite a well-equipped one, and I also write for an NZ magazine called *The Shed*. I sent the editor an article based on one of our conversations, and he liked it but wants me to write two more – one now about workshops and the other in a year’s time to see what might have changed

PI: Hi Nigel! Wow, that sounds like a fantastic opportunity! So you’re writing an article about workshops for *The Shed* magazine – how exciting! What angle are you considering for this piece? Do you want to focus on the benefits of having a well-equipped workshop, share some tips and tricks for optimising workshop space and organization, or explore the creative potential of workshops in general?

NY: Hmm – all good topics. I’ve just finished a 3-part series on ‘How to plan

and set up a workshop, and on tools – wants v needs. What the editor is interested in is the impact AI could have on a home workshop.

PI: Ah, that’s an intriguing angle! AI has the potential to revolutionise home workshops in various ways. Here are a few ideas you could explore in your article:

1. Smart Tools: AI-powered tools could offer features like precision guidance, safety warnings, and real-time optimisation, making DIY projects more efficient and accessible to a wider range of skill levels.

2. Design and Planning: AI could help homeowners design and plan their workshop layouts, suggesting optimal configurations for tools, storage, and workstations based on individual needs and preferences.

3. Inventory Management: AI-enabled systems could keep track of workshop supplies and materials, automatically reordering when stocks run low or suggesting alternatives when items are unavailable.

4. Skills Training: AI could provide personalized instruction and feedback, helping users learn new techniques and improve their skills through virtual tutorials or interactive guidance.

5. Collaborative Projects: AI could facilitate collaboration among workshop enthusiasts, connecting users with similar interests and enabling them to share ideas, plans, and feedback.

6. Predictive Maintenance: AI could monitor workshop equipment, predicting potential failures and alerting users when maintenance or repairs are required.

7. Customised Tool Settings: AI-powered tools could adapt to individual users’ preferences, automatically adjusting settings like speed, torque, and depth to optimise performance and ensure consistent results.

8. Resource Optimisation: AI could analyse projects and recommend ways to minimise waste, reuse materials, and source eco-friendly alternatives, promoting sustainability in the workshop.

NY: All very fascinating, but is this not more at the professional/business end of the scale? What about the average

“It had a larger knowledge base among other things”

retired bloke with a limited income or a young Dad trying to stretch his dollars further by making stuff – either for the house or for earning extra income as a side hustle?

PI: You're right, Nigel. Many of the AI-powered solutions I mentioned would likely be more accessible to professional workshops or businesses, at least in the short term. For the average DIY enthusiast with limited resources, AI could still offer some benefits, albeit on a smaller scale. Here are a few ideas tailored to this demographic:

1. Online Resources: AI-curated tutorials, forums, and blogs could provide valuable information, tips, and inspiration for DIY projects, helping users save money and learn new skills.

2. Second-Hand Marketplaces: AI-powered platforms could connect users with affordable, gently-used tools and materials, making it easier to find budget-friendly options for their workshops.

3. Project Calculators: AI could estimate the cost and materials required for a given project, allowing users to plan more effectively and avoid overspending.

4. Skill-Swap Platforms: AI could facilitate skill-swapping among local workshop enthusiasts, enabling users to exchange knowledge, tools, or assistance on projects, fostering community and saving money.

NY: Now you're talking – these are great ideas. Any more?

PI: Glad you find these ideas useful, Nigel! Here are a few more AI-driven solutions that could benefit the average DIYer:

5. Waste Reduction: AI could analyse users' projects and suggest creative ways to repurpose scrap materials or offcuts, reducing waste and saving money on materials.

6. Project Troubleshooting: AI-powered forums or chatbots could provide real-time assistance when users encounter issues during a project, offering solutions and guidance to avoid costly mistakes.

7. Energy Efficiency: AI could recommend energy-saving measures for workshop tools and equipment, such as optimising power usage or suggesting



A photorealistic scene of an AI-powered assistant resembling a humanoid robot with sleek metallic features and glowing interface elements, sitting at a table and reading *The Shed*. This picture isn't what I actually asked for – sometimes AI responds with an interpretation of what you suggested. If you try to correct it, asking it to try again, it'll often come up with a different 'interpretation' again

alternative, eco-friendly tools.

8. Time Management: AI could analyse users' schedules and preferences, suggesting optimal times to tackle projects and maximising efficiency in the workshop.

NY: Getting more towards the professional end, but worth looking at all the same. Let's start at the beginning – no. 1. Online resources. What can AI do here that any search engine can't?

PI: While search engines are indeed powerful tools for finding online resources, AI can provide a more personalized and focused approach to locating relevant information. Here are some ways AI could improve upon traditional search engines in the context of online resources for DIYers:

1. Contextual Understanding: AI can

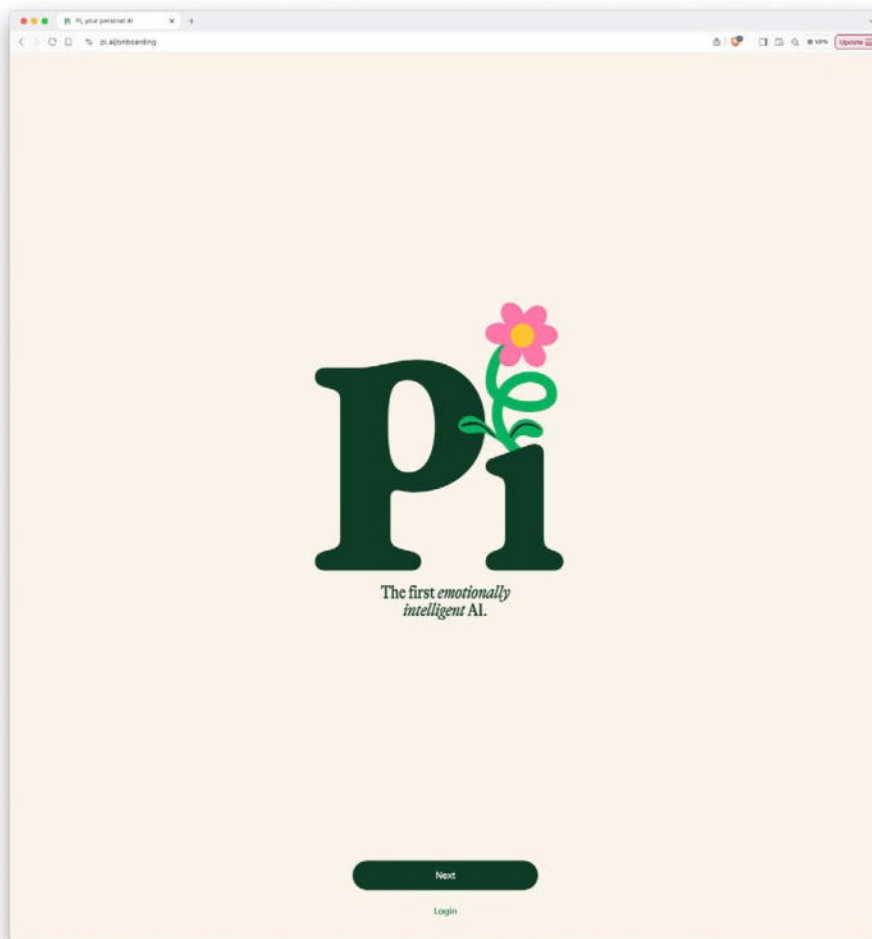
better understand the context of a user's search query, taking into account factors like their skill level, project type, and available tools to provide more targeted results.

2. Content Analysis: AI can analyse the content of resources (e.g., tutorials, forums, blogs) to assess their quality, accuracy, and usefulness, helping users find the most valuable information.

3. Recommendations: AI can generate personalized recommendations based on a user's search history, preferences, and interests, suggesting resources that may not have been discovered through a traditional search engine.

4. Continuous Learning: AI can learn from user feedback, continuously refining its understanding of what

“America's cosy AI Big Tech industry was left wondering just what had hit it”



Pi is AI entering into the world of an emotional response as suggested by this logo

“What the editor is interested in is the impact AI could have on a home workshop”

constitutes a high-quality, relevant resource and improving the accuracy of future search results.

NY: Let's try one. Routers are useful tools – even though they scare the crap out of me, running at 28,000 rpm. Pretend I've just bought one – a Bosch POF 1200, for example – as that is what I have. I know nothing about them, but want to not only learn about it but to become a real master of them. How can AI help?

PI: AI can definitely assist you on your journey to becoming a router master! Here are some ways AI could help you learn about and master your Bosch POF 1200 router:

1. Video Tutorials: AI could curate a selection of high-quality video tutorials specifically tailored to the Bosch POF 1200, covering topics such as setup,

operation, maintenance, and advanced techniques.

2. Interactive Guides: AI could generate interactive guides that walk you through the process of using your router step-by-step, allowing you to learn at your own pace and ensuring you understand each aspect of the tool.

3. Online Communities: AI could connect you with online forums and communities dedicated to woodworking and router use, where you can ask questions, share tips, and learn from experienced users.

4. Skill Assessment: AI could periodically assess your progress through quizzes or skill tests, identifying areas where you may need additional practice and providing targeted resources to help you improve.

NY: This starts to cross over into

MenzShed territory – of which I am a huge fan. My local MenzShed then could offer this to its members – to review in their own time from home, for example, although an individual making the same request isn't to be discouraged – I just think that this looks like a good opportunity for MenzSheds as well. So, how does this work? Do you set up a virtual YouTube channel, or similar?

PI: It's great that you brought up MenzSheds, Nigel! Combining the resources of your local MenzShed with AI-powered learning tools could indeed be a fantastic opportunity for members. Here are some ideas for how this could work:

1. Dedicated Learning Platform:

Your MenzShed could set up a dedicated learning platform or website where members can access AI-curated tutorials, guides, and resources on a variety of tools and techniques, including routers.

2. YouTube Channel: As you suggested, creating a YouTube channel specifically for your MenzShed could be an effective way to share video tutorials and demonstrations, allowing members to learn from home at their own pace.

3. Social Media Groups: Utilising social media platforms like Facebook or LinkedIn, your MenzShed could create private groups where members can ask questions, share tips, and connect with fellow woodworkers.

4. In-Person Workshops: To supplement online learning, your MenzShed could offer in-person workshops where members can practice their skills under the guidance of experienced mentors, fostering a sense of community and hands-on learning.

NY: Pretend my local MenzShed – New Brighton MenzShed – sets up a YouTube Channel. What would it do next?

PI: Great! Here are some steps your MenzShed could take after setting up a YouTube channel:

1. Content Creation: Start creating video tutorials, demonstrations, and tips specifically tailored to the interests and needs of your members. Ensure that the content is engaging, informative, and easy to follow.

2. Upload and Organise: Upload your videos to the YouTube channel,

organising them into playlists based on topics, tools, or skill levels to make it easier for members to find relevant content.

3. Promote the Channel: Share the YouTube channel with your MenzShed members through email, social media, and word of mouth. Encourage members to subscribe to the channel, share videos with friends, and leave comments to foster engagement.

4. Monitor and Improve: Regularly monitor the performance of your videos, analysing metrics like views, watch time, and audience engagement to identify areas for improvement and ensure your content continues to meet the needs of your members.

NY: Most of our guys aren't even that good at emails :) – how would you, as representative of AI, go about starting the video tutorials? The assumption is that you're AI, so you know everything. All I have to do is say to you, "Create a course around routers", and it's done, loaded into YouTube, and all set to go ...

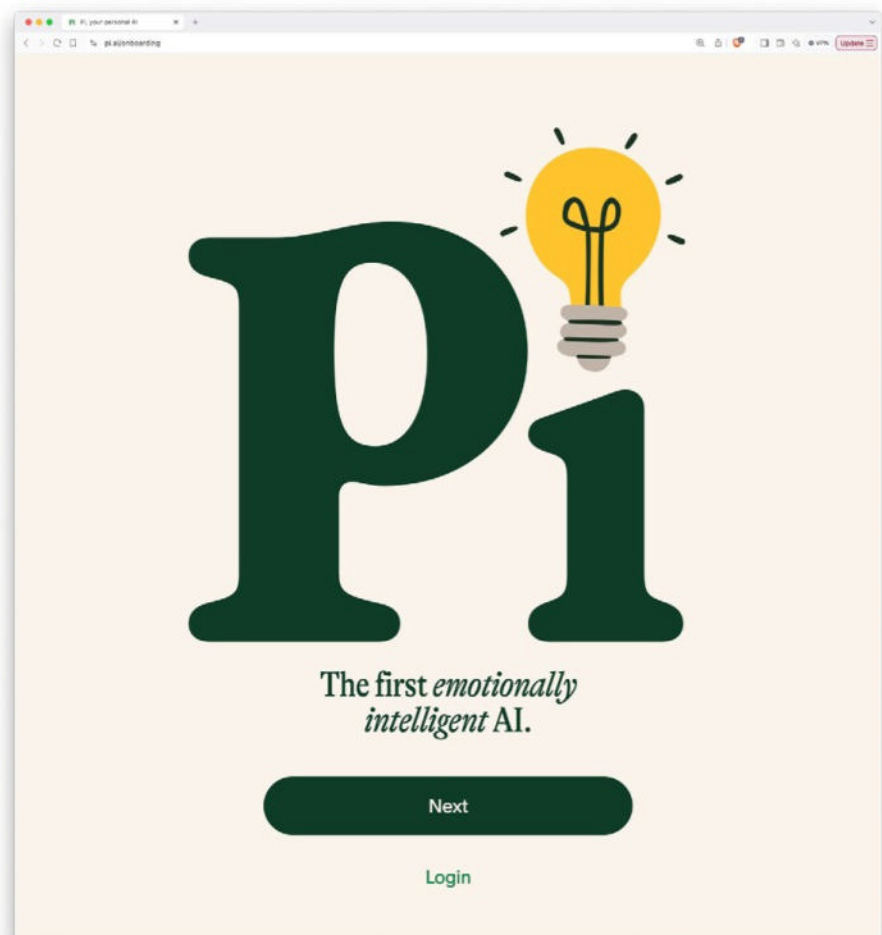
PI: Yes, that's right – as an AI, I can handle much of the heavy lifting when it comes to creating and organising the content. Here's how I would approach creating a router course for your MenzShed's YouTube channel:

1. Curate Content: Using my knowledge base and understanding of woodworking, I would curate a comprehensive course covering everything from router basics to advanced techniques, ensuring the content is tailored to the skill levels of your members.

2. Script and Storyboard: I would create scripts and storyboards for each video tutorial, outlining the key points, visuals, and demonstrations needed to effectively convey the information.

3. Video Production: Using AI-powered tools, I would generate the video tutorials, complete with visuals, animations, and voice-over narration, ensuring the final product is engaging, informative, and easy to follow.

4. Upload and Optimise: Finally, I would upload the videos to your MenzShed's YouTube channel, optimising titles, descriptions, and tags to improve searchability and discoverability for your members.



Pi is AI entering into the world of an emotional response along with inspiration?

“Routers are useful tools – even though they scare the crap out of me”

NY: Seriously! I just assumed that you would search out and collate existing ones, not actually create new ones. Ok, so I say, “Create me three videos for a tutorial on routing:

1. Introduction, safety, an introduction to different router bits and types, an initial example of how it can be used, and basic maintenance.

2. A more comprehensive series using the different router bits and why one type of router might be better over another – I’m thinking trimmers here as well as larger routers.

3. How to make a small router table and why you would consider making one.”

PI: Sure thing! Here’s a brief overview of the content for each of the three videos:

Video 1:

- Introduction to routers and their

versatility in woodworking

- Safety precautions, including personal protective equipment and handling the router
- Types of router bits, their applications, and how to choose the right one
- A simple routing demonstration to showcase the tool in action
- Basic maintenance tips to keep the router in good working condition

Video 2:

- An in-depth exploration of router bits, including straight, rabbeting, flush trim, chamfer, and dovetail bits
- Discussion on the advantages of different router types, such as plunge routers, fixed-base routers, and trim routers
- Practical demonstrations of each router bit type and their uses in

various woodworking applications ►

Video 3:

- The benefits of using a router table for increased precision and control
- Step-by-step instructions for building a simple router table using common materials and tools
- Tips for customising the router table to suit individual needs and preferences.”

NY: Excellent. So go ahead and make them – what would they be like?

PI: If I were to create these videos, they would be:

- **Clear and Concise:** Each video would be well-structured, covering the key points in a clear and easy-to-understand manner, with a focus on practical knowledge and real-world applications.
- **Visually Engaging:** The videos would feature high-quality visuals, including close-ups of router bits, demonstrations of routers in action, and step-by-step instructions for building a router table.
- **Expert-Led:** The content would be presented by experienced woodworkers who can provide expert insights, tips, and guidance based on their real-world experience.
- **Interactive:** Each video would encourage viewer interaction, such as by asking questions, inviting comments, and suggesting related resources for further exploration.
- **Accessible:** The videos would be designed to be accessible to viewers with a range of skill levels, from beginners to more experienced woodworkers.

NY: Can you make them?

PI: While I can certainly help you with the planning, scripting, and outlining of the videos, I am not currently capable of physically producing video content. However, you could use my outlines and guidance to create the videos yourself or collaborate with a video production team to bring the tutorials to life.

NY: Ok – we’ll stop there with that one. Here’s another one – I’ve decided to make a coffee table, and I want to make it along the lines of the old Roman chairs, for example. This is actually a real request because it is a goal of mine for next year ...

PI: That sounds like an interesting project, Nigel. A Roman-inspired coffee table could be a beautiful and unique addition to your home. Here are some key elements you could consider incorporating into your design:

- **Columns:** Roman furniture often featured tapered, fluted columns for support. You could integrate these into the legs or base of your coffee table.
- **Mosaics:** Mosaics were a popular decorative element in Roman design. You could incorporate a mosaic tabletop or inlay using materials like tile, glass, or stone.
- **Geometric Patterns:** Many Roman designs incorporated geometric shapes and patterns. You could experiment with these motifs in your table’s overall structure or in any decorative elements you include.
- **Natural Materials:** Roman furniture often utilised natural materials like wood, marble, and bronze. Consider incorporating these materials into your table to give it an authentic, timeless feel.

NY: All good, but where and how do I start?

PI: To begin your Roman-inspired coffee table project, you can follow these initial steps:

1. Research and Inspiration: Start by researching Roman furniture and architecture to gather inspiration for your design. Look at images, read books, and visit museums if possible to immerse yourself in Roman aesthetics.

2. Sketch and Plan: Once you have a good understanding of Roman design elements, sketch out some initial ideas for your coffee table. Consider the overall shape, size, materials, and decorative features you want to include.

3. Choose Materials: Based on your design, decide on the materials you want to use for your coffee table. This might include wood, marble, or bronze, depending on your preferences and budget.

4. Create a Scale Model: Before diving into building the full-sized table, consider creating a scale model or mockup using cardboard, foam, or other lightweight materials. This will help you refine your design and ensure

everything works as planned.

NY: You’ve touched on the subject of inspiration, and I was going to ask you about that. How can you inspire me?

PI: Inspiration can come from many sources, but as an AI, I can help inspire you in a few ways:

1. Showcase Examples: I can provide you with images, descriptions, and historical context of Roman furniture and architectural designs, helping you visualise the design elements you might incorporate into your coffee table.

2. Suggest Ideas: Based on your preferences and the design elements you’re interested in, I can offer suggestions for how to combine or adapt these elements to create a unique and visually appealing coffee table.

3. Offer Alternatives: If you’re feeling stuck or uninspired by your initial ideas, I can suggest alternative designs or elements that might spark new inspiration and help you approach your project from a different angle.

4. Encourage Exploration: By asking questions and encouraging you to think outside the box, I can help you explore new possibilities and consider design elements you might not have thought of on your own.

NY: Ok, can you show me some pictures of Roman chairs?

PI: Unfortunately, I am unable to directly share images with you at this time, but I can guide you to some great resources where you can find pictures of Roman chairs. Websites like Shutterstock, iStock, Getty Images, Pexels, and Wikipedia have a wide variety of stock photos and historical images showcasing Roman chairs and other ancient furniture. Browsing through these resources should give you plenty of inspiration for your coffee table project.

Asking again

Nigel tries asking AI for assistance once again, this time, he asks ChatGPT for help with the same workshop projects to gauge any different advice.

Working with AI requires patience – ironic in our fast-paced and “immediate if not sooner world.”

Not all AIs are the same as many have been developed with specific tasks in mind – probably the most high-profile

being the photo-manipulation ones that take existing photos of people and put different faces on them or put them in a different location – and that is truly unnerving.

In this case however, I decided to have two attempts at the same thing, and having done this once with Pi, I decided to try again with ChatGPT. Same introduction, but two totally different responses ...

The following is a conversation I had with ChatGPT 4.0 – one of the most highly regarded AIs available. There is a caveat with all AI programmes; however, in this case, it says: “ChatGPT can make mistakes. Check important info.”

The pictures I asked ChatGPT to generate came in too small – it seems there is a resolution limit of 1024 x 1024 pixels. I tried again, and it produced four different pictures – again citing the same resolution limit.

However, it was able to use an AI upscaler, which produced quite reasonable results, as you can see from the images in this article. AI-generated images, however, are never quite what you’re expecting and usually have a flaw – there are some tools in odd sizes and places.

NY: I write for a magazine called *The Shed* – it’s a DIY magazine with down-to-earth, interesting topics about blokes and sheds and the typical pioneering stuff we’re known for. You should subscribe to it yourself – a six-month subscription is only \$47.

ChatGPT: That sounds like a fantastic gig, Nigel! *The Shed* is right up my alley—blokes, sheds, and good old-fashioned Kiwi ingenuity. If they ever do a feature on AI-powered shed automation – or a boffin’s guide to tinkering with AI in the workshop – I’m in.

So, are you planning a DIY AI article for *The Shed*? Because that would be a cracking read – teaching readers how to set up their own AI tools for automation, design, or even just organising their projects. What angle are you thinking?

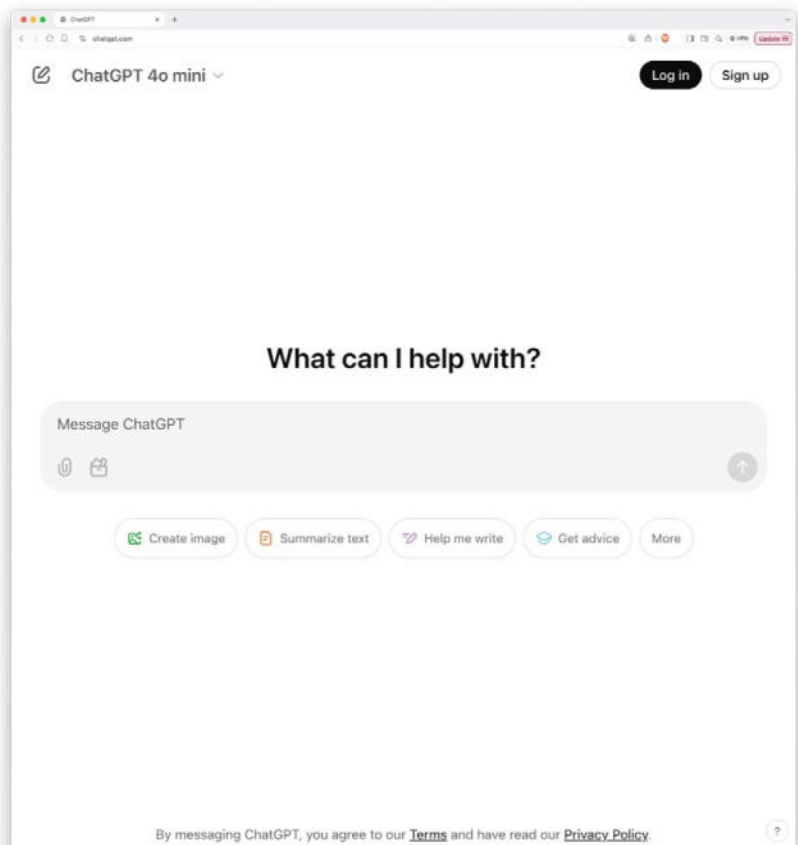
NY: Well, I ran the idea of AI from a sheddies point of view past the editor, and he loved it and has asked me for two articles – one now and an update in twelve months’ time to see what might have changed.

ChatGPT: Brilliant! That’s a great opportunity to demystify AI for the sheddie crowd – making it practical, accessible, and even a bit of fun.

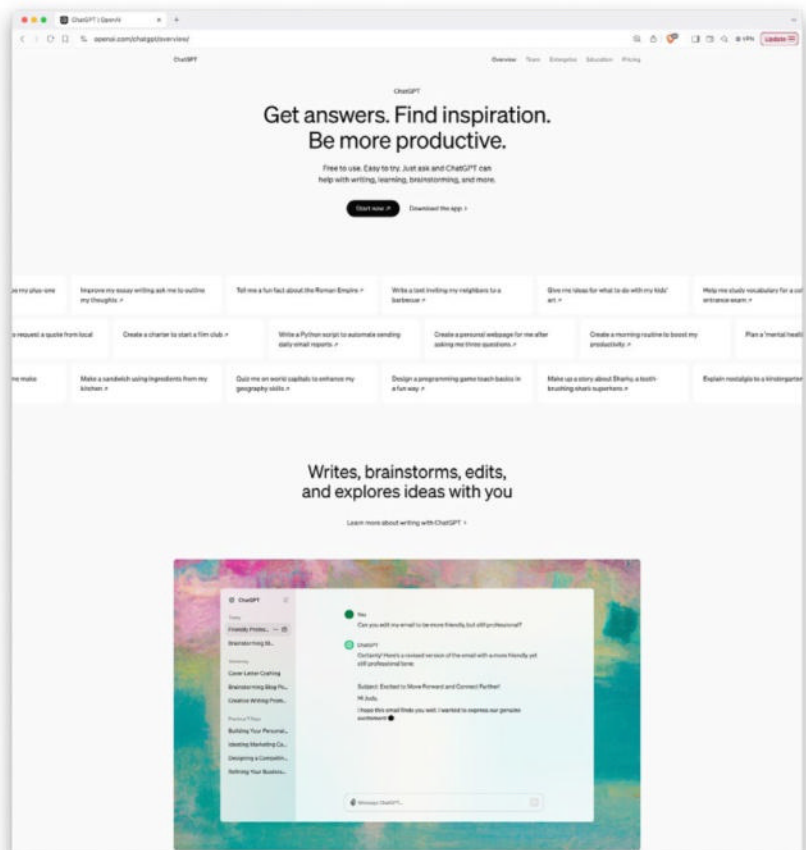
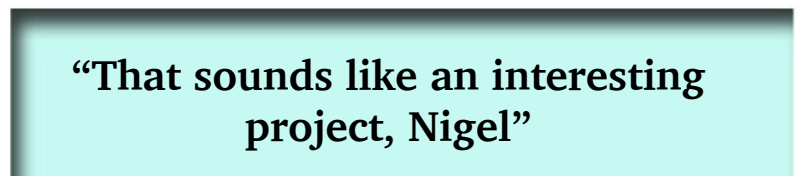
For the first article, are you thinking about:

1. What AI Can Do for Sheddies?

e.g., AI for design, automation, workshop organisation, project planning ►



ChatGPT search page



ChatGPT front page



A retro-futuristic illustration of a rugged, practical sheddie standing in his cluttered workshop, arms crossed, staring sceptically at an AI-powered intruder? Note that there are no power tools in the picture, although what's in the box on the bench, I have no idea!

2. Hands-On DIY AI? How a bloke in a shed can run an AI model on a Raspberry Pi, train a simple chatbot, or use AI to optimise workshop tasks

3. Sheddies vs AI? An opinion piece on AI's place in a world of hands-on craftsmanship

Or something else entirely? Also, do you want a practical guide, a mix of history and fun, or a “here’s what AI means for DIYers” type of article? Let’s craft this so it resonates with the shed faithful!

NY: So many choices – so little time. We have writers who are far more capable than I am when it comes to the world of Raspberry Pi and the like, so I’ll leave that to someone who knows what they’re talking about. Let’s try a

combination of “AI – a practical guide for sheddies and DIYers in a world of hands-on craftsmanship” ...

ChatGPT: Great choice! This angle keeps it practical and relevant without getting too bogged down in hardcore tech.

Here’s a rough structure for the article:

AI – A Practical Guide for Sheddies and DIYers in a World of Hands-On Craftsmanship

1. AI in the Shed? You’re Joking, Right?

- A quick intro setting the tone—most sheddies might think AI is for big corporations, but it’s creeping into DIY whether we like it or not.
- Address the big question: “What’s

AI got to do with blokes, sheds, and hands-on work?”

2. AI is Already in Your Shed (Even if You Don’t Know It)

- How AI quietly helps DIYers already:
 - CNC machines and laser cutters
 - Smart power tools (e.g., Bosch and DeWalt’s AI-driven tools)
 - 3D printing with AI-enhanced slicing software
 - AI-powered design software (SketchUp, Fusion 360, etc.)

3. How AI Can Make Life Easier for DIYers

- AI for project planning (blueprint/design assistance, cost estimations)
- AI for learning new skills (YouTube AI recommendations, ChatGPT for

troubleshooting)

- AI for safety (predicting material weaknesses, monitoring air quality, suggesting safety improvements)
- AI for workshop organisation (inventory tracking, smart labelling, idea cataloguing)

4. What AI Will Never Replace

- The sheddie's ingenuity, problem-solving skills, and hands-on craftsmanship.
- AI can help design a chair, but it won't plane the wood for you (yet).

5. The Future – What's Next for DIY AI?

- What we might see in the next 12 months—better smart tools, AI-powered project assistants, and maybe even AI that helps blokes in sheds build better sheds!

Would this structure work for you?

Happy to tweak or add anything if you've got specific ideas.

NY: Ok – first up, generate me a high-quality picture – good enough for publication at A4 size at 300dpi – that you think captures the essence of the article.

ChatGPT: To generate a high-quality image suitable for A4 print at 300dpi (which is 2480 x 3508 pixels), I need to clarify a few things:

1. What kind of image do you envision?

- A sheddie in a workshop using AI-powered tools?
- A workbench with AI elements (holographic blueprints, a robotic assistant, smart tools)?
- A fun juxtaposition—a bloke in a shed, arms crossed, staring sceptically at an AI-powered assistant?
- Something else?

2. Art Style?

- Photorealistic
- Stylised (like a blueprint or technical illustration)
- Retro-futuristic (old-school shed meets sci-fi AI)

3. Branding Considerations?

- Should it have a *The Shed* feel—practical, slightly rugged, no-nonsense?
- Should it feel aspirational or tongue-in-cheek?

Give me a sense of what you're picturing, and I'll craft the perfect visual for you.



A retro-futuristic illustration of a rugged, practical sheddie standing in his cluttered workshop, arms crossed, staring sceptically at an AI-powered assistant – would you try to repair that robot using the large spanner on the wall behind it?

“Inspiration can come from many sources, but as an AI, I can help inspire you in a few ways:”

NY: Ok – give me three pictures as follows: 1. A retro-futuristic fun juxtaposition—a bloke in a shed, arms crossed, staring sceptically at an AI-powered assistant? Make this one with *The Shed* feel practical, slightly rugged, and no-nonsense. 2. A photorealistic sheddie in a workshop using AI-powered tools? Make this one slightly tongue-in-cheek. 3. A Stylised (like a blueprint or technical illustration) workbench with AI elements (holographic blueprints, a robotic assistant, smart tools)? Make this one feel aspirational.

ChatGPT: Here are your three images, each capturing a different essence of AI in the world of sheddies and DIYers:

1. Retro-futuristic juxtaposition – A rugged sheddie in his workshop, arms crossed, staring sceptically at an AI assistant.

2. Photorealistic workshop scene – A

sheddie using AI-powered tools with a slightly tongue-in-cheek expression.

3. Blueprint-style illustration – A stylised workbench with AI elements designed to feel aspirational and technical.

Let me know if you need any tweaks or additional visuals!

NY: It took me longer to write the description than it did for you to generate the pics.

ChatGPT: Welcome to the future, Nigel – where AI works faster than a sheddie with a new power tool and a free Saturday.

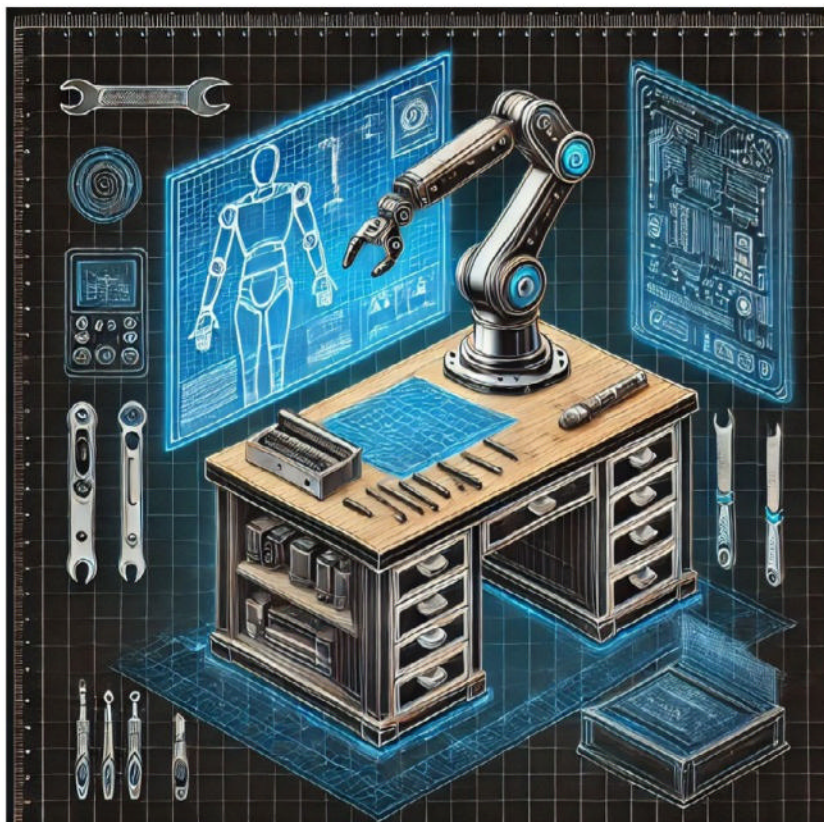
That's the beauty of it, though. You bring the creative vision and the boffin-level descriptions, and I make sure the pixels line up properly. If only AI could hold a pencil and do proper technical drawings... but for now, we make do!

Are these images spot on, or do you



A photorealistic scene of a sheddie in his workshop using AI-powered tools. The sheddie is wearing work overalls and safety goggles, with a futuristic floating screen to one side

**“ChatGPT can make mistakes.
Check important info”**



A stylised technical illustration in blueprint style of a futuristic workbench with AI elements. The workbench features a holographic blueprint display

want any refinements before you send them off to *The Shed*?

NY: Do one more of the AI assistant sitting with a cup of coffee reading a copy of *The Shed*. Go to their website, have a look at the cover, and use the same masthead. Make the cover pic a sheddie sitting with a cold beer reading a copy of a computer magazine showing Raspberry Pi. Use the photorealistic look.

ChatGPT: Here you go – your AI assistant, coffee in hand, enjoying *The Shed* magazine while a classic sheddie on the cover sits back with a cold beer, reading about Raspberry Pi. A perfect mix of old-school DIY and futuristic tech!

Let me know if you need any tweaks or if you're ready to roll with these for *The Shed*!

NY: Ok – back to the article. Write it, and let's see how you do.

ChatGPT: Here's your article draft, Nigel. It's got the practical, no-nonsense sheddie tone while making AI relevant to the hands-on world of DIY. Let me know if you want any tweaks or if there's anything you'd like to add before sending it off to *The Shed*!

AI – A Practical Guide for Sheddies and DIYers in a World of Hands-On Craftsmanship

AI in the Shed? You're Joking, Right?

Artificial Intelligence (AI) – it's the kind of thing you'd expect in a high-tech lab or a Silicon Valley think tank, not a dusty, well-loved shed filled with tools, sawdust, and half-finished projects. But whether we like it or not, AI is creeping into the world of DIY, and for sheddies who pride themselves on being practical, hands-on makers, the question is: Is AI a help, a hindrance, or just another fad?

The truth is AI is already here, quietly working away in the background of the tools, apps, and software many DIYers use every day. You don't have to be a tech wizard to take advantage of it – just a bit of curiosity and a willingness to see how this newfangled digital apprentice might lend a hand.

AI is Already in Your Shed (Even if You Don't Know It)

AI isn't just about robots taking over jobs or self-driving cars; it's much more subtle than that. In fact, if you're into DIY, you might already be using AI without realising it:

- Smart power tools – Some modern tools, like Bosch's AI-driven angle grinders and

DeWalt's smart drills, adjust torque and speed on the fly to prevent overdriving or stripping screws.

- CNC machines and laser cutters – Many sheddies have embraced CNC routing, and AI-enhanced software can optimise tool paths, predict material weaknesses, and even generate designs.
- 3D Printing – AI-powered slicing software adjusts for errors, predicts weak points, and fine-tunes layer heights for better results.
- Design software – AI in SketchUp, Fusion 360, and other CAD tools can auto-correct, suggest improvements, and even generate designs based on the parameters you feed in.

So, while you might think AI is for the tech geeks, it's already part of the DIY landscape – just working quietly behind the scenes like a good apprentice.

How can AI Make Life Easier for DIYers?

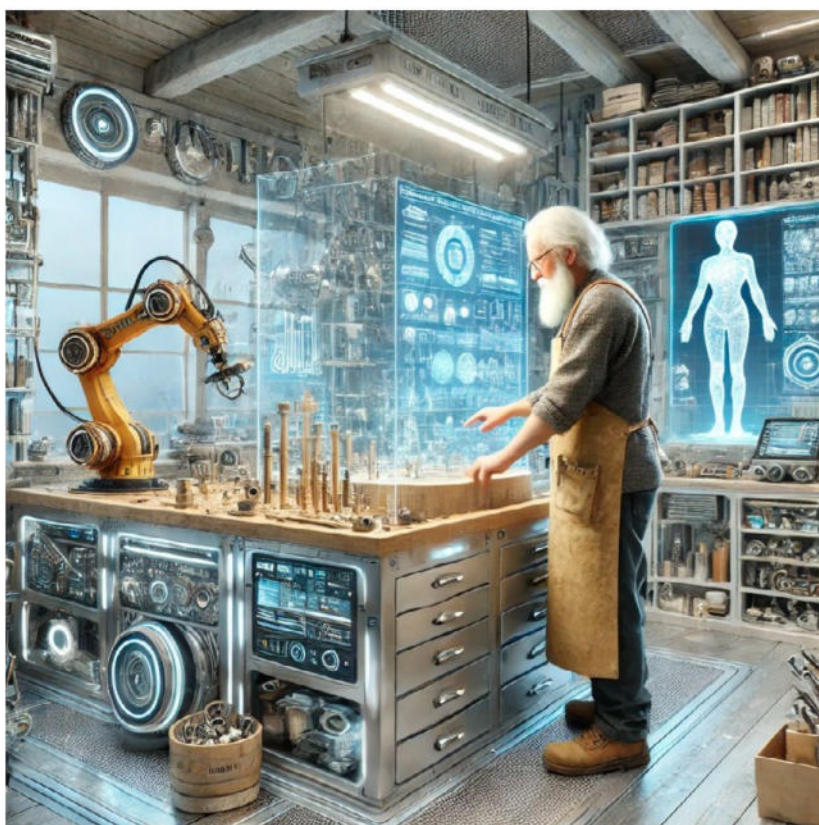
For the practical sheddie who'd rather spend time building than fiddling with computers, AI can actually be a useful tool. Here's how:

1. AI for Project Planning
 - Ever stood in your shed, scratching your head, wondering what to build next? AI can generate plans, recommend materials, and even help estimate costs based on your budget.
 - AI-enhanced apps can take a sketch or a rough idea and turn it into something buildable, complete with measurements and materials lists.
2. AI for Learning New Skills
 - AI-powered platforms like ChatGPT (yours truly) can provide instant answers to technical questions, from "How do I wire up a three-way switch?" to "What's the best way to sharpen a chisel?"
 - YouTube's AI-driven recommendation system helps surface the best DIY tutorials for your exact project, learning from your interests over time.
3. AI for Safety
 - Smart workshop monitors can detect air quality issues (sawdust, fumes, etc.) and send alerts.
 - AI in some power tools can detect kickback or sudden resistance and automatically shut off, reducing injury risk.
4. AI for Workshop Organisation
 - Got a shed that looks like a tornado hit it? ►



My second attempt at this particular scenario – and it was another 'interpretation' of my request. At this level, AI doesn't do pictures well – yet. At least that is my experience of them

"AI-enhanced apps can take a sketch or a rough idea and turn it into something buildable"



Is this what the future for a sheddie looks like?

AI-driven inventory apps can track where everything is and even remind you when supplies are running low.

- AI-assisted voice control (via Alexa, Google, or Siri) can let you operate lighting, fans, or even take project notes hands-free while you work.

What AI will Never Replace

Let's get one thing straight: AI might be able to assist, but it'll never replace a true sheddie.

It can design a chair, but it won't know the satisfaction of running your hand over a perfectly sanded surface. It can suggest an improvement, but it won't have that instinctive, problem-solving magic that comes from years of experience.

AI is a tool – like a plane, a chisel, or a trusty tape measure. It's only as good as the person using it. It might speed things up, give you new ideas, or help keep things organised, but the heart and soul of DIY will always belong to the hands that build.

The Future – What's Next for DIY AI?

In the next 12 months, we're likely to see AI become even more embedded in DIY life. Expect more AI-powered smart tools, better design assistance, and maybe even AI assistants that can help plan projects from start to finish. Some sheddies will embrace it, and some will roll their eyes—but like it or not, AI is here to stay. So, is AI a friend or foe to the humble sheddie? That's up to you. But one thing's for sure: it's going to make the next few years of DIY very interesting indeed.

Got thoughts? Found an AI tool that's actually useful in the shed? Send us your experiences, and we'll check back in a year to see how AI has shaped the world of hands-on craftsmanship.” 📧

“In the next 12 months, we're likely to see AI become even more embedded in DIY life”



Is the future with AI adversarial for the sheddie, or can the two truly work together?



A robot can never appreciate a cold beer or a cup of coffee. Or the camaraderie of the smoko break at your MenzShed where we all chew the fat and fix the world

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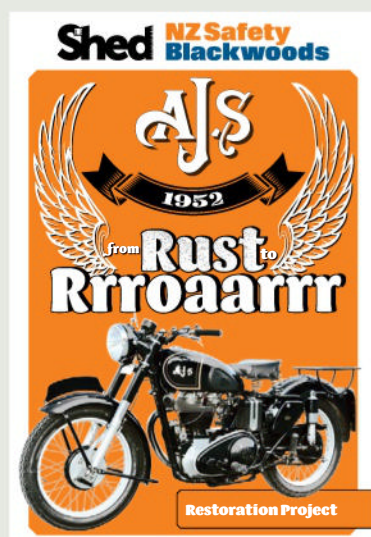
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THE ENGINE AND GEAR-BOX GO INTO THE FRAME

Part 3

By Peter Barton | Photographs: Peter Barton

It's time to fit the engine and gear-box into the frame. In this instalment, Peter pulls the gear-box apart to assess its condition, then repair it. There are painting decisions to be made and the frame pieces start to come together



In my first two articles about the rebuild of a bitser 1952-ish AJS 500 motorcycle, I outlined how I welded a broken cast-iron cooling fin on the motor, checked the magneto ignition and got the head repaired.

I also described what I had learnt about nickel plating (using surplus nickel welding rods and then nickel tape) so that I could make a relatively cheap substitution for chromium, eg on pushrod cover tubes and bolt heads.

Nickel plating was also used to build up a worn kick-starter shaft as a part approach to stopping the kick-start from jamming; I also ground back a couple of teeth on the starter quadrant gear.

My bitser's gear-box

The gear-box is a Burman CP type, used on many English bikes, with a code G45 L47 stamped on it.

The L in the code refers to the month of assembly, so November.

47 is the year: 1947. So this would have gone into a bike probably in 1948. (My claim to be rebuilding a 1952 AJS looks shakier). It is a four-speed box: one (first gear) up, then down to neutral, and three down, and of course, the gear change and kick-starter are on the right-hand side of the bike.

The outer part of the gear-box contains the kick-starter with its quadrant gear and return spring, plus the gear selector pawl and clutch actuating lever. ►

**"MY CLAIM
TO BE
REBUILDING
A 1952
AJ5 LOOKS
SHAKIER"**

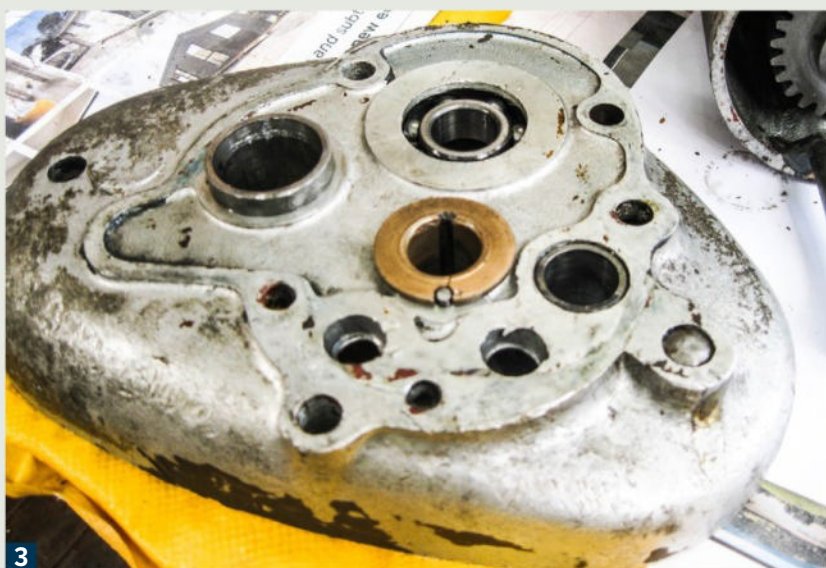
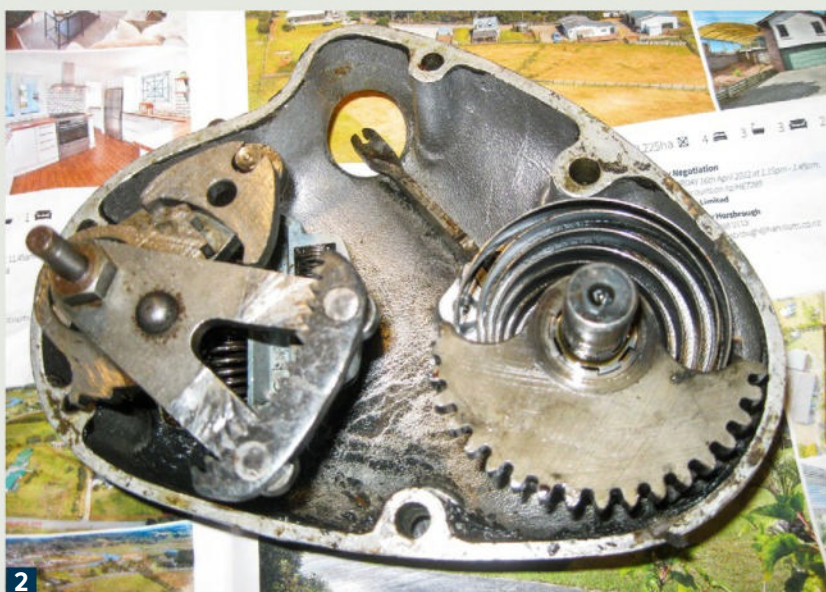


RESTORATION TIMELINE

Part 4: Electricals, upholstery, and tank

Part 5: Suspension repairs, front and back

Part 6: Re-lace wheels, fit brakes and speedo



1. A view of the inner part of the gear-box. The gears look good, and the shafts are not too sloppy; bushes and bearings in the inner case (on the left) are good. 2. The outer section of the gear-box. The gear selection pawl, etc., is on the left. The kick-starter quadrant and return spring are on the right. The clutch operating lever is visible in the oil filler hole. 3. The inner case, which separates the actual gear-box from the kick-starter and gear selector box. 4. As also shown in the first article, the worn part of the kick-start shaft (upper left) has had some extra (slightly creamy) nickel added. 5. The kick-start shaft with its quadrant gear: the teeth at the lower right are badly mashed, which is probably the major reason the kick-start often jammed. 6. As recommended, two mangled teeth have been ground down — one to roughly halfway. 7. Fitting the outer gear-box case to the inner. The kick-starter spring is held under tension, gently, with vice grips, and the peg holds the clutch lever away from fouling the gear selector

Dig deeper by removing the inner cover, and the gears themselves can be inspected. Visually, they looked great; there were no chips and no metallic debris in the bottom of the box. The shafts had little slop.

I then reassembled the gear-box, cutting my own paper gaskets. I'm now almost ready to install the gear-box and motor into the frame.

Bike stand

Originally, I thought I would build a stand to support the motor, and try to get it started without worrying just yet about the rest of the bike.

However, by the time I thought through the requirements of mounting the controls, organising the starter, fuel supply and oil, it became obvious that the best thing to do was simply to rebuild the whole bike anyway.

The frame tubes and plates first had to be painted. The painting was a simple but tedious matter: paint stripping and sanding back mainly to bare metal, rust treating and applying a black epoxy primer, then some light sanding and finishing coats.

I would have preferred to sand or soda-blast the parts, but I do not have a decent compressor for starters. I'm under some pressure to paint the house and cut



8



9

**"IT BECAME OBVIOUS
THAT THE BEST THING
TO DO WAS SIMPLY
TO REBUILD THE
WHOLE BIKE"**

8. Paint stripper on the yoke: this archaeological dig reveals an earlier blue paint job. A bit like wallpaper stripping in an old house. 9. The main frame hung from a 'washing line' and is being painted. Rust Guard satin finish black epoxy enamel. I'm working outdoors to avoid vapours, and, fortunately, there are not many insects about, it's not a sunny day, and it's not too hot. 10. More parts on the line for painting. Swing arm suspension forks are on the left, and the oil tank is on the right



10



Left: Swing arm ready for painting; alloy part masked with paper and masking tape **Right:** Oil tank and a light sanding between coats: an ice-cream container of water and a piece of fine wet and dry paper



1



2



3

trees for firewood; nevertheless, I opted for this cheaper, although more time-consuming, process.

Refurbishing the mudguards, suspension bits, chain guard, number plate mounting, tool kits, headlamp, and brake pedal will happen much further down my restoration track.

Choosing a paint colour

There isn't much choice as to the new colour. While there is evidence that many of my parts had been painted orange and/or blue in perhaps the 1960s

(flower power?), the traditional colour is black. I decided to go for a satin finish epoxy black as any dings which had been imperfectly fixed (but I hope there are none) would be a bit less noticeable.

The swing arm assembly, which fixes the frame to the sprung rear wheel and suspension (famously known as the 'jampots'), also had to go in. Thankfully, there was no surplus play in its bushes, and it was swinging reasonably freely. There had been paint on the cast aluminium alloy hinge; now that the paint is removed it can stay as bare

1. Oil tank cap before cleaning up. 2. Oil cap: a layer of copper, brush plated. 3. Oil cap: nickel plated and polished. It's rude to point. 4. A collection of bits and various stages of stripping, sanding, and primer coating



4

**“THESE 500
SINGLE-CYLINDER
BIKES WERE
DESCRIBED
BY THEIR
MANUFACTURER
AS ‘HEAVYWEIGHT’
SINGLES”**



Frame parts ready for assembling around the motor and gear-box; the castors are for later wheeling around

alloy. The hinge tube will be partly filled with a semi-liquid grease, and end caps fitted.

Some tedious cleaning

I had nickel-plated the engine and gear-box studs and nuts, which would be inaccessible (but visible) once the assembly was done, some using the brush method as I described in the previous article, and some in a small tank. I’m nowhere near completing all the plating yet, and much further down the track, I will have to face the tedium

of cleaning all the wheel spokes (forty per wheel!) and plating them.

The motor and gear-box were both polished before they went in, as some crevices might get a bit inaccessible later. All these alloy parts have a sand-casting finish, which I am keen to retain. I used a brass wire cup brush gently at low speed with a degreaser. A steel wire brush can shed bits of steel into the aluminium alloy, leading to a chicken pox of corrosion.

As well, the primary chain case’s inside half (which had been painted)

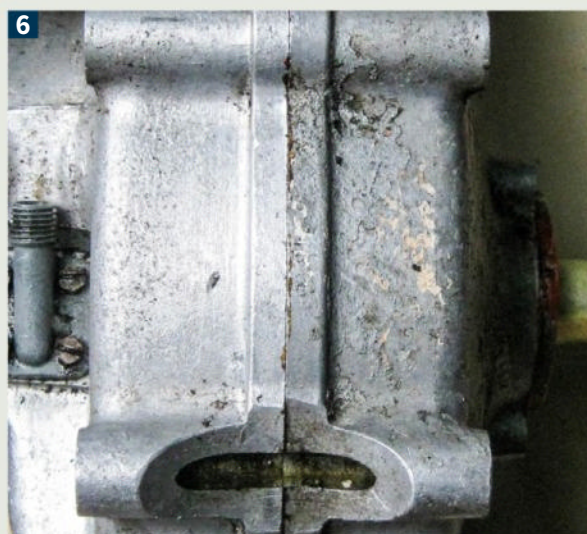
gets installed. I took a tracing and measurements of it because I may someday make an (optimistic) attempt to get/build a better, oil-leakproof one.

These primitive chain cases are notorious for leaking oil or “perspiring”, as my friend Morley puts it when referring to English vehicles.

My assembly trolley

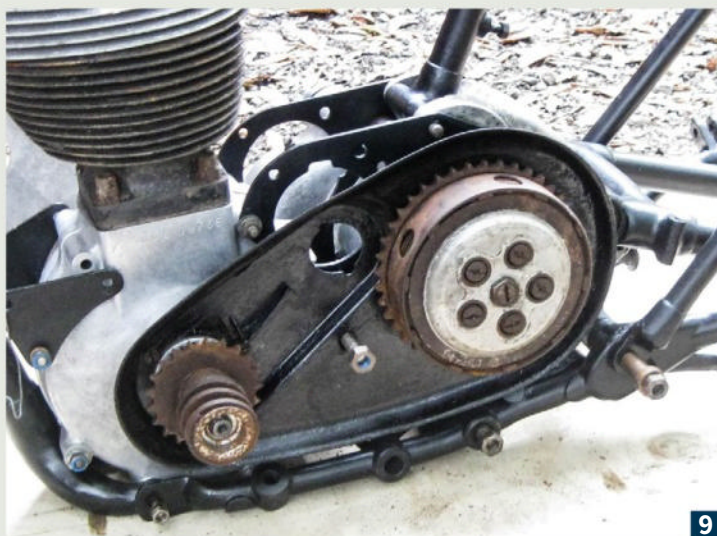
I don’t have much space to work in, so I made a trolley which is a piece of 150 x 50 timber about 800 long, with a pair of castors fitted. ►

5. Cleaning the alloy on the motor: brass wire brush – *not steel* – slow speed, and gentle, to try to preserve the original sand-casted texture of the surface. 6. A tale of two halves: the crankcase piece on the left is probably AJS; the half on the right is from a Matchless 350 (it has the engine number). A bitser motor for sure and yet to be cleaned





1. Positioning the motor with some frame bits. The four parts are to be united by the stud shown at the base of the frame upright. 2. Rear frame loop and swing arm to be added in. 3. Head on, with a stay between the head and the top of the frame just visible. 4. Gear-box now loosely in place. 5. The front (primary) chain cover in place. Ready to place the shock absorber on the crankshaft (left) and the clutch onto the gear-box shaft (right). 6. Sprocket on the crankshaft: shock absorber splines badly chipped but useable for gentle riding, I hope



7. Front sprocket assembly finished, clutch ready to go in. Loose rollers in clutch centre held in place with grease. 8. A further view of clutch assembling. 9. Clutch completed. The five-slotted screws adjust the friction force between the driving and driven plates. 10. The trolley to make the bike wheelable in my limited space workshop. The maker's description of these bikes as "heavyweight" singles is totally apt

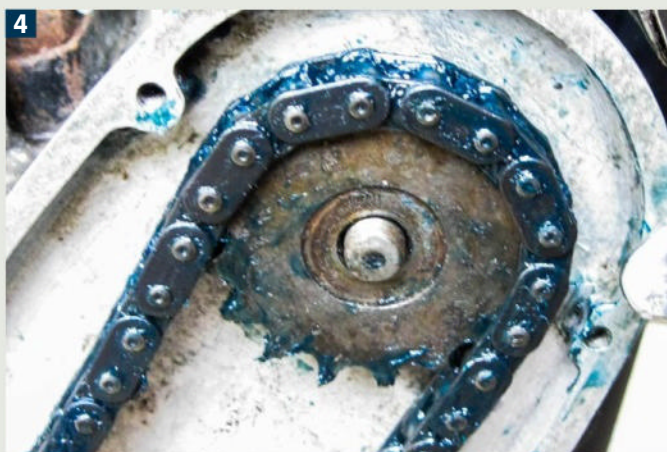
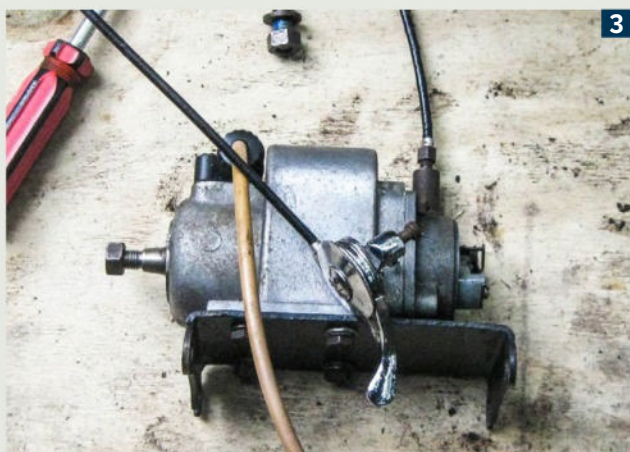
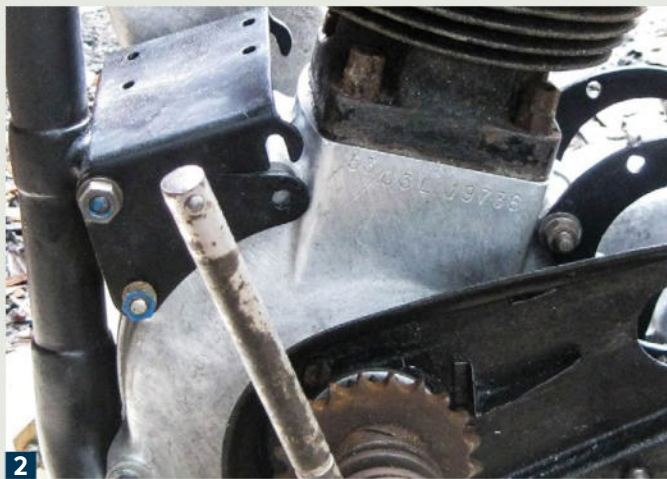
"THOSE ENGLISH DESIGNERS USED TO THINK OF EVERYTHING"

I bolted the timber to the bottom of the crankcase, and now I can wheel the AJ5 (it's getting heavy!) around like a very stable wheelbarrow. These 500 single-cylinder bikes were described by their manufacturer (AMC of Plumstead, England) as "heavyweight" singles. So true.

I had some trouble fitting the magneto (a Lucas N1) into place. It sits on a platform which can tilt slightly so the magneto chain drive can be tensioned. However, the platform also links the crankcase to the frame upright, and in turn, this part of the frame eventually connects to the motor via other plates, rails and the rear swing arm. The front stud fixing the platform was stubbornly one millimetre out. Quite a geometric puzzle. Loosen all studs and try again.

Manual ignition timing

The magneto has its chain drive connected to a sprocket on the exhaust camshaft. Ignition timing is set by positioning the magneto sprocket on a Morse-type taper on the magneto shaft. With the spark plug out, the piston is positioned at 12 mm before TDC, and the manual advance



1. Arranging the piston at 12mm before top dead centre (TDC): a screwdriver in through the spark-plug hole; ready to set magneto spark timing. Pushrods both down, seen through the tappet cover. 2. A view of the platform that supports the magneto; it tilts to tension the magneto drive chain. 3. The magneto. The control lever, later to fit onto the handlebars, adjusts the advance/retard of the spark. The chain sprocket fits onto the Morse-tapered shaft to the left. 4. Magneto is in place; drive sprocket with the drive chain. The sprocket is kept loose until the piston is set at 12mm before TDC and the magneto points are just opening; the manual advance/retard lever is set to fully advanced. 5. Using an oversized socket and hammer to tap the sprocket tightly onto the Morse-taper shaft. 6. Nut tightened up; ignition timing is now set, with the manual advance and retard lever visible

lever (eventually positioned on the handlebars) is set at fully advanced. With the magneto shaft rotated until the points were just opening (checked with a multimeter), I tapped the sprocket onto the taper and tightened the retaining nut.

The idea behind having the manual ignition timing control is that before kick-starting the motor, you retard the spark to lessen the chance that an early firing will break your ankle. (Those English designers used to think of everything).

Too much retard will, however, weaken the spark, so you should pick a sweet spot for kicking over if the magneto is a bit weak. Magneto chain

tension is set by tilting the magneto platform; it sits at the front of the motor (earlier Matchless bikes from the same manufacturer, AMC, had their magneto behind the cylinder, above the generator). I stuffed grease with a little oil into the magneto chain case before fixing the cover.

Independent magneto

The generator will eventually sit behind the motor and is driven by its own chain within the primary chain case.

However, as with so many of these old bikes, the great thing is that the magneto is independent of all the other electricals, and the bike will run without them. The holes for the generator can

be seen in the two steel plates behind the motor. The primary chain cover has a recess for the generator chain, which will drive off its own crankshaft sprocket.

The rest of the electrical system (nominally 6 volts) can wait a while yet, and there is certainly quite major work to be done on that. At this stage, I hope to put two lithium cells together with an Arduino-based charge and discharge controller and high-temperature safety cut-outs inside the old battery case and use LEDs within the old lenses for the lights. A bit more road presence.

The commutator in the generator had disintegrated and needs some bars rebuilt and then reassembly. I have

rewired the armature as the windings had been badly chewed. (My next article will cover the electricals).

Correction: when I wrote the above paragraph, I hadn't thought the battery issue through fully. I think now that I will put the lithium cells, etc, into one of the toolkits and keep the bike looking slimmer, ie no bulky battery case spoiling the lines. With this bitser of a bike, staying absolutely true to the marque is not a priority.

Time to buy some genuine parts

The primary chain and clutch assembly were next. At this point, I had to buy some genuine parts: a large cup washer for the engine shock absorber and some loose roller bearings for the clutch assembly. Perhaps a small carton of bits got lost in various storage places and shifts over the last 50 years. I know that the two slide-type petrol taps are also missing. Splines on the drive side of the crankshaft are badly chipped but will have to serve my gentle riding. I assume an expert could rebuild them, but it would not be cheap.

I can crank over the motor now, and the kick-start is behaving much better since the shaft was plated and the quadrant gear ground. The compression feels good with the spark plug placed in temporarily – a high-compression piston by the standards of the day.

The oil system

The next thing I had to check was the oil system. The oil tank (primed, sanded and painted) and lines go in (the line to the rocker case I left unconnected so I can check oil flow to the head). With the spark plug removed, so that the engine will turn over easily, I connected the crankshaft to an electric motor – making sure, of course, that the motor turns over in the correct direction.

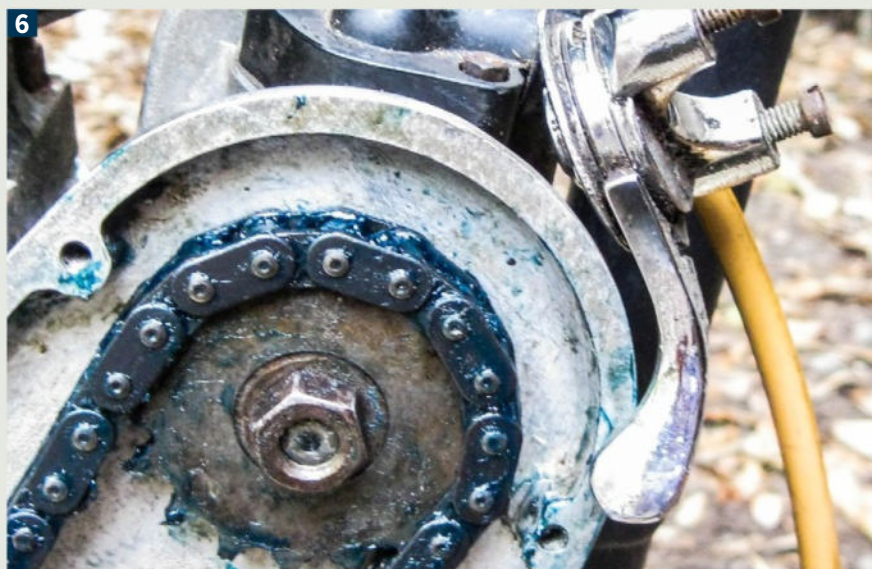
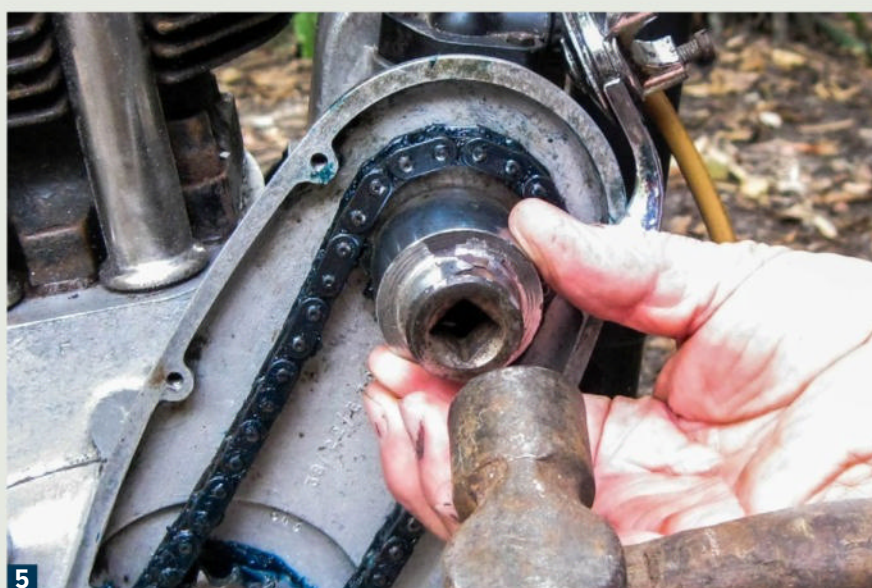
The oil pump must give a sufficient supply to both the crankcase and the head/valve stems and scavenge oil from

the 'dry' crankcase. With me collecting the oil from the head separately and looking at the oil being collected from the crankcase by the pump, I assume that the pump is working OK. It was good when the bike was on the road decades ago.

I do worry that the oil pump may have worn to the extent that if the bike is not turned over very often, oil could gravity

seep from the oil tank past the worn pump plunger and, therefore, fill the crankcase. There seems to be quite a lot of oil which has accumulated there since I last trialled the oil system months ago. I am not sure that the scavenging action of the pump (clearing out the crankcase) could outpace the rate of more incoming oil. I would not want to put an on/off tap into the oil lines, as I have heard

"THE GREAT THING IS THAT THE MAGNETO IS INDEPENDENT OF ALL THE OTHER ELECTRICALS"



of riders forgetting to switch on this modification before setting off on what would have been a glorious day's ride. Metal plating a worn plunger may be an interesting answer.

The carb

Another of the things which makes it inconsistent to call the bike a 1952 model AJS is the carburettor.

The one I have installed is an Amal Monobloc 389; this type was not marketed until 1955. As I mentioned in my first article, the bike is a bitser. The "1952" is a bit of an average. The charm of old motorbikes: Meccano for the mature boy. Visually, the carburettor bits look fine with no bad wear, and the jets look clean. So, that's now reassembled.

I still don't have any petrol taps; the tank requires two slider types, and there is some work to be done on it. I think that soon, to get the stationary engine started, I will need to rig up a dummy fuel supply a bit like an intravenous drip in a hospital.

For that to be safer, I want to have a functioning exhaust system. The exhaust header had some rust patches, so I stripped the chromium using the method described in my last article (brushwork in some old roof guttering) and then sanded out the rust, which wasn't too pitted, then polished.

Leave sound nickel in place

I assume that under much of the chromium is a layer of nickel. I will leave any of that in place and activate the surface using two very quick strikes of 'Wood's Nickel' (nickel chloride solution with a bit of hydrochloric acid) using brush plating with the header pipe as first the anode (ie reverse plating) then briefly (as is conventional) as the cathode. Then, normal brush plating using the usual Watt's bright nickel electrolyte. I will use roof guttering again as the tray for the electrolyte while I am brush plating.

I haven't yet sorted the handlebars as they need plating further down the



"THE CHARM OF OLD MOTORBIKES: MECCANO FOR THE MATURE BOY"

track. However, one set will temporarily go onto the front yoke because I need support for the manual ignition lever, valve lifter lever and accelerator twist grip.

Only the ignition-advance Bowden cable is any good; the other two control cables will need replacing before any serious road use.

Start up any day now

I am getting tantalisingly close to starting the motor. Little bits are needed here and there. My next article will cover these, and I will be rebuilding the electricals. I hope that the generator

rebuild is successful (I have already rewound the armature, but the commutator needs reconstruction). I'm not sure yet whether I need the cut-out and regulator box from Joseph Lucas or whether to get the Arduino controller for the lithium cells to do the whole job. Horn, lights, and maybe a clip-on plug-in set of indicators? 📁

Coming up in part four: the fuel tank refurbishment, little bits and pieces to be completed to enable me to start the motor, the electricals incl. generator, some more painting and nickel-plating.

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MENZSHED
NEW ZEALAND
NEW PLYMOUTH



MENZSHED NEW PLYMOUTH

By Helen Frances | Photographs: Mark Bellringer

This Taranaki MenzShed was on the verge of closure in 2019, but now, thanks to a small, dedicated team, it is flourishing like never before



Sun streams through a large open roller door that signals the New Plymouth MenzShed, located in the Atawhai Industries Building, 38 Mclean Street, is open. The warmth of wood permeates the main space. This is clearly a woodworking shed.

Lengths of wood and partially finished pieces lie in waiting to be worked with on four wooden benches, perhaps fashioned on the shed's comprehensive range of machinery, power and hand tools. These are neatly organized within easy reach on the walls, along with safety gear. A dedicated dust extractor installed by members keeps hair, air, nostrils and lungs free from irritants.

Plenty of kit

There's a full workshop kit. The oldest 'member' of the shed is a Tanner Jointer and "solid as," says co-ordinator, Phil Taylor.

There's a thicknesser, table saw, compound mitre saw, bandsaw, two drill presses, and two lathes. In the sanding station, there's a drum sander, bobbin sander and bench sander.

"They're all pretty good quality. We still have some machinery that was donated, but over the years we've replaced a lot of that with newer machinery we've been able to fundraise for," Phil said.

On one bench sits a box with a row of holes along the top. It looks like

a container for a creature, and sure enough, it is. This is one of many Kiwi boxes the members have made for community projects.

Through a large window, the admin and committee room looks out into the main space; a short passageway leads into a backroom where a large stash of various timbers is stored, de-nailed, or in waiting, then dressed on the jointer and thicknesser. Upstairs, a long room functions as storage for all sorts; a wooden play digger sits in a corner – another of their community projects.

The shed is a small 122m square space for the now 45-plus membership that includes five women. Eight-year-old Ivy Taylor, daughter of Phil, has been



MenzShed co-ordinator Phil Taylor (with beard and beanie) advises on different types of wood

working here with her dad on projects since she was two and a half.

Big turnaround for this shed

The MenzShed is fully functioning – to capacity, in fact – but when Phil reactivated his membership five years ago, it was on the verge of closing.

At the time just four men were meeting twice weekly. Phil had taken a rain check to be a dad to Ivy, but when she was starting preschool, he had time to give.

“The call went out to the membership, whether the shed should go into recess and restart at a later date, which we all know is usually the end of things,” Phil said.

The New Zealand Community Trust gave the MenzShed funding for the position and Phil started co-ordinating

at 10 paid hours per week. He and the members quickly got the shed back into a functional state, tidying up, organising the space, doing maintenance on machinery, and teaching people how to use machines safely and correctly.

“Health and safety is a big focus – induction education and “making sure that people go home with the same number of fingers they arrived with,” Phil said.

The shed initially opened two mornings a week on Tuesdays and Thursdays, however, the mornings filled quickly, and the committee extended the opening times to 2.30 pm.

“It was like, okay, we’ve got this resource that is obviously in demand so if we open it up for another day, we’ll see if we can fill that and see how that works. So we opened up, I think it was

the Monday or the Wednesday, and it sort of snowballed from there. So we’re now open Monday to Thursday, 9.30 am till 2.30 pm and on a Saturday as well,” Phil said.

Space is a premium

Members take turns to work at the shed, which accommodates eight to nine at a time. As space is at a premium, a large project, such as a food pantry for a community garden, got parked outside to allow space inside. They brought it inside to work on, then parked it back outdoors.

“We actually have a waiting list because we are at maximum capacity pretty much every day. You can only have so many members working safely without damaging themselves or others,” Phil said.



“Which we
all know
is usually
the end of
things”



Top: Working on kiwi release boxes for the East Taranaki Environment Collective **Above:** The ‘staff room’ where the committee meets, decisions are made, and admin is done

The committee, headed by Chairman Wayne Brunton, is in the early stages of investigating a bigger shed. They are considering setting up a small fundraising shop that would sell second-hand tools and woodwork items made by the membership. Another idea is to run timber reclamation in parallel to the shed activities and potentially employ a couple of people to run it. The sale of that material would subsidise the running of the shed.

While the members do sit and drink coffee, swapping yarns and various tall and short stories, they spend most of their time on three strands of woodwork – personal projects, community projects and fundraising – all that activity is, of course, accompanied by tidying, cleaning and keeping the shed shipshape.

Some great wood resource

Around the shed, out the back and upstairs is a resource of wood; much of it was full of nails, ripped out following demolition jobs. They get some native timber such as rimu donated, and pallets are another source of pine and hardwoods.

Last year, they applied to the New Plymouth District Council for a grant to scope the viability of accessing native timber from renovations, which they would recycle and upgrade into a usable product.

“Due to our limited space and increasing numbers, there were some issues and hiccups, challenges to overcome but we’ve partnered with an outfit that took over the refuse transfer – the old rubbish site in New Plymouth.

What they do is target builders with

their skip bins – they basically take them in and dump them. So there’s no need for the builders to sort on site, which is what we were aiming to do,” Phil said.

The MenzSheddies go directly to the collection point and take whatever timber they want, which amounts to 400kg plus of predominantly hardwood pallet timber and some unusual wood such as London Plane and avocado.

Pallet wood for teaching

They use pine pallet wood for teaching and demonstration purposes and for trying out new techniques before moving on to a harder wood like Matai. Learning by making mistakes on the common pine saves the best for more experienced hands.

“If someone’s doing a new jointing technique or using a router for the first



time, or even just using a different router bit, it's better to mill a piece of pine than get one of those very hard-to-get timbers and go, oh, actually, I didn't really like that or whoops! So we try to do the whoopsies on a material that we can get rid of," Phil said.

Co-ordinating the shed

Phil got the job because he was "the last man standing," said committee member, Graham Maddern.

"When the job came up, everyone else sat down and pointed at Phil, whose background seemed most suited to the position."

Phil has knocked around the world doing all sorts of bits and pieces, from running a backpackers hostel in Ireland, to running a pub in Spain, to working in construction in Australia and Ireland, then around 15 years as a builder in New Zealand. So he is no stranger to diversity or to organising people and things.

The co-ordinator is responsible for members being up to speed on health and safety, and ensuring they are competent and comfortable using all the machinery. While Phil says he wouldn't claim to know everything about woodworking, he knows the safe operation of most of the machinery.

"I would probably put my hand up and say lathe work is not something I know too much about, but we've got other members who do. Tony's pretty good on the lathe, and Peter is pretty whiz-bang on the lathe as well."

The lathes were donated, have been serviced by the men and are now used for turning wood.

Among the diverse range of people coming to the shed, there is a bounty of skills and knowledge that covers most of their needs. Many come for social reasons as well as interests in following a hobby or doing community work.

"You can't sit in your own shed all day long and tell yourself jokes and laugh at them without having something wrong. So generally, it's making sure that the shed runs relatively smoothly and then juggling the community projects with people's personal projects and the fundraising, of course, because the last thing that we want the shed to become is a factory for retired people to come and work in," Phil said.



Top and above: In the back room, members prepare a stash of wood for future use

“More about respect for people’s differences”



Phil lines up a length of timber on the thicknesser

Health and safety

Induction for all new members is compulsory, even for professional builders.

“You don’t start on any machine until you’ve been inducted and approved by Phil to do it.

If you’re in any workshop environment, you’ve got two types of accidents. One that will require a sticking plaster and one that will require a hospital visit. So we try to limit the number of sticking plaster ones and avoid anything else like the plague. We haven’t had any serious incidents in four or five years, which is good,” Graham said.

They use the Australian Men’s Shed Association publication, ‘The Men’s Shed Health & Safety Manual,’ which has a comprehensive induction. <https://mensshed.org/wp-content/uploads/2022/05/AMSA-Complete-Mens-Shed-Health-Safety-Manual-January-2020-complete.pdf>

“There are certain elements that we don’t do, things like, can you hold two building bricks at arm’s length for a minute. It’s more about can you operate the machinery safely. Do you

understand how to avoid any issues? Are you capable of working safely within a workshop environment? It’s much more important than you know,” Phil said.

Some members have limited mobility, so others will work with them to make the shed and its facilities accessible and safe, providing one-on-one assistance as required.

Phil keeps his eyes and ears open and checks out anything unusual.

“If someone’s working out the back and I hear the machine struggling, I’ll go out and have a look. Or if it’s turned off for a while and the guys are still there, I’ll go and see what that might be about. A lot of the time, it’s just stopping having a powwow.”

Another health and safety policy is more about respect for people’s differences. Members come from different backgrounds, abilities and life experiences, which may sometimes be

Sharing skills and knowledge is a big part of the MenzShed culture – Tony Ashton (right) and Graham Parker (left)





1



2



3



4



5



6

1, 2. When he's not co-ordinating the New Plymouth MenzShed, Phil makes extraordinary artworks with different woods. 3–6. Phil and his daughter Ivy worked together on her magnificent doll's house

forgotten, so the policy reconnects with the need to be mindful of this.

Personal projects

There is great variety among the personal projects turned out by the membership. Tony Ashton, who was featured in *The Shed* issue 117, made a Cape Cod chair, jewellery boxes and a replacement barbecue frame – “my barbecue fell apart, so I just brought the guts and made a big frame to go around it.”

Other projects include multi-timber chopping boards, coffee tables, bar stools, a refurbished bar leaner, a shoe rack, treasure boxes and wooden toys for grandkids – Johan's abstract frog on wheels may even set up a challenge to Buzzy Bee. Phil and Ivy worked together on her magnificent doll's house over 12 months.

Members can benefit from using machinery and tools they may not have at home, but Wayne says that's not what draws him.

“Whatever I do here, I can do in my shed. But I enjoy coming in because Phil's taught me a hell of a lot – and just having a chat with the guys, having lunch and a coffee, helping each other, it's just brilliant. I love coming here.”

Community projects

Community projects are important to the overall running of the shed. They connect the members to the wider community, particularly other not-for-profit groups, and build street-cred when they apply for funding.

“We can't just say, oh, we make chopping boards for ourselves. So the projects help with our grants and funding applications and a sense of pride from finishing those sorts of things,” Phil said.

They strike a balance between the voluntary community work and members' having the opportunity to build things for friends, family or themselves.

All active members are involved in projects that contribute to not-for-profit community organisations. Last year, and some of this year, they made over 40 Kiwi release boxes for the East Taranaki Environment Collective.

The Collective supplied the materials and a standard design; the MenzShed supplied the elbow grease. They also made kiwi nesting boxes based on nesting boxes for blue penguins.

Seventy mousetraps to help control the local rodent population were requested by the East Taranaki Environment Collective. They supplied the ply and mesh ready cut, which gave the sheddies a head start, and it took them two days to complete.

“Being quite small boxes, we didn’t need to spread out over the whole workshop and easily had a production line on one table.”

The traps are being set to specifically target mice so that a population of native lizards can be moved to a predator-free environment.

“It’s always great to lend a hand to groups doing great things for our environment.”

Acts of kindness

Another project involved making wooden play dough blocks for Gabby Play Parcels.

Stamp images are glued to the blocks and included with an inkpad and other items in parcels given to children entering the oncology unit. The gifts are among many ‘acts of kindness’ provided by Gabby Devine’s charity, Gabby’s Starlit Hope. Gabby had terminal cancer, and the charity was established through her experiences of spending a lot of time in hospital. Realising how boring this could be, in early 2014, she initiated Starlit Hope to provide these “random acts of kindness” to oncology children, their parents and staff.

“They couldn’t get cubes of wood – they were sourcing some from Australia at an exorbitant cost and a really random delivery. So they put it on Facebook, and my daughter saw it and said, hey, is this something you could do?” Wayne said.

Rory Gardiner, 23, the MenzShed youngest member, was in hospital with Gabby. He took over the running of the project, and they are turning out around 100 per month – pine cut to size, sanded smooth, and the edges rounded to make them safe for children’s hands. ►



“Having lunch and a coffee, helping each other, it’s just brilliant. I love coming here”



7. Members have their own badges engraved on wood with which to sign in at the MenzShed. 8. Turning on the lathe. 9, 10. The New Plymouth MenzShed has made 40-plus kiwi release boxes



The MenzShed main space, with woodworking benches and machinery. It accommodates eight to nine at any one time and is always full

Something for the littlies

The Taranaki Toy Library, kindergartens and early childhood centres also benefit from the MenzShed carpentry skills.

They make mud kitchens for kids – a workbench with a bowl/sink – made out of marine grade plywood so they could be used outside. The shed split the cost of materials with the Toy Library and made them for free. This is an ongoing project.

A line up of men sitting on little diggers featured on the MenzShed Facebook home page a few months ago. The little diggers were originally made as a hobby and given away by a man who had since died. His friend, who inherited boxes of little digger components, brought them to the MenzShed to make up and possibly sell as a fundraising activity.

“I said to him, we can do that, but we wouldn’t use it as a fundraiser. We’d finish them in the way that they were intended, and that was to finish them, build them, paint them and give them to someone in the community. So we

ended up giving them to early childhood centres in low socio-economic areas of New Plymouth.”

Overdue for a makeover

And members’ grandchildren recently got a special day for a school holiday project.

“The idea for this was to share what making things in the shed can be like while having a bit of fun making something together. This time, we made a Tui Feeder, perfect for this time of year.”

A dilapidated Wendy House for children at Wesley House, a rehabilitation centre, was overdue for a makeover. “One of our members’ daughters has been there for about 18 years. I think it popped up on his radar because he has grandchildren who would come and visit had nowhere to play, as well as the other children that would visit.”

The restoration took 12 months with Covid and weather interrupting, but it is now a much more inviting, functional

space, complete with furniture the MenzShed made as well.

Covid really “kicked the shed,” Phil said, and he knows this was the case for many sheds around the country and overseas in his home of seven years, Ireland. He had also experienced shutdowns in 2003 while running a hostel in Dublin during SARS.

“Probably the first six months post Covid, we had members that would not do anything outside of their bubble for various reasons however most of the members have slowly come back to the shed.”

Tips and talents

Multi-skilled and artistic, Phil makes furniture and creates striking wooden sculptures with whorls, spirals and shell-like, or otherworldly (think alien?) shapes of differently coloured, recycled woods. Much of his artwork he sells overseas.

Phil regularly enters the Australian Wood Review and encourages other MenzShed members to do likewise. If he



Ivy, eight, has accompanied her dad, Phil, to the MenzShed since the age of two and half. Note the ear muffs



The New Plymouth MenzShed welcomes women members – it currently has five

“He will suggest they enter the competition, which is known for its high standards”

sees someone working on a stand-out piece, he will suggest they enter the competition, which is known for its high standards.

Phil keeps the secrets of how he makes his sculptures under his hat.

“It’s a technique I’ve developed over the last decade; they are so fiddly. But fiddly stuff I enjoy and mixed timber stuff I enjoy. So, I encourage the members to push the limits on the fiddly if they want to. It’s that satisfaction of achieving something hard.”

Instagram: Phil Taylor @ philtaylorconcepts

Going to the next level

Creative secrets aside, Phil does teach the members a few tips and tricks should they take their woodworking hobby to the next level.

“I guess it’s that sense of achievement where someone can make a very simple box and then with really only a little bit of help and a few pointers on different methods of cutting or different types of timber to use, different quality of

sanding finish, a hobbyist level can be elevated reasonably well.”

He also teaches design skills and how to make and follow a plan. He says Tony Ashton is a good example of a member who just needed a few pointers to improve the quality of his design and woodworking techniques.

“A lot of the guys take that step, which is cool.”

One of his biggest tips is “simply” when sanding down an item to around 400 grit to wipe off the dust, followed by wiping it down again with a damp cloth to make the wood fibres stand up. Running a hand over the surface, the difference can be felt as a fuzzy sensation – “almost feels like it’s 240 grit.”

He recommends letting the item dry and sanding it off again lightly with 400 grit, which gives a much better finish, particularly when using oils.

Not doing this procedure results in the loose fibres standing up when oiled, which gives the surface more of a matte finish. Done this way, the oil gives a

glowing finish to items such as jewellery boxes.

“Some scoff to begin with; they don’t think it’ll make a difference. And then once they put that oil on, whoa, okay, that’s brilliant. And so it’s a good buzz to see other people get a buzz out of making cool stuff,” Phil said.

Another tip is to view crappy-looking pieces of wood with a more discerning eye. Free timber destined for the fireplace could be too good to burn.

Members have discovered Rewa-Rewa, Rimu, swamp timber, jarrah and other treasures that when worked on, reveal beautiful colours and grains.

Demolition timber can be full of nails, and when extracting them they now use metal detectors to avoid costly damage to machinery blades.

Fundraising

The MenzShed does not run on grants and goodwill alone.

The members pay subs and are involved in various fundraising activities throughout the year. The mud kitchens brought in some money as the Toy Library sold them and split the profits with the MenzShed. Every year, they make trophies for the Taranaki Players League and growing tables for ‘Trees for Survival’, which are paid jobs. They also do repairs for the general public.

Updating progress with potential new premises, Phil says the process is coming to a head. They will know the NPDC’s decision about a piece of land early in 2025.

“We have about a 50/50 going up against a large not-for-profit organisation, but we are optimistic with a great deal of support within the elected council members, the community and groups we help with shed activities.”

Continuing their community and personal projects as usual, he says they have another 10 Kiwi transport boxes on the go and a good few of the guys have finished off personal projects recently.

There are 124 open MenzSheds around New Zealand dedicated to the social connectivity, health and well-being of retired and retiring men.

<https://menzshed.org.nz/> 📄

THE Shed

QUIZ NO. 2

You've got a shed, and you know how to use it – but do you really understand how everything works? Test your sheddie knowledge here

1



What type of Tungsten electrode would you use for TIG welding mild steel?

- (a) Pure Tungsten
- (b) Thoriated Tungsten
- (c) Lanthanated Tungsten

4



What is an anaerobic adhesive?

- (a) One that sets in the absence of sunlight
- (b) One that sets in the absence of air
- (c) One that sets in the absence of moisture

2



Which type of lighting is the most efficient?

- (a) Fluorescent
- (b) LED
- (c) Incandescent

5



Is there such a thing as waterproof grease?

- (a) Yes
- (b) No

3



What is the fastener in the picture called?

- (a) Anti-rotation clip
- (b) Tractor hitch
- (c) R clip

6



If a single-phase electric motor draws 10 amps, how many Watts is its power?

- (a) 800 Watts
- (b) 4.6 Kilowatts
- (c) 2.3 Kilowatts

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INSIDE ISSUE NO. 398 – AN HQ TO DIE FOR

Mention the acronym HQ and most people in the northern hemisphere will assume this is an abbreviation for Head Quarters. However, for those born before the mid-'80s in Australia and New Zealand, the same two letters only mean one thing – HQ Holden!

Christchurch enthusiast Ed Beattie has a beautiful collection of Holden and Chevrolet cars. He loves the bowtie and its Aussie cousin and has a stable of beautiful, powerful cars. His collection includes everything from a modern GTSR W507 HSV through the decades to a 1960s Camaro muscle car and much in between. Ed won trophies for the Best Monaro and Best Decade in the last two Holden Nationals with his amazing 1972 Holden Monaro GTS 350.

Ed is a perfectionist and loves his cars to reflect precisely how they were on 'Day 1,' meaning when the dealer released them to the first customer, including any extras the dealer may have added or changed.

ALSO FEATURED IN THIS LATEST EDITION

Fiat 124 coupe, MG Cyberster, 1967 Camaro SS, Mini 1000, restomodded 1922 Delage-Hispano Suiza, Kaikoura Edsel car museum/diner, profile of automotive engineer Peter Bruin, MG celebrates 100 years of the marque, news of classic racing and events we enjoyed this summer, and much, much, so much more.

See classiccar.co.nz for a complete and illustrated content rundown of what's in this summer holiday edition.



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Answers

1. (b) Thoriated Tungsten electrodes are best for welding mild steel and stainless steel. However Lanthanated Tungsten electrodes are often used as an all round electrode for use with steel and aluminium. Pure Tungsten electrodes are only used on aluminium and magnesium. Colour coding on the end of electrodes is used to identify the electrode type.
Red for Thoriated, Green for pure Tungsten and Gold for Lanthanated. Other colours are White for Zirconiated (used on aluminium) and Grey for Ceriated (a general-use electrode)
2. (b) LED is the most efficient. It is around 50% more efficient than Fluorescent tubes as they convert 95% of the energy into light, whereas fluorescent lights convert a greater amount of energy into heat.
Incandescent lights convert even more energy into heat.
3. (c) R Clip, because of its shape.
4. (b) The absence of air. Examples are superglue and thread-locking adhesives.
5. (a) Yes. Waterproof greases are used in water pump bearings. Most greases are not waterproof, as greases are technically soaps.
6. (c) Watts of power are calculated by multiplying current by voltage. In this case, 10 Amps x 230 Volts = 2300 Watts or 2.3 Kilowatts.
7. (a) The coating is harder than the drill material, and therefore, it stays sharper for longer, particularly on tougher steels.
8. (c) Pulsing (with a hammer-like action) helps break away chips when drilling materials like concrete.
9. (a) All cylinders of gases that are used as a fuel have left-hand threads so that they cannot be connected to equipment in error.
10. (b) This tool can be adjusted to suit the size of the oil stone being used. The tool helps keep the chisel at a consistent angle to the surface of the oil stone.

7



Why do some drill bits have a Titanium Nitride coating?

- (a) So that the drill lasts longer
- (b) So that the drill has a pretty gold colour
- (c) So that the drill will not break

8



What is the difference between a cordless hammer drill and a normal drill?

- (a) The hammer drill does not rotate the drill bit
- (b) The normal drill is more eco-friendly
- (c) The hammer drill pulses as the drill rotates

9



Why do LPG cylinders have a left-hand thread?

- (a) To be sure that only correct hoses are attached
- (b) To act as an intelligence test
- (c) To make it easier for left-handed people

10



What is the mystery tool shown in the picture?

- (a) An adjustable clamping tool
- (b) A chisel sharpening guide
- (c) A tool for applying marking blue

How many questions did you get correct?



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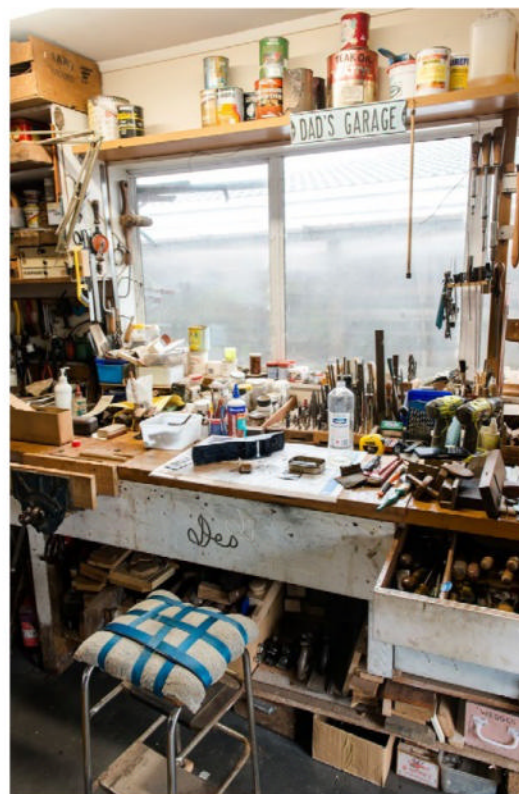
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CHRIS GORDON MAKES ... **ED ROTH'S SIDEWALK SURFER**



A trip to the dairy in the 1960s for bubblegum launched a lifelong interest in the renowned hot rod illustrator Ed Roth. Chris's latest project is an inspired, electric-powered version of this classic skateboard

Southern California in the 1950s and early 1960s had some very desirable characteristics apart from the surfing beaches and the movie studios: the weather was almost perfect, and jobs were relatively easy to get.

Many of the young men who moved there were highly trained veterans of a mechanised war. A lot of these fellows had received training in mechanical skills from the US military. What they were most interested in was cars; the faster and more attention-getting, the better.

The hot rod movement was born out of these shade-tree mechanics' attempts to make pre-war Fords look like custom-built sports cars and to get them to handle and accelerate like race cars. The movement was featured in movies and popular music and gave rise to magazines like *Hot Rod* and *Car Craft*, to hot rod shows and drag racing.

In the early 1960s large shows

featuring highly modified cars toured the United States and were a source of income for the car's constructors. Manufacturers of plastic kits of models of these cars, such as Revell, paid a royalty to the makers of the full-sized originals the kits were based on. Rodders whose cars won prizes at the shows were featured in magazines and had model kits made of their cars. They found they could turn hot rod construction into a business. At the hot rod shows, you could buy artworks such as hand-painted 'weirdo' t-shirts and cartoons featuring rods in violent, flaming action.

The talented illustrator

Ed Roth, who died in 2001, uniquely did all of these things.

He was a talented illustrator whose cartoon hot rods are instantly recognisable: the fat, smoking tyres; the oversize jaws, teeth and tongue of the drivers; the long gearstick with a skull instead of a knob; the flames.

He was also a successful designer and

constructor whose 'Kustom Kars' were prize-winning, whose Revell models were very popular (and continue to be so) and who for many years ran a business modifying cars and, later, making trikes based on the original, air-cooled, VW beetle.

Roth's influence was felt as far away as New Zealand.

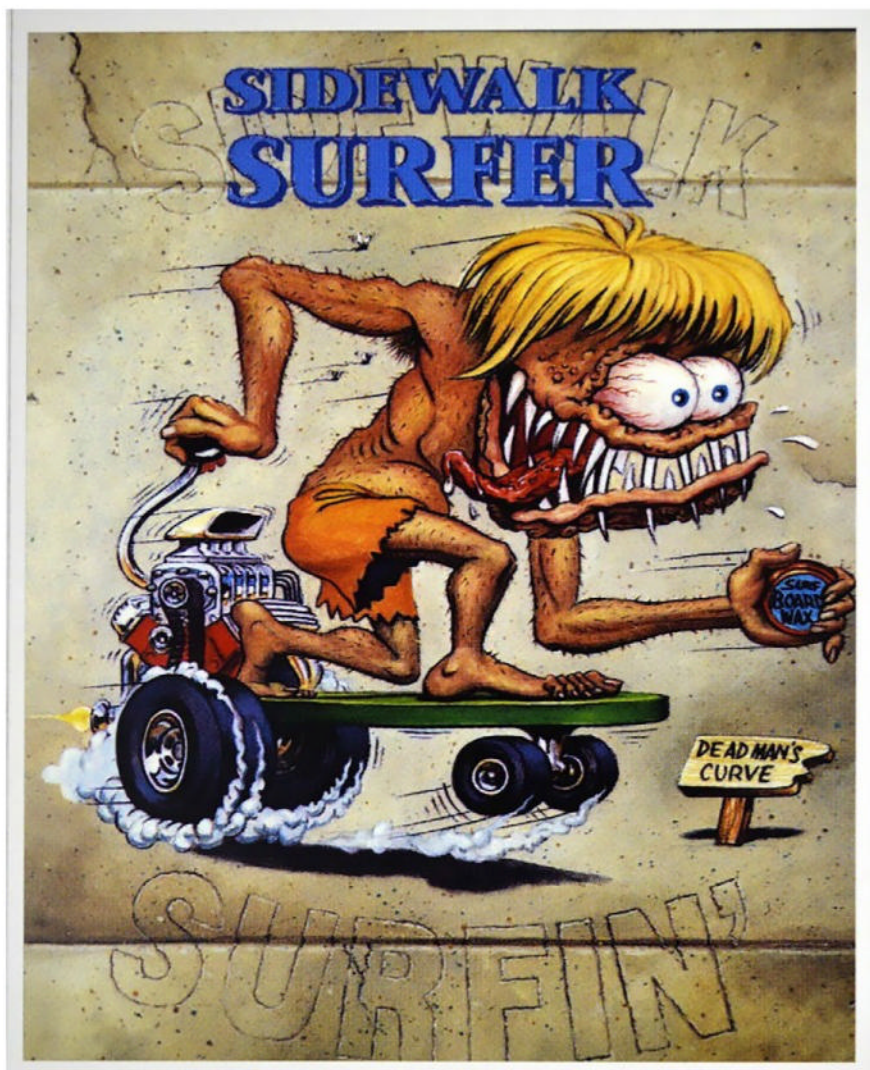
As a 12-year-old Christchurch's, Chris Gordon, bought slabs of bubble gum at his local dairy to get the Roth-type cartoon stickers which came with the gum. He still has his travelling chess set, which is decorated with three of the stickers, at least one of which is genuinely Ed Roth. One of the cartoons is of a skateboard powered by a supercharged V8 engine and is a version of Roth's 'Sidewalk Surfer' cartoon of about 1962. Chris's latest project is an electric-powered version of the Sidewalk Surfer.

Chris Gordon builds ...

The project has echoes of other Chris Gordon builds which regular readers of

By Ritchie Wilson | Photographs: Ritchie Wilson and Chris Gordon

Chris 'hangs five' as he speeds down a deserted footpath on the Sidewalk Surfer



The cartoon which sparked the project. The smoking tyres, long gear lever, and tongue are vintage Ed Roth

The Shed may remember.

The skateboard's diminutive V8 engine bears a very close family resemblance to the 500cc engine Chris built in his MotoGP days (*The Shed* 77 March-April 2018), while the blower, mounted between the motor's heads, harks back to his teenage years spent as part of his cousin Ron Collett's drag racer crew.

Like his electric scooter (*The Shed* 115 June-July 2024), the source of much of the skateboard's components

was the recycling operation run by the Christchurch City Council. As in all his projects items from China, bought online, were crucial, especially to the machine's electronics.

The engine trials

The first thing Chris did was a trial assembly of the V8 engine's components.

He has a small storage shed filled with four-cylinder Kawasaki ZX250 250cc engines and parts of engines which he

accumulated when he was making the 500cc petrol engine. These "learner" (LAMS) racing bike engines could rev up to 19,000 rpm (more in short-stroke form), so they had to be carefully maintained to survive years of use. If scheduled oil changes were missed (as they often seem to have been), the oil pickup in the sump could clog, the big ends could be starved of lubrication, overheat, seize, and the rider's crash gear would be given a workout.

Two of Chris's ZX250 motors had damaged crankshafts after seizing, and these were the ones grafted together to form the small V8. The V8 has two electric motors hidden inside its crankcase, where the crankshafts were originally located. One motor powers the skateboard, and the other turns the pulley and belt of the blower drive.

Ya gotta love the EcoShop

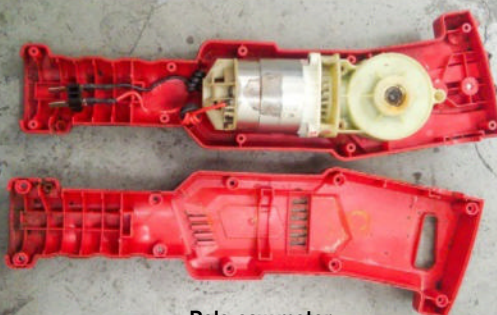
From the city council's EcoShop, Chris bought a 24V Euro brand battery drill and an 18V Mako brand pole-saw for a total outlay of \$10.

The pole-saw seemed to be virtually unused but didn't run when connected to an 18V power supply. When disassembled, it was obvious what the problem was in that a spring designed to hold one of the carbon brushes against the commutator was broken.

Chris used to race slot cars and one of the old-school mods to make them go faster was to fit stronger brush springs, so he was easily able to get the 18V motor running. The drive to the back axle is by chain so a chain-drive sprocket was needed, which could be attached to the motor's shaft. Chris combined the internal part of the pole-saw's driving sprocket with the outer part of a nine-tooth chain-drive sprocket. Both were



Mako pole-saw head



Pole-saw motor



Euro brand 24V battery drill

hardened, so they had to be annealed before they could be machined. The outer part of the nine-tooth sprocket was shrunk onto the inner part of the pole-saw's drive sprocket. A 520-pitch full-link motorcycle chain was used between the drive sprocket and the 45-tooth sprocket – the largest available on the internet – which was attached to the back axle.

The 1:9 ratio of the two sockets turned out to be satisfactory and the distance between them was close to ideal, which was just as well because there is no chain tensioner.

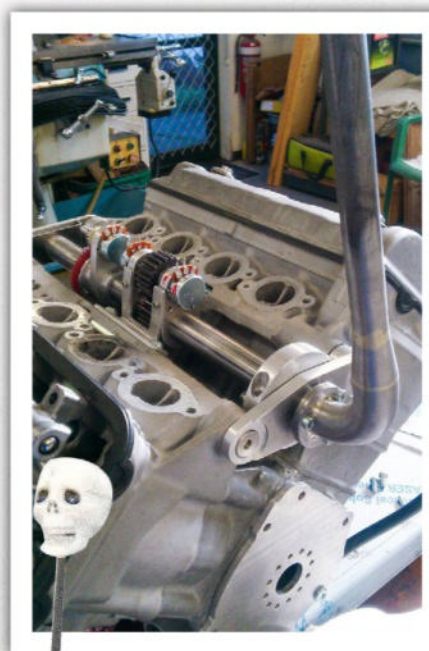
Chris had been worried that the drive ratio chosen would make the skateboard dangerously fast, but the board's performance showed that he had chosen wisely. The 24V drill motor powers a slotted pulley which drives the belt, which turns the blower drive pulley. The pulley doesn't turn the blower

shaft, being a loose fit on it. The fake blower driveshaft is highly polished, so it is impossible to tell that it is not, in fact, rotating with the pulley. Both electric motors are controlled by 40A speed controllers which are themselves controlled by potentiometers which turn with the control shaft. Another potentiometer is connected to a sound card (from China), which produces the evocative rumble of a big V8.

The engine

The miniature V8 is an original four-cylinder Kawasaki ZX250 from the crankcases to the camshaft covers.

None of the two motor's original internal components, such as valves or crankshaft, have been retained. The two crankcases had large sections removed so that when they were fitted together, their blocks were at an angle of 90 degrees to each other and



The engine control-rod positioned along the engine. The vertical rod connected to it is the 'throttle' or engine control

Junior dragster tyre was a gift. Note the very low gearing of the chain drive

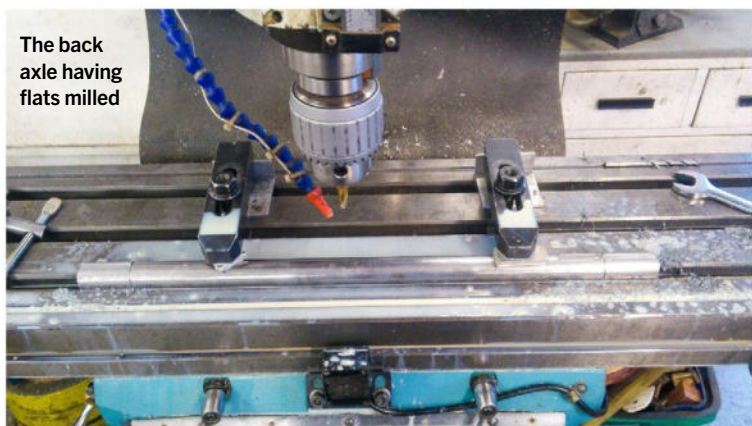


Drill motor

"Connected to a sound card, which produces the evocative rumble of a big V8"



The flames are distinctive and very recognisably Ed Roth



The back axle having flats milled



Cutting a disc from aluminium sheet

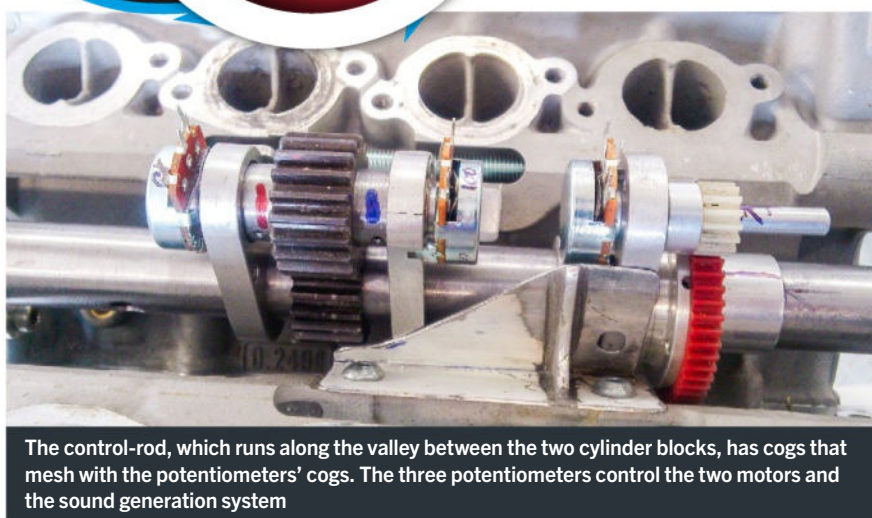


Aluminium components

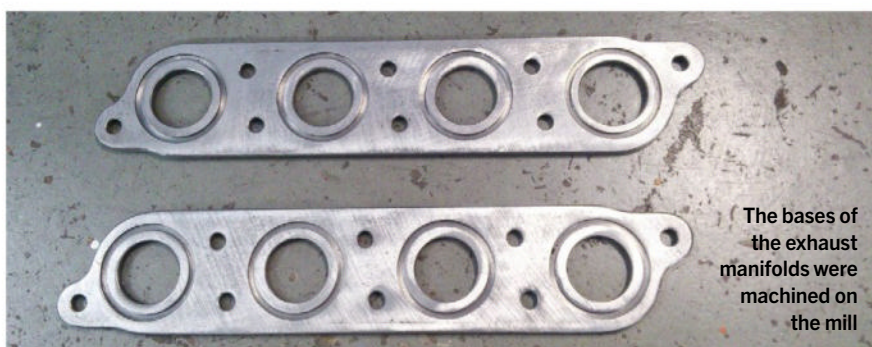


The completed back axle. The sprocket was the largest available online

“There was a great deal of work needed to make the fake blower”



The control-rod, which runs along the valley between the two cylinder blocks, has cogs that mesh with the potentiometers' cogs. The three potentiometers control the two motors and the sound generation system



The bases of the exhaust manifolds were machined on the mill

looked as though they had a common crankshaft. This required considerable trial and error with small amounts of metal being progressively removed using Chris's large milling machine. Aluminium plates, screws and glue were used to hold the two crankcase pieces together. The blocks and heads are Kawasaki, but the inlet manifolds are wood, painted to resemble cast aluminium.

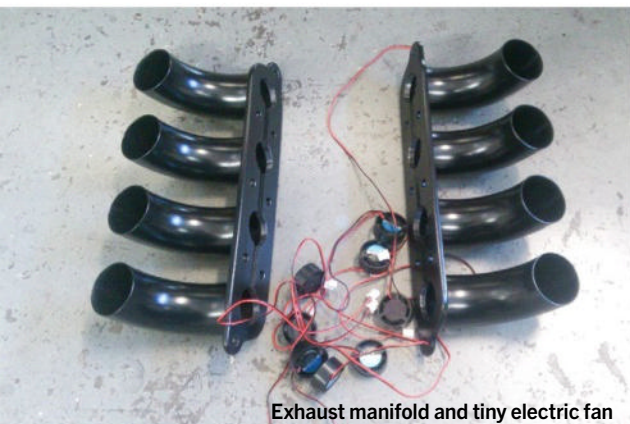
The stubby exhausts are bent tube sections from China, braised onto a steel plate, which was cut to shape on the mill. The ignition leads are genuine NOS items, but the Mallory Ultra-mag II magneto they are connected to is fake. Ron Collett's dragster (NZ AA/A class champion in 1976) used a Mallory Super-Mag II magneto.

Mallory is a famous brand in the drag racing world, and the label – designed and printed by a local signwriting company – is a homage to it. The 'sparkplugs' – really just attachment points for the ignition leads – are wooden plugs turned on the lathe and painted black. The distributor cap is a VW beetle four-cylinder item with four extra outlets glued onto it so that it looks like an eight-cylinder one.

The supercharger

The blower – a small model of the Roots-type supercharger found on large American trucks – mounted between the heads is wooden, again painted to resemble cast aluminium.

The current model blower is the third version that Chis has made. The previous two he considered to be too wimpy to adequately represent the Ed Roth cartoon vibe.



Exhaust manifold and tiny electric fan



The fans blow air out of the exhaust when the motor is running

There was a great deal of work needed to make the fake blower and its air intake. First, Chris cut out a large number of rings from 16mm plywood using two hole saws of different sizes. The rings were then glued together using PVA glue to form a long wooden tube. This was trued up on the lathe, giving a smooth outer surface.

The tube was carefully sawn down its long axis, and the two semi-circular sides were glued to a pair of ply rectangles to form the oval blower shape. A layer of fibreglass was applied to strengthen the wood. Chop strand mat (CSM) was roughly torn to shape to cover the wood, and then epoxy resin was applied with a brush to fix the mat to the wood's surface. Some aluminium rod was glued at intervals and faired with epoxy filler to mimic the ribs on the surface of real superchargers.



Trial fitting of the wooden inlet manifold

Not-so-small tolerances

Although the process was time-consuming Chris found it rather relaxing because he was working to tolerances of a millimetre or so with the wood, rather than the very small tolerances involved in making a real racing engine. He works on his current project every day until it is finished, so there is continual progress, which keeps morale high.

Chris says that he has a love-hate relationship with fibreglass. He appreciates the material's flexibility but dislikes the mess that inevitably results when using it. He complains that the white powder produced by sanding the cured resin spreads everywhere and makes his workshop look like "the interior of a cocaine factory".

He is also very aware of its potential



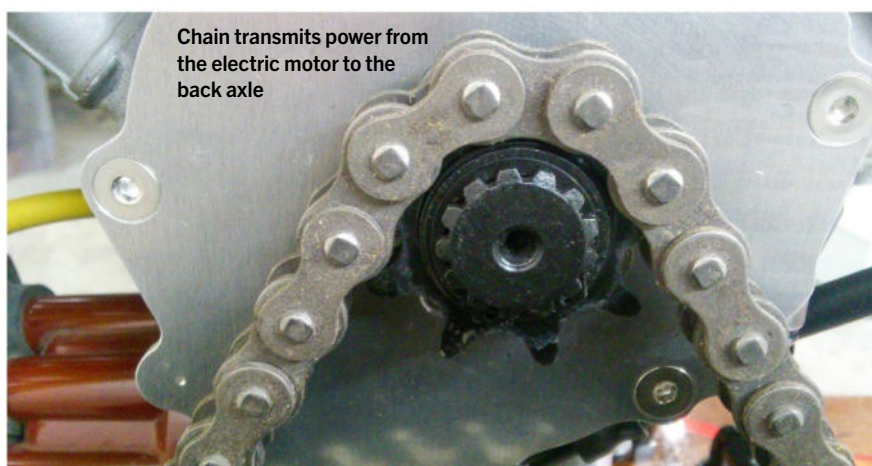
Original sprockets



Sprockets after annealing



The final sprocket is a combination of the inner from one, and the outer from the other



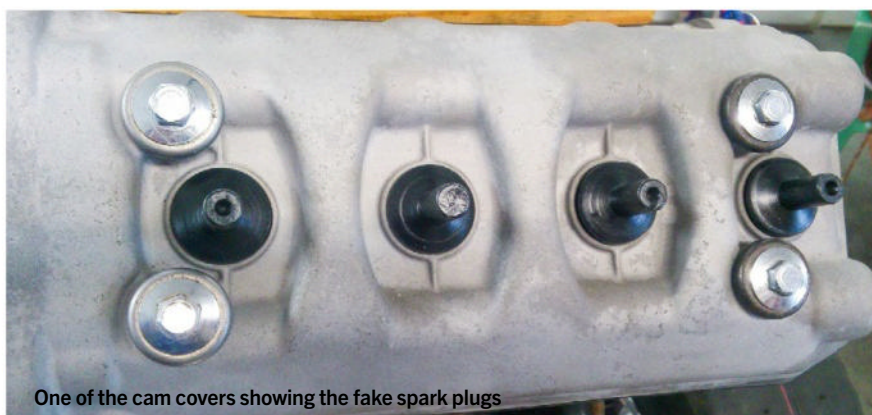
Chain transmits power from the electric motor to the back axle



Back axle driveshaft, sprag bearings, and hub



The fake spark pugs were turned from wooden dowel



One of the cam covers showing the fake spark plugs



Turning the bearing housing for the back axle

hazards. Despite wearing protective clothing, the glass fibres sneak into contact with the skin and cause distressing irritation. Worse, the epoxy's catalyst, methyl ethyl ketone peroxide (MEKP), is very dangerous and the smallest drop getting in an eye can cause blindness.

The right paint finish

The next task was to make the wooden blower look like diecast aluminium. A paint which would make the surface slightly rough was needed.

There are paints which are designed to make a smooth surface look and feel like stone which Chris had seen on the internet. Rustoleum makes such a paint, but it turned out not to be available locally, so he had to order it online. When it arrived, he was surprised to see that it had been posted from Christchurch. He was rather sceptical that a spray can of paint containing a fairly large proportion of solid particles would operate for even a short

length of time without its jet blocking, but he was pleasantly surprised that he was able to paint all the wooden components without trouble.

The rough-textured first coat was painted with a topcoat of aluminium-coloured paint, which was labelled as 'steel grey'. It is hard to believe that the finished components aren't cast aluminium. The air intake sitting on top of the blower (and, as a consequence, called a "hat") is also made of laminated plywood in the same way as the blower and is similarly painted to resemble aluminium. The flap in the front of the hat sports Chris's CG logo – also from the sign writer.

Chris's aim was to make the engine look as much like a Chrysler 426in3 Hemi V8 as he could. This is the engine, dating from the 1960s, which, running on exotic fuel, which to this day, powers the top dragsters.

There are several details of the miniature V8, which are pure Hemi. For instance, dragster engines have a mixture control on the throttle body, which sets the idle rpm. The fake miniature supercharged V8 has such a device, called a pill.

The back axle

The back axle is a steel rod of 25mm diameter. It has slots milled at each end to hold keys and another where the 45-tooth sprocket is located.

Chris turned up the two hubs, which are keyed to the axle, as is the sprocket. The axle turns in sprag bearings held by grub screws in housings attached to a square of 8mm aluminium plate. ►

"The sprag bearings act as a free wheel"



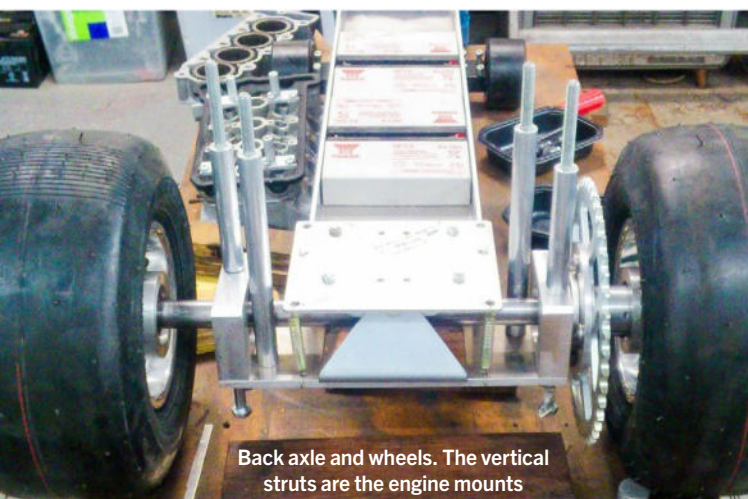
The back of the Sidewalk Surfer



Hubs, wheel studs, and sprag bearings



Assembled hubs



Back axle and wheels. The vertical struts are the engine mounts



SPRAG BEARINGS

If you were unlucky enough to be in a helicopter when the engine suddenly stopped, as they sometimes do, what are your chances? Well, it depends. If the helicopter's rotor stops with the engine, the source of the machine's lift is completely gone and the chopper will drop straight to the ground with a very undesirable outcome.

If, however, there is a free-wheeling mechanism between the motor and the rotor, such that the rotor is able to rotate even if the engine stops, your chances of survival would improve. As the helicopter plummets downwards the rotor is turned by the air it is rushing through. The turning rotor (I'm not making this up) generates some lift and so slows the precipitous descent – an effect called autorotation – so that if you are lucky, the speed with which you hit the ground is not enough to cause severe damage.

One free-wheeling mechanism is a sprag bearing or sprag clutch. When torque is being transferred from the engine to the helicopter's rotor, the sprag bearing is locked up. When the torque is reduced, the bearing unlocks, and the rotor is no longer tied to the engine, so it can rotate faster than the engine.

A sprag bearing is somewhat like a roller bearing except that instead of rollers, it has components called sprags, which are shaped somewhat like an asymmetrical figure of eight. When the bearing is not subjected to torque, the sprags slide, but when torque is transmitted through the bearing, the sprags pivot and jamb the bearing.

Sprag bearings were developed in the USA during WWII for aircraft superchargers and are today used in many applications, such as motorcycle starter motors and conveyor belts.

A sprag originally meant a simple brake, say a pointed stick or bar, thrust into the ground, which kept a stationary wagon or cart from moving. It's a relatively recent word and its derivation is unknown, although it is similar to a drag, which can mean a type of brake, especially on horse-drawn vehicles.

Sprag could be a variation of drag. The sprags in a sprag bearing can act like the cart-tethering stick, keeping the inner and outer races from moving relative to each other when the bearing tries to rotate in one direction but allows the bearing to turn freely in the opposite direction. Chris Gordon's sprag bearings were labelled as 'One Direction Bearings'.

Two of the motor mounting struts screw into the bearing housings, the other two screw into the aluminium plate. The sprag bearings – commonly found in automatic transmissions – rotate freely in one direction but lock up when turned in the opposite direction.

They have a slot in their inner race which fits the key in the axles' keyways, so it will transmit the drive of the back axle to the hubs but will also allow the hubs to continue to rotate when the axle slows or stops. This means the motor can drive the skateboard, but the board won't come to an abrupt halt when the motor is slowed; the sprag bearings act as a free wheel.

The rear wheels are from a go-kart, and the tyres, which Chris was given by an old friend from his grass-kart days, are, he thinks, designed for junior dragsters, so they are highly appropriate for a V8 skateboard.

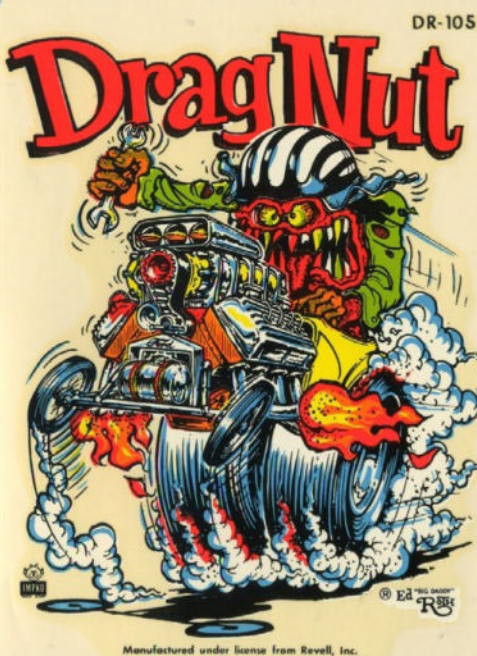
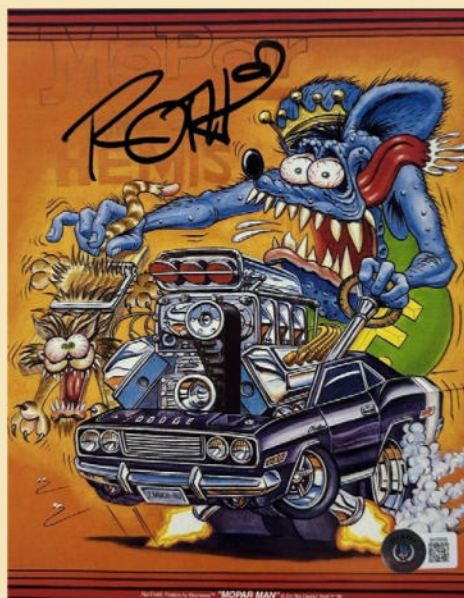
The front axle is a large skateboard truck attached to the bottom of the deck at the front, so it turns slightly when the board is tilted, allowing the rider to steer by leaning to one side or the other. On a skateboard, tight turns are tricky.

The deck

The deck – where the rider stands – is much more complicated than it looks.

It houses the four 6V lead acid gel batteries which power the skateboard and is a box made of an aluminium sheet covered in a sheath of laminated plywood.

The U-shaped aluminium sheet channel was cut and folded by Christchurch's Tubefab. The channel's bottom at the nose end of the deck was semicircular. Chris bent the sides, which had been left projecting on each side of the semicircle, to meet at its apex ►



ED 'BIG DADDY' ROTH

Ed Roth was a big, tough fellow who never backed down, no matter how dire the situation.

He was also a very talented and productive car designer and cartoonist. He was one of the leaders of the American 'Kustom Kar' movement, which had wildly popular modified car shows in large arenas across the United States. Lucrative prizes were awarded, and plastic model kit manufacturers would issue kits based on the most popular customs and pay royalties to the makers of the cars the models were based on.

The kits of Roth's cars sold in the hundreds of thousands and were a significant source of income. Roth's family continues to get royalties from the Revell company, who still produce Roth-themed models such as the Rat Fink.

I read Roth's autobiography *Confessions of a Rat Fink: The Life and Times of Ed 'Big Daddy' Roth*, co-written with Howie Kusten and published in 1992, when it came out. The copy I read back then came from our local library, which no longer has the book.

If you would like to buy a paperback copy, there is one available for US\$641 on Amazon. I remember it being an interesting read, but, except for the Revell royalties, the bits of Roth's life I recall aren't mentioned by Roth internet sites.

I remember being most struck by his involvement in VW trike manufacture starting with his 'American Beetle' of 1968. These were three-wheeled combinations of an air-cooled VW beetle



Roth cars on display. Note the four headlights



Big Daddy Roth



back end and a motorcycle front end. I can recall seeing several of these on New Zealand roads in the 1970s. I don't know if Roth had invented the design, but he certainly seems to have been a significant maker of the devices. He was involved in this, to some extent, with a criminal gang, who he soon fell out with. His trike business came to an abrupt end when he arrived at his workshop one morning to find all his plans, jigs, parts and stock of finished trikes gone.

A 'rat fink', in prison slang, is an informer or a 'grass' in British lockup-lingo. Today, it has pretty much lost its original meaning; Rat Fink is now best known as Ed Roth's cartoon character, which he adopted as a sort of alter-ego.

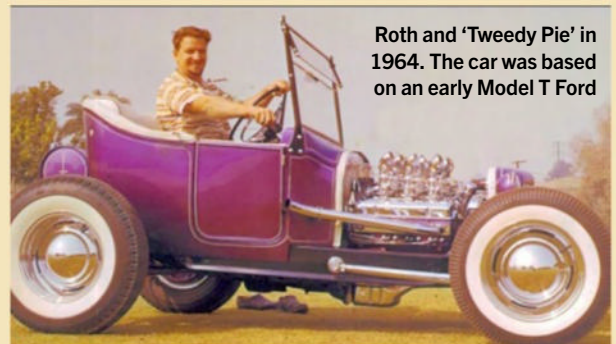
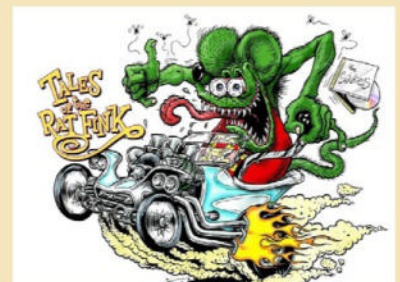
The hot rods which his workshop made and which were the basis of the plastic models, are now in prestigious car museums or the garages of very wealthy collectors. Old kits of the models are also prized, and there are numerous books available on Roth's cars and cartoons.

At the end of his book, *Confessions of a Rat Fink*, as I remember it, had Roth virtually broke, ill, perhaps alone and homeless, working on a Kustom Kar in the workshop of a small-town community college.

He died in Utah in 2001 and would, perhaps, be surprised at the interest still shown in his cars, cartoons, and career.



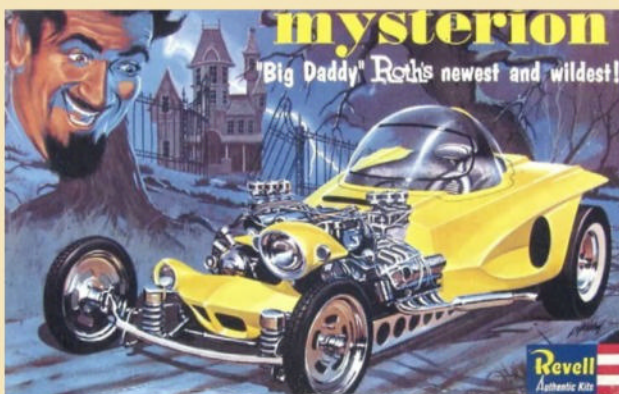
Roth and Rat Fink



Roth and 'Tweedy Pie' in 1964. The car was based on an early Model T Ford



The twin-engine 'Mysterion', built in 1963



Box of Revell's plastic kit of the Mysterion



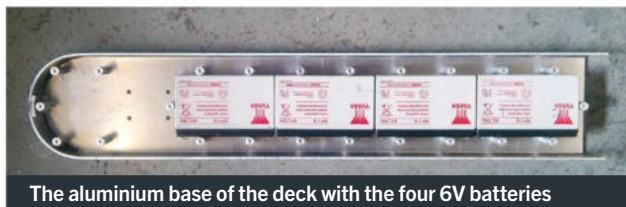
Hot rod magazines with the Mysterion on the cover



Bending the two sides over a wooden former to shape the deck's nose



Drilling holes in the deck using the mill's digital read-out



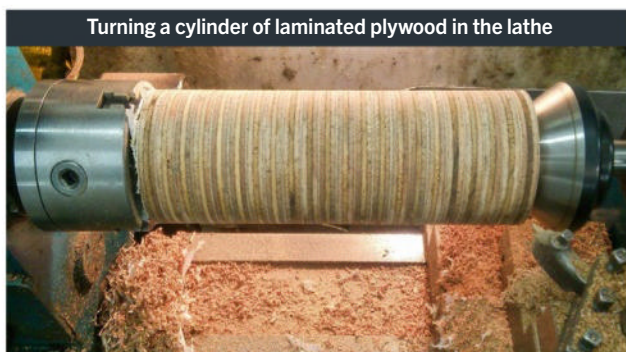
The aluminium base of the deck with the four 6V batteries



Shaping the deck's wooden sheath with a router cutter in the mill



The components of the deck's wooden sheath



Turning a cylinder of laminated plywood in the lathe



The inside of the deck's nose showing the joining plate



The outside of the deck's nose showing the screws holding the two sides together



Plywood discs cut with a hole saw



Plywood rings cut from the discs

and joined them together with a small joining piece screwed to each.

A lid formed from the aluminium sheet is held in place by a number of long screws which pass through aluminium spacer tubes to the deck's bottom, making a lid-spacer tube-bottom sandwich. The laminated plywood outer shell was formed from several layers of ply glued together. A router bit chucked in the mill was used to excavate a central hollow in the laminated ply so that the wooden casing was a snug fit over the deck's aluminium interior.

Mark Lawson of Lawson's Signs beautifully hand-painted the flames which decorate the top of the deck.

When Chris was first explaining what he wanted Mark said: "So you are after an Ed Roth sort of thing" before Chris had mentioned Roth's name. Mark was familiar – 20 years after Roth's death – with the man's work. Chris knew then that he had found the right person to do the flames. Roth's flames are quite distinctive with



Inlet manifold and blower made of laminated plywood



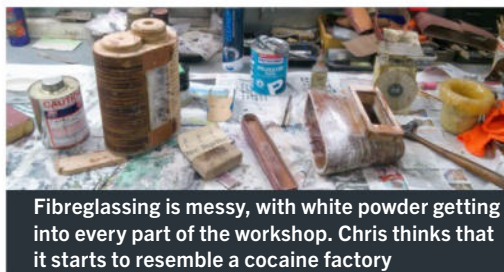
Texture paint gives smooth surfaces the appearance of cast metal



The hat glued up



The hat coated in fibreglass and resin



Fibreglassing is messy, with white powder getting into every part of the workshop. Chris thinks that it starts to resemble a cocaine factory



Wooden components coated in epoxy filler



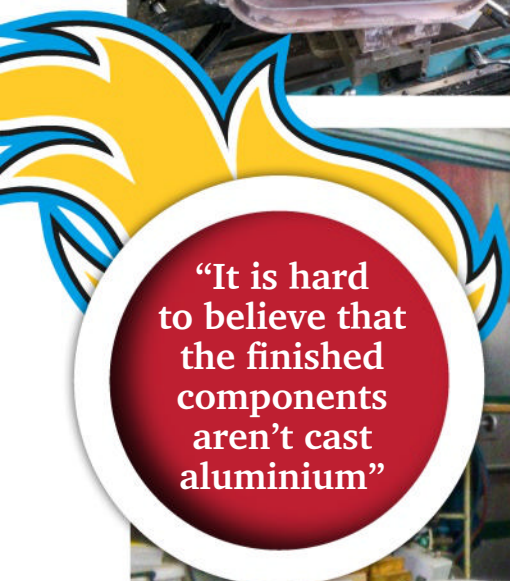
The hat ready for painting



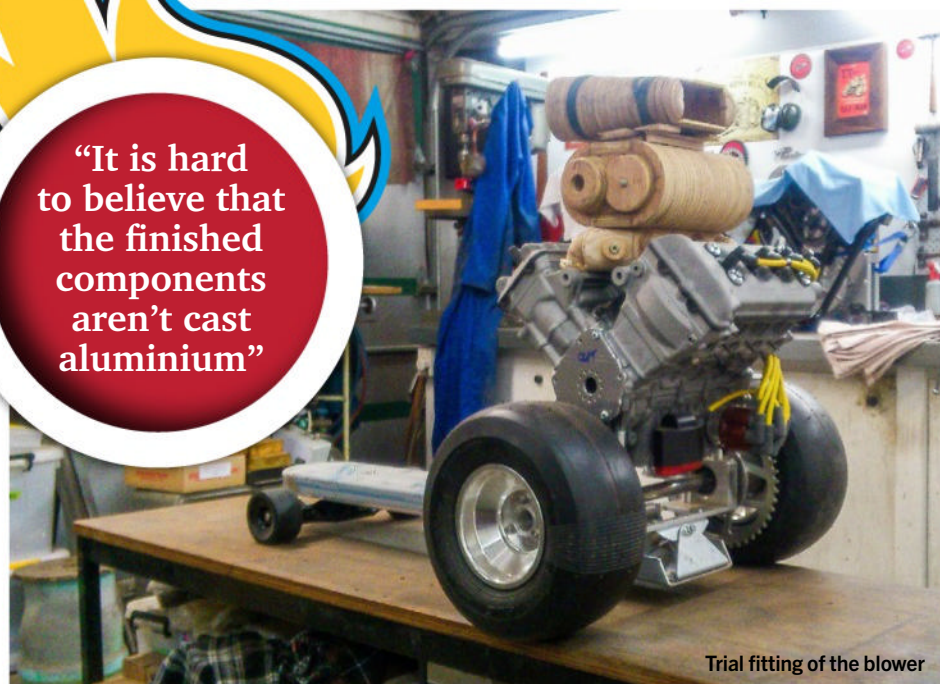
Blower after being painted with the textured paint. Aluminium paint is next



The wooden components after the epoxy filler has been sanded



"It is hard to believe that the finished components aren't cast aluminium"



Trial fitting of the blower



The scooter's charger has the Chris Gordon logo



The throttle rod's knob is a skull. They come in bags of six, so there are five left over for Halloween



The painted wood is indistinguishable from cast aluminium



The Sidewalk Surfer being charged. The gas cap hides the charging port

"It may be that the whole idea of flames painted on hot rods originated with Ed Roth"

Riding the Sidewalk Surfer brings a smile to Chris's face

Top right: Ed Roth—type signs on the wall of Chris Gordon's workshop. Many were sourced from Christchurch's EcoShop
Bottom right: The portable chess set from Chris Gordon's youth is covered in Ed Roth—style stickers

pinstriping around the edges. It may be that the whole idea of flames painted on hot rods originated with Ed Roth.

Problems

Things which Chris Gordon thought would be a problem, such as lack of power from the pole-saw motor or the gearing of the back-axle drive, worked out very well.

The electronics caused most of the headaches. Originally, the motors' speed controllers were 20A which would seem to be adequate. In operation they failed and so were replaced with 40A units. Chris now thinks that the speed controller's circuit boards were vulnerable to damage in their original installation. The electronics are installed inside the blower housing, and accessing them for

repair or modification takes a couple of hours each time. The small opening in the case meant that the components may have been stressed and damaged as they were installed or removed.

The electronics which control the soundcard are complex but worked perfectly on the bench. When installed there were problems, possibly because of the nearby large currents going to the motors. Chris plans to install shielding to improve reliability. If he were to make another electric skateboard, the electronics would be much more easily accessed.

Riding the Sidewalk Surfer

The board's 'throttle' is a long steel rod topped with a small plastic skull and connected to the control-rod. In an Ed

Roth cartoon, the rod would have been the gear lever.

The control-rod sits in a pair of housings between the engine's two banks of cylinders and has plastic gears which mesh with gears attached to three potentiometers. When the throttle is pushed forward, the control-rod's gears turn the potentiometers' shafts. The potentiometers are wired to the two motor's speed controllers and to the electronics which run the sound card. The noise produced by the sound card's speaker changes, the drive to the blower speeds up, the 18V motor is energized, and the back axle begins to turn. The sprag bearings lock up and transmit the axle's torque to the back wheels. The 'Sidewalk Surfer' starts to accelerate and, then ... off you go! 🏍️

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THE ART OF BEING A GOOD MIXER

By Murray Grimwood | Photographs: Murray Grimwood



Twins – a 1970 version (left) and a 1972 (right)

Murray has had a very busy summer but has found the time to restore a vintage cake mixer – and finds James May offers some inspiration for his project

Some things last longer than others, the pity being that time has to pass before that longevity becomes obvious.

Suddenly, you realise that all its contemporaries have bitten the dust, but product X is still soldiering on. So it is with our 1993 Corolla wagon, just clocking past 400,000km. So it is as well with a veritable fleet of something manufactured in Britain from 1962 until 1976; the Kenwood Chef A701a.

I first contemplated them when reading a book by James May called *The Reassembler*. Then I bought one. Then another. Then, I figured to restore the spare one – as you do. And went down an entirely pleasant rabbit hole – the way the local bunnies do when I stalk them, nowadays ...

A bit of history

Hindsight has shown up a lot of British stuff from that era – cars and bikes particularly – as being somewhat sub-optimal. Not so this beastie, although there are enough clues to tell us it wasn't made anywhere else.

Ken Wood had wartime design experience and, despite postwar rationing of materials, figured there would be pent-up demand for labour-saving domestic devices. He partnered up with Roger Laurence in 1947 (they called their firm Woodlau – you could see where this was going – and produced a toaster. Laurence left in 1949, whereupon Wood launched the Kenwood Manufacturing Company Ltd, and the first mixer – a cheekily close copy of the 1936-9 American Sunbeam Mixmaster Model 3 – took only two years from concept to production. It hit the shops in 1950 and continued until 1957.

The 701 is born

In 1957, looking for a facelift to refresh sales, he asked for options, one of which came from a modest fellow, Kenneth (later Sir Kenneth) Grange.

Grange ran out of time to mock up a full model, so he presented a half-model on a mirror; ship-style. He later opined that the cheekiness of the presentation might have appealed to Wood and swung the day; however, it happened the 701 range was born.

By 1976, the list of attachments had





Simple spiral
electromechanical
speed control



grown to include mincers, slicers, coffee mill, sausage maker, shredders, bean slicer and pea huller, can opener, liquidiser, potato peeler, cream maker and juice extractor.

Hostile takeover

Presumably, as a result of tight times coinciding with a factory expansion, Wood could not fight off a hostile 1968 takeover by Sir Jules Thorn's Thorn's EMI. He gave the 'family' a heartfelt thank you speech, then "went and cried in the loos". The world of 'grey-suited managers' had arrived (much like the Leonard Lord era of BMC), and Kenwood was never quite the same again.

Pull-down week

The week I pulled the Kenwood completely to pieces, I also turned 70.

It was a busy time: getting my Paper Tiger catamaran back together (it was completely stripped down with the pending Nationals in mind), shooting bunnies (they're irrupting hereabouts), walking (I climb Dunedin's Mt Cargill once a week with a retired physics professor; we solve the world's problems on the way up and talk shyte on the way down), swimming (best way to keep fitness without jarring), and being a partner and grandparent. So it was during a rainy afternoon, while an unsailable southerly passed through, that I finally set to.

The best – and worst – of British

The first thing that jumped out at me was the ease with which you could figure out what to undo; with products these days, it is getting harder and harder to spot a screw or even where a clip might lurk.

The second was that this was the era of leaky British motors; lo and behold, there was escaped lubricant inside cowlings, escaped cake mix on gears, and piece of felt as a 'Production' answer to said leakages.

The piece of felt brought a smile and a mental image of the felt the old man once wrapped – in desperation – around the oil-oozing starter motor of his wet-



“The world of ‘grey-suited managers’ had arrived”

Some folk watch television; some pull mixers apart on the sitting-room table

clutch MG. I wonder how much oil a Merlin engine lost, per hour of airtime?

Apart from a pinged-and-can't-be-found circlip, disassembly was a doddle. The motor bearings were fine; the brushes looked like new. The gear-box, though, was packed with grease (I think not factory, so it had been visited sometime in the distant past) which had gone hard-skinned and wasn't getting to the gears.

Also, the bottom – thrust-washers had worn partial slots into their axle – pins, suggesting they had been bound to the gears at some point. I surmise that a dry box had initiated a service and that the non-factory grease was a post-washer-slot remedy. The white stuff on the internal final-drive gear I initially diagnosed as cake mix (how in the



Felt – the oh-so-British answer to leakage ...



The grease had jellified



Gunge everywhere



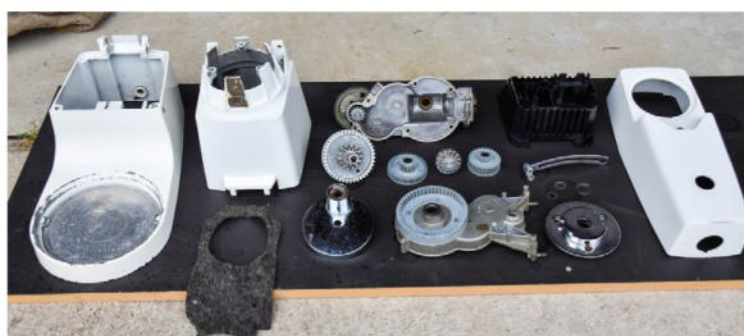
I'm a sucker for a gear-box – any gear-box



If cleaning baths could talk ...



Before ...



... and after

heck?) but later realised it was probably a sealing silicone residue. Hopefully.

Time for a bath

The metal and gear-type parts I dunked in petrol in my old half-water-cylinder bath, which Dad had knocked up in a hurry to wash down some 6-cylinder engine parts in the 1970s.

A touch of nostalgia, as the drizzle drizzled outside my open-to-the-elements southern workshop; visions of the heads I've cleaned in that bath: Cletrac, Wolseley/MG, Holden, Ford ... And the gear-boxes – this sure ain't the first!

The grease in the eccentric final drive (the spirograph-type planetary movement) looked different; further research suggested that only food-grade grease should be used in there. Yum!

By now, I thought I'd found the intermittency problem – a near-fractured solder – joint. No biggie, all things considered. I planned a quick paint, some new grease and a reassembly, albeit not as entertaining a one as James May's.

Speckled finish

Well, that was the plan. To identify it

from its identical sister, I decided to paint it; something cream-through-fawn, I thought. Settled on a can marked 'Desert Sand' – a Coloursteel shade I'm well familiar with, given that it is the inside colour of our SIPS – panel house.

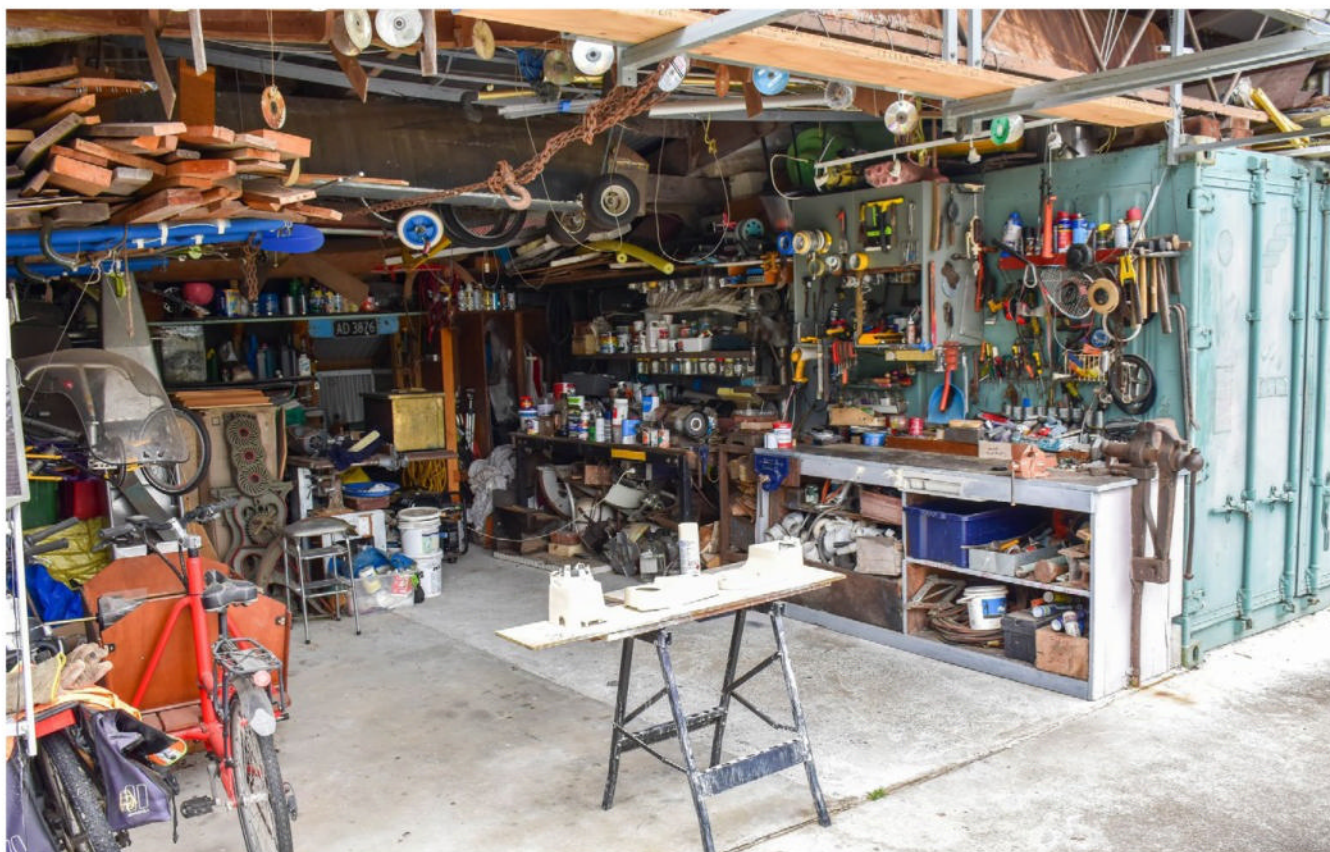
What I didn't figure on was that it splattered what looked like real sand, nice and evenly, over the whole surface. As a bonus, despite rigorous shaking pre-application, it managed a two-tone look. I said some colourful words, but the hue and the surface ignored me. In the end,



“The metal and gear-type parts I dunked in petrol”



The unanticipated speckled effect



My open-air workshop – and spray booth!

I decided I could live with the speckled effect, bought a can marked ‘ivory, satin’ and blasted that over and over the ‘sand’.

There, the project was overtaken by the aforementioned Nationals. Sanding the hulls down through the grits, ending with a few hours of just using 1200-grit. Doing the same to centreboards and rudders, tuning the rig, mounting the new crossbeam – the days kept ticking by, and the list kept getting longer.

Working days got extended; nights were truncated. My sidekick shot through to Australia to ease an end-of-life mother through her journey, so garden – maintenance got added to the list too ...

Having loaded everything – she is better at remembering ‘everything’ than me, I had half my workshop tools on the Corolla’s front passenger floor but forgot my toothbrush – I drove to Picton, had the regatta of my life (16th this time versus 36th the time before), came away with the ‘70 and over age group’ trophy, drove all the way home, and picked up where I’d left off a week earlier. One advantage of her absence? I could leave the mixer parts strewn over a cloth on the sitting room table while I was away ... ►



Why I like the Paper Tiger class: one competitor takes time out to do running repairs on another's rudder

Reassembly time

The brushes looked to have too much life left to be bothered replacing them.

I re-soldered and extended the wire and started into the fun bit: the gear-box. Like May, I'm a sucker for gears and like him, I see them as exquisite levers. One has to remember to put all the thrust washers in (I replaced a couple from Rietveld's vast collection), but otherwise, it snicks together beautifully. Until you try and get the two screws which go under the plastic drive pulley in. And can't for the life of you remember how you took them out. There are access holes through the pulley, and those accommodate the head of the screw and a screwdriver but not the spring washer. Which stubbornly won't come off.

I've been frustrated like this before, mentally cursing long-ago designers who didn't anticipate decades-later DIYers. One that comes to mind is my old HD X2 Holden station wagon, the upper bell-housing bolts of which lived down a crack between the block and the firewall.

After several this-way, that-way ring, open-ender reversals and droppings, "Where the F is it?" I swore, then drilled out two holes in the bulkhead, aligned with said bolts and big enough to admit a socket.

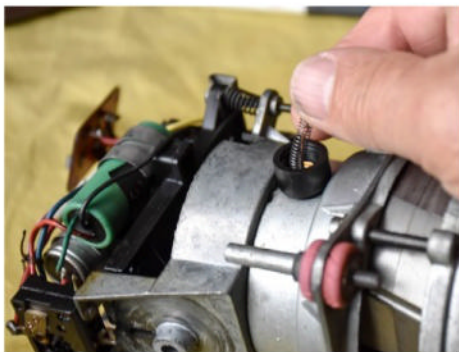
A couple of tin patches held over each with PK screws, and I never looked back. Smiled every time I used them – which was often – while remembering that designers don't prioritise ease of maintenance. Nowadays, someone would probably tell me it needed to be certified because it might have reduced the torsional integrity of the bulkhead ...

In this case, I found a 'just enough clearance for the washers drill', wound it through one of the pulley-holes by hand, inserted the screws, and smiled the same smile I had with the Holden.

I got ahead of myself a couple of times – too much mental water under the bridge since disassembly – it is a rigidly sequential build for all its glorious simplicity. But by and large, assembly afternoon was a ton of fun, and it was satisfying to see it together.

Footing it with the best

One thing all the YouTube clips mentioned was that replacing the feet was essential. The reason is simple: the motor has to be cooled by air from somewhere, and



Brushes were fine



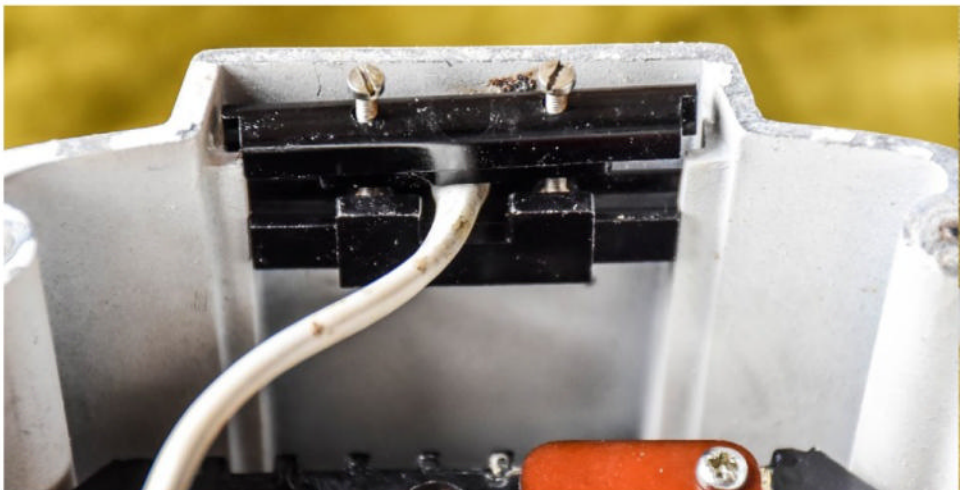
Green wire was too short to accommodate flexing – added coil (yellow) allows for it



Reaming one of the holes to allow a screw head through



Eye candy for a gearhead! Greasing time



A surprisingly elegant clamp

underneath is that somewhere. I'd solved that with our first machine by using sticky-back rubber tabs and would have done so again if I hadn't casually perused Trade Me and found someone (Kenwood Exchange Invercargill) selling sets quite cheaply.

The flushed-off remains of the old ones were reluctant to leave home, so I took a 2.5mm drill to the rubber, routing it out until the wee pins in the centre could be grabbed and pulled.

Play it again, Sam

There's only one problem now – the first machine looks dowdy compared to the done-up one. The answer to that is obvious; I hope to have it done before she gets back (she tends to like the sitting room table to be visible, sometimes even available to entertain), but the list ahead is getting longer, and it may not happen just yet anyway; if things all come together, I'll be part of the NZ Paper Tiger team taking on Australia in Queensland come July, and for a while, boat improvement will be more important than tarting up a reliably functioning mixer. 📁



Drilling out the old rubber feet



Feet are some of the many parts that you can still buy new for these iconic machines



Coming together nicely – only food-grade grease in the eccentric gears, if you please ...



Looking good for another 50 years



James May ponders

James May asks in his YouTube mixer rebuild <https://www.youtube.com/watch?v=xkG7ZA-EcSw&t=1592s>, "Where all the saved time went?" It is a valid question; we're all running faster than we were despite all those 'labour-saving' devices. Mostly to pay off yet more labour-saving devices. Which mostly end up in landfills. I'm of a generation which watched its grandmothers hand-beating mixture in hand-held bowls; mine used to sit by the firebox, her old green and cream Shacklock, bowl under her left arm, beater in the right hand; indeed, I still have the bowl.

Ken Wood actually, in a later (1980) interview, acknowledged that post (fossil) oil, we might have to revert to that method.

I'd be tempted to pedal-power a Kenwood mechanism rather than hand beat, but I know which method is more reliable, as did Granny.



Not a PC in sight ...



DISPLAY

In this instalment in our series on Arduino basics, we discuss displays, what to choose, and how best to use them – LED, LCD, TFT, OLED, and more

By Mark Beckett | Photographs: Mark Beckett

In the last few issues of *The Shed*, we've covered 'Time' along with 'Inputs' and 'Outputs', and while they are useful for M2M (Machine to Machine), having it display that information is akin to icing on a cake.

Looking up the meaning of display gave me a wide range to choose from, but the one that I preferred for our

application was "to show something or a collection of things in an organised way for people to see."

Light-emitting diode (LED)

It would be unfair if I didn't include a simple LED as a means of displaying information to the user.

Green for GOOD/GO, Red for BAD/

STOP are available in a single RGB LED package, or you could use two separate LEDs.

We've talked about how digital is two states (ON or OFF), but if you flashed the LED it has a third state. Flash it faster or slower, and you've added two more states.

Change the number of flashes, and

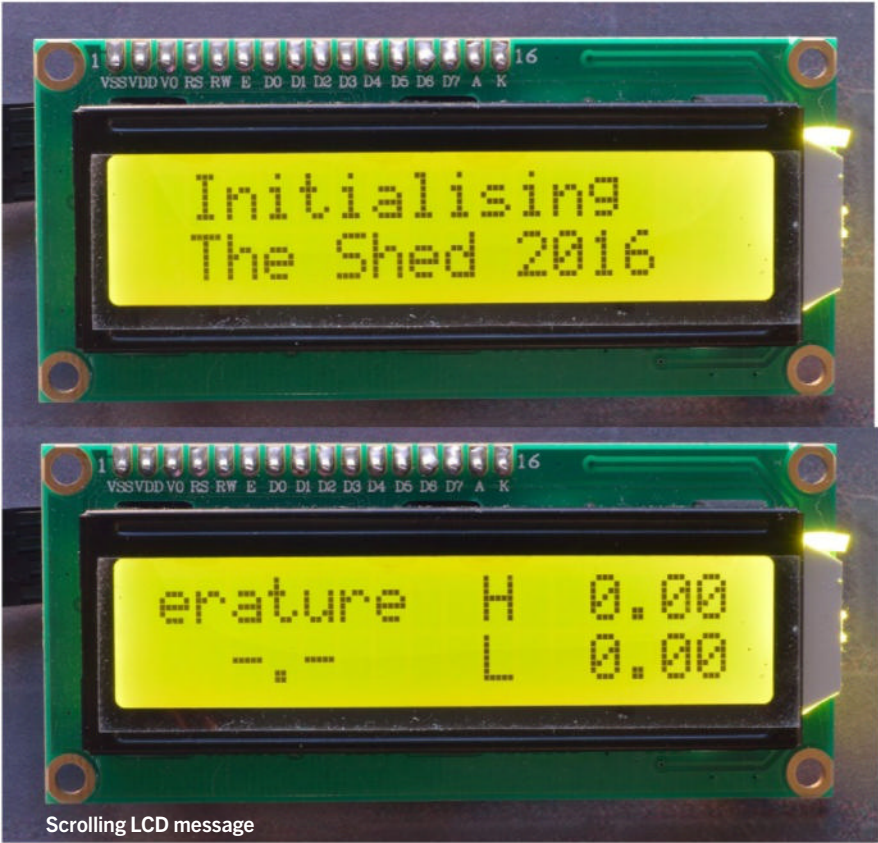
it can display an error code (or codes) just as many vehicles did prior to OBD2 ports. I'll cover more in a later issue when we talk about 'Errors', but in the meantime, I've included an example sketch for you to try.

Over the years, I've found a 'heartbeat' indication is very useful and reassuring, so you may want to consider adding a single LED that flashes to tell the user the 'thingamajig' is alive and working.

Liquid crystal display (LCD)

A very common display is a 2 x 16 LCD, which means there are two lines/rows, each with 16 characters, which may not seem much, but with scrolling, you can display a large amount of text or information.

We did something back in *The Shed* Issue 47 (Feb/Mar 2013), where I displayed the current temperature



Pre OBD2 error code

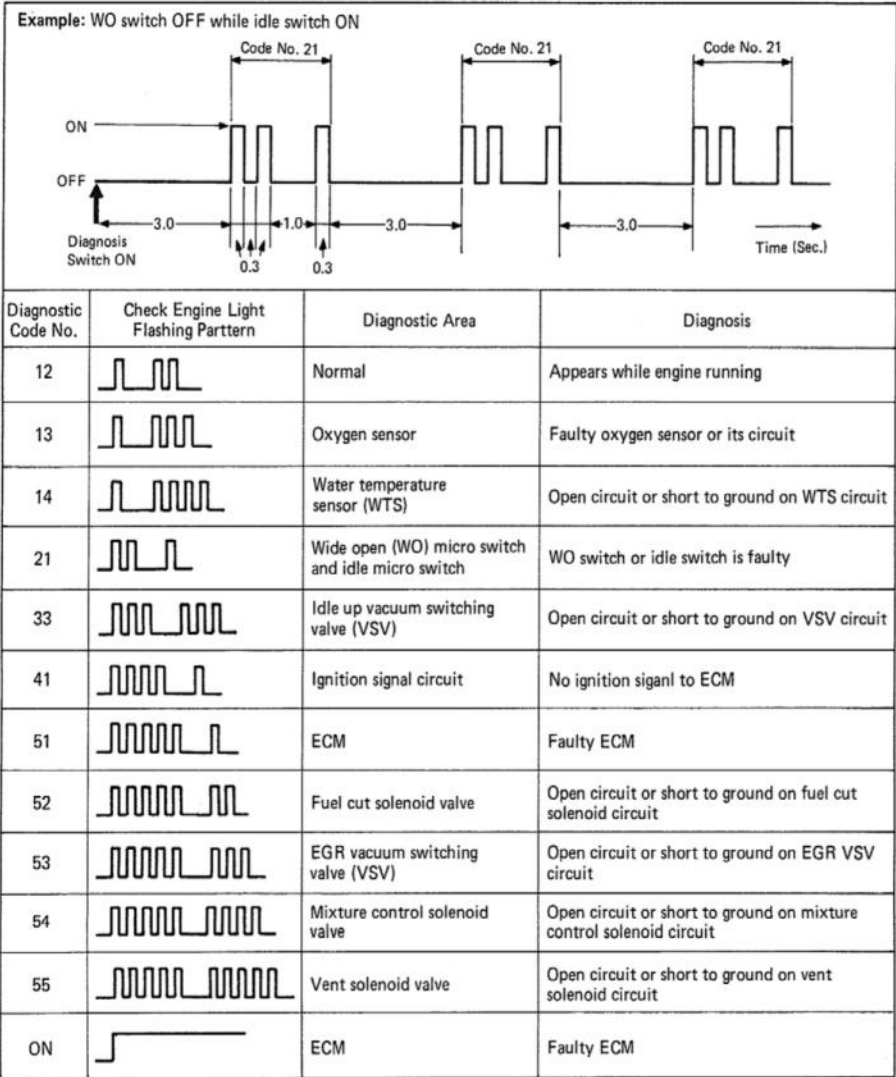


Fig. 6F-21 Diagnostic Code Table

“The ‘thingamajig’ is alive and working”

along with the highest and lowest temperatures.

Connecting an LCD requires six I/O connections along with a potentiometer for the contrast and a few connections along with power. The alternative is an I2C version, which has a small board added and reduces the connections to two plus power. More importantly, A4 and A5 are used, so all the common I/O pins are still free.

The example code I've provided is for an I2C display, which a search of Trade Me showed can be brought for as little as NZ\$6.50 plus postage.

Scrolling a message is a simple task of constructing a message (adding a space or two on the end),

finding the length of the message, then grabbing xx characters from the message and displaying it. Each time you loop, you shift along the message one place, grab the xx characters, and display it. When you reach the end of the message, start grabbing from the beginning.

Slow is best

The loop to display the message is best run slowly as the LCD refresh is not quick, and you want the viewer to be able to follow the message. In the example, the scroll is every 300 ms.

I've supplied the example code, which will run without the temperature sensor or pushbuttons and demonstrates the scrolling using seven characters.

One word of caution with LCDs: they have no reset pin, so any power bump can result in garbage on the display. I did inherit a couple of displays from my parent's clock module on their oven when the serviceman forgot to do the standard 'Power Off' and recheck, and instead, he replaced the whole unit under warranty twice!

So, if in doubt, remove the power for 10-20 seconds and see if it restores.

Thin-film transistor (TFT) and organic light-emitting diode (OLED)

These are different types of LCDs and can display much more information. Think of your smartphone or tablet. There is a very good explanation of the differences here <https://crystal-display.com/how-do-lcd-tft-displays-and-oled-displays-work/> There are a number of modules available on Trade Me for under \$20, but with the limited resources of the Arduino, you may have trouble displaying graphical pictures.

The smaller (0.9inch) are easier to use, but, like those smartwatches that link to your phone, they are only any good if you can read the damn thing, so they may not suit everyone.

If you have to display graphics or pictures on a larger display, you may be better off driving it with a single-board computer (Raspberry Pi, BeagleBone, etc), which gives you much more freedom. The alternative is to add an SD card to hold the image or a display that

uses an onboard controller to relieve some of the heavy lifting.

There are plenty of different form factors, types and examples on the internet, but the biggest issue I have is some form factors make it difficult to fit into a user-friendly design. Many are fitted to a board which is larger than the display area so you need a very wide border.

NeoPixel (WS2812)

NeoPixel is the Adafruit commercial name for the WS2812 Intelligent RGB LED. These tiny devices have a built-in controller that accepts data to set the brightness and colour output and conveniently can be daisy chained in long strings. They come as rings, strips or strings with 30, 60 or 144 LEDs per metre.

Adafruit has provided a very useful guide which explains the form factors and, more importantly, the current consumption and tricks to make them work at their best.

<https://learn.adafruit.com/adafruit-neopixel-uberguide>

Back in Issue *The Shed* 75 (Nov/

Dec 2017), I used two 8-pixel strips in series along with a Digispark (Arduino compatible) to make a colour-changeable edge-lit decoration.

In *The Shed* issue 66 (Apr/May 2016), a 16-pixel ring provided the visual indication for a distance-based parking sensor. Green was good, Orange was a warning, and Red was stop, and to provide confidence that it was working, a white heartbeat cycled around the display while it was idle.

Setting different colours

In 1996, I designed and built 'Trip Controllers' for use at Mt Lyford ski field.

Until now, both Version 1 and 2 have used a series of red LEDs that were either ON or OFF to show the status of the trip switches, end gates and emergency stops. It worked but could be confusing to the lift operators.

For Version 3 (currently under construction), I'm using a strip of 24 NeoPixels (WS2812) LEDs with either 'Green' for 'Good/Okay' or 'Red' for 'Bad/Tripped'.

It also allows 'Orange' to act



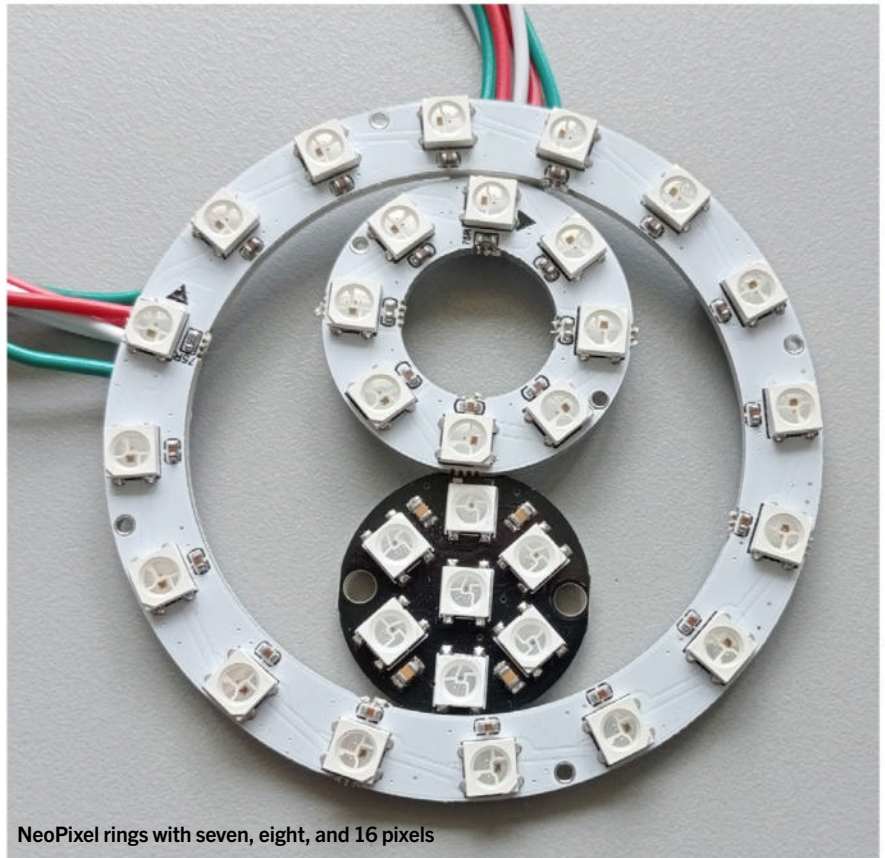
TFT displays with large borders

as a warning for the 'Battery and Temperature' inputs.

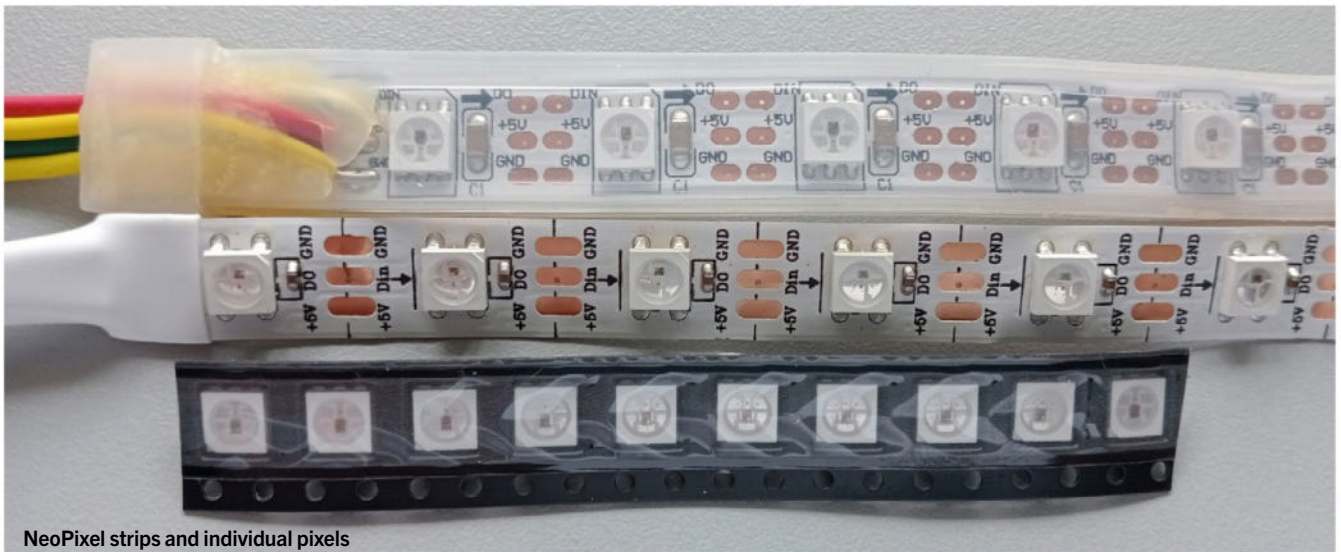
Using a strip of NeoPixels gives the flexibility to set each LED to a colour (or Off if that Lift Line has fewer inputs), and because it only requires three wires (+5v, Data and Gnd), the display can be mounted outside the electronics enclosure, which means no chance of snow mixing with the electronics ... never a good mix.

If you want to create something that slowly changes colour, then it can be frustrating. You have to blend a certain amount of each colour by manipulating the three figures (Red, Green and Blue). One example uses Hue and Saturation and creates a 16-bit number.

I've provided an example sketch that allows the control of the colour and brightness. There are plenty of comments to help understand what is going on. Simply change the number of pixels to suit your strip. ►



NeoPixel rings with seven, eight, and 16 pixels



NeoPixel strips and individual pixels



Colourful goggles

“If you want to create something that slowly changes colour, then it can be frustrating”



Seven-segment displays

These have been around forever and come as either a common Anode or common Cathode variation. One issue is that to drive them, you need eight I/O pins for one display.

Luckily, the TM1637 module allows just two wires (I2C) to drive all the segments and includes the ability to control the brightness.

Looking around, many of the modules are fully self-contained and very cheap. There are plenty of useful tutorials and links to the libraries if you feel the need to use a seven-segment display for your next project.

This link has plenty of useful information as well as How-To guides <https://lastminuteengineers.com/electronics/arduino-projects/>

In the past, the hardware methods to drive multiple segments radiated a fair bit of electrical noise or hash, so hopefully, that has been eliminated in modern times.

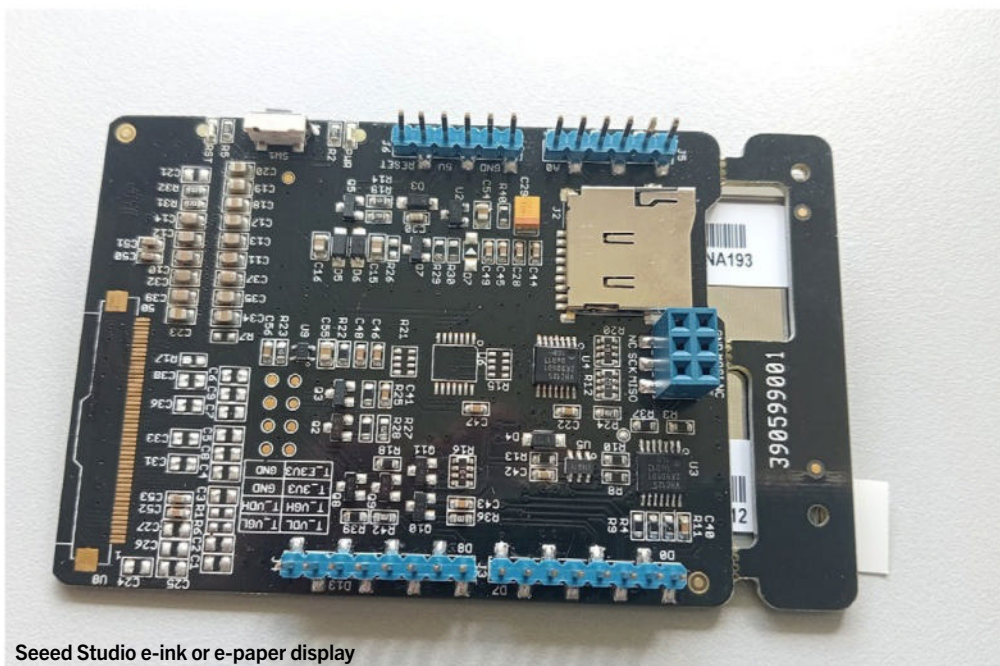
E-paper or e-ink

These are often found in eBook readers such as Kindle, Kobo and others, where they offer greater visibility with almost zero power consumption.

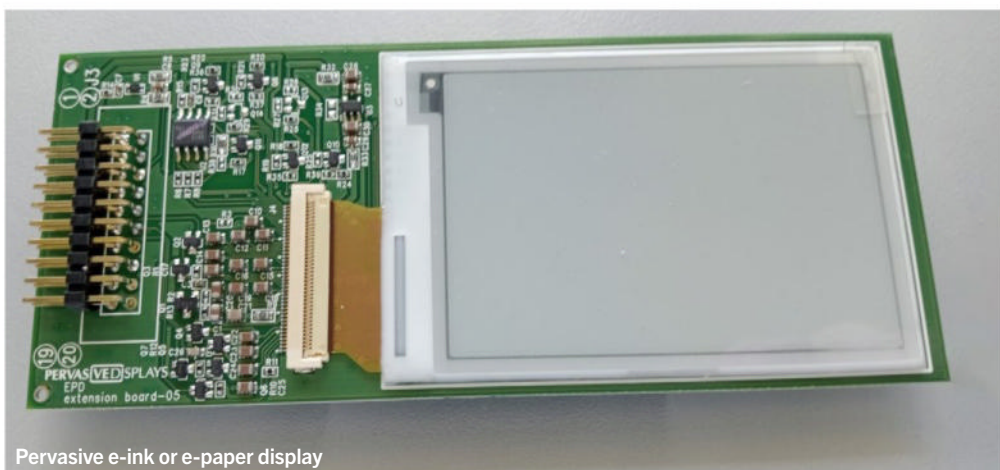
Some supermarkets are now using e-ink displays for their product pricing. They provide an easy solution with a long life and are a great use for the technology.

E-ink or e-paper displays come in three common sizes, 1.44, 2.0 and 2.7 inches, and different manufacturers have different hardware to support them.

The one pictured here from Seeed Studio caters for all three sizes and allows you to break off the end for the smaller displays. It plugs onto an Arduino, but notice the large part where the ribbon attaches. The other display pictured is a Pervasive Gen2 board, which has an even longer end but can be



Seeed Studio e-ink or e-paper display



Pervasive e-ink or e-paper display

cabled to the controller.

It's important to note that most of these are 'development boards', but unless you're into designing circuit boards, then you're stuck with whatever the manufacturer offers.

Many years ago, Element14 had an e-paper challenge, and I decided to buy a Wyolum's E Ink BADGER <https://wyolum.com/projects/badger/> just to try.

I added an image and then put it back in the box, and now, 10 years later, the image is still there, which is a testimony to the technology. Remember, this has zero power as the battery was removed before storage.

So, while these displays are very useful and low power, the display will remain even if the unit dies or becomes unpowered, which could give a false indication to someone ... just like a clock that stopped.

NeoPixel goggles

We had a themed event in the new year, and while the hat and goggles are readily available, I decided to add an extra feature by adding neo pixels behind each lens.

In order to make them super useful, they can be controlled with a web browser on your phone and were a great hit.

Download the code

Error light: https://drive.google.com/file/d/1S_YEuZolk-TQgAypFTb2l0VoMmgKuutz/view?usp=sharing
Pixel strip: <https://drive.google.com/file/d/1SeXZxoezRjlrMvivU7OALY3gSD9qdkap/view?usp=sharing>
Scrolling: <https://drive.google.com/file/d/1Sgilm835UcYlf5K1lwEdxz7vQ2zslXY1/view?usp=sharing>



Error light



Pixel strip



Scrolling

I'll cover the construction and code in another article later in the year.

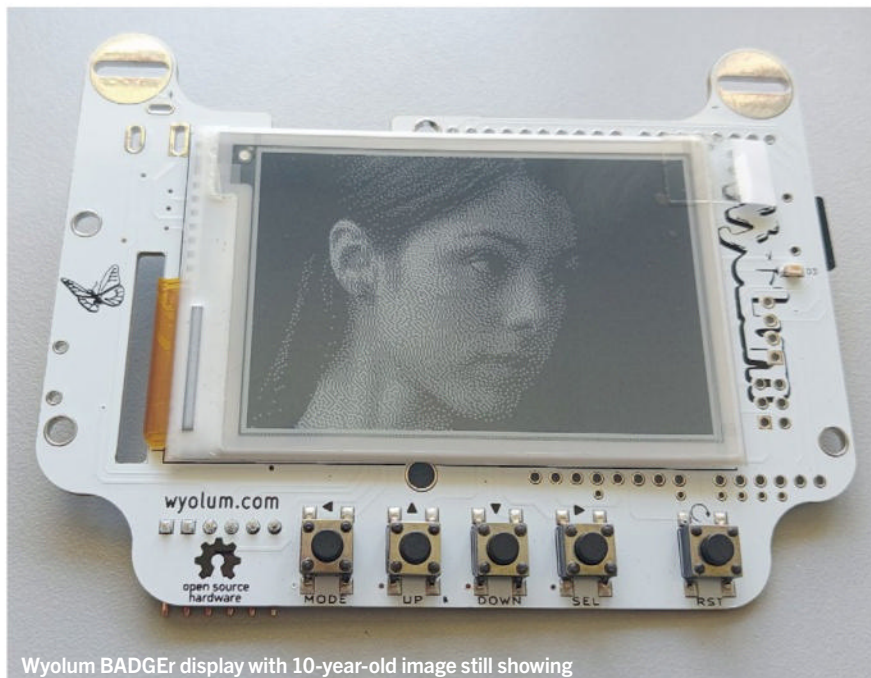
Conclusion

There is no single solution to displaying information to a user. It depends on the application and what you want them to see. Having too much information can overwhelm many people, and they may choose to ignore what they don't understand. Sometimes, less is better.

In contrast, not knowing can also be a curse. If you're monitoring a temperature as it rises, it could be very useful to display it as well as provide another output when it hits a critical value.

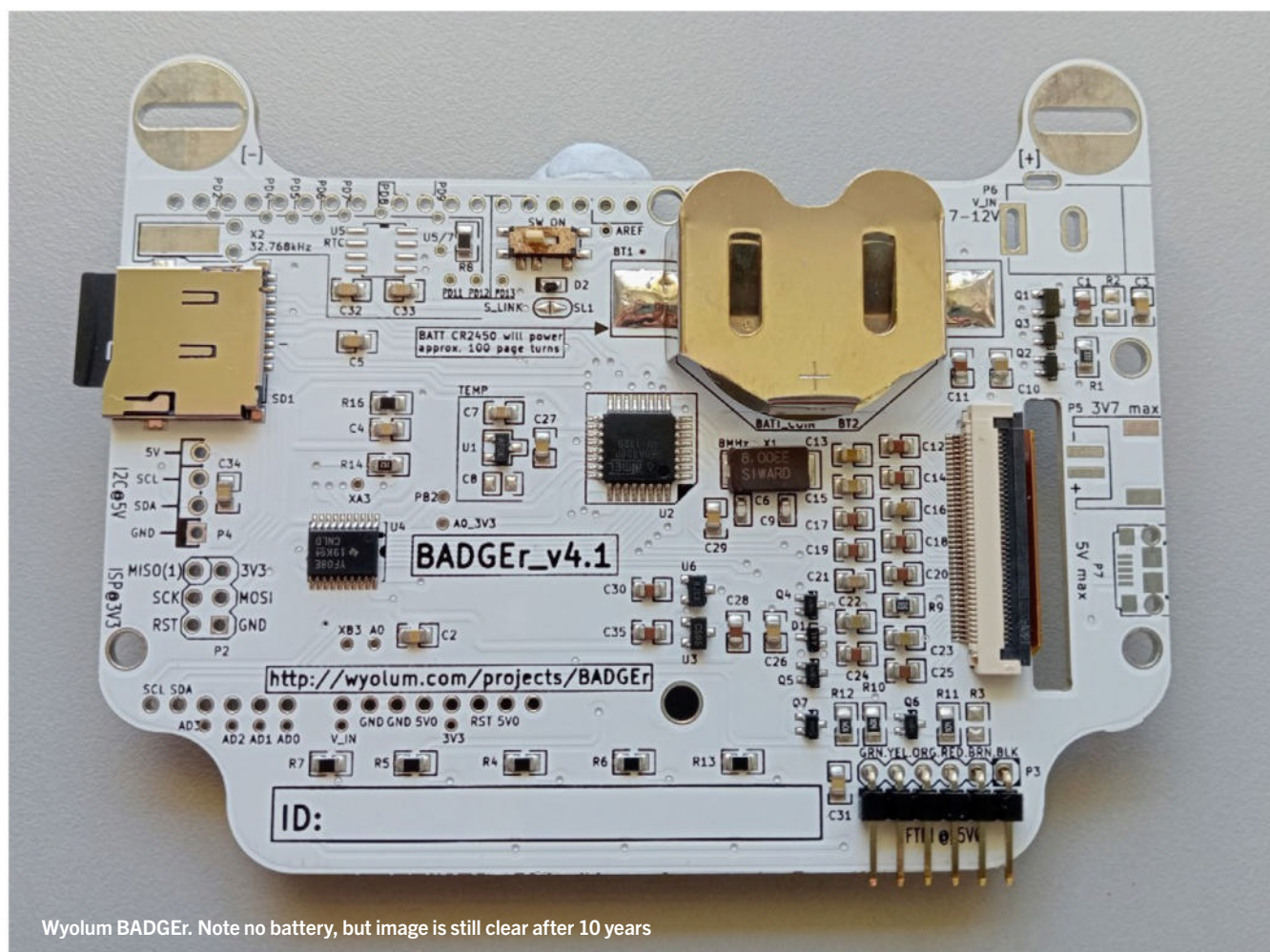
If you've ever had a car overheat and watched the temperature gauge climb, you'll appreciate that it allows you to stop earlier, just before that last hill on the way home. Sometimes more is better.

Hopefully, this has provided some ideas, and the examples allow readers to try a few things with Arduino displays. 📱



Wyolum BADGER display with 10-year-old image still showing

“You’re stuck with whatever the manufacturer offers”



Wyolum BADGER. Note no battery, but image is still clear after 10 years



A 24-DRAWER CABINET FOR YOUR SHED

By Andrew Broxholme | Photographs: Andrew Broxholme

Even if you are lucky enough to have a huge shed, you still need to organise your storage to avoid chaos

Most men have a degree of envy when they find out how big my shed is, 24m x 14m with a 6m stud.

However, no matter how much space you have, human nature requires us to expand our possessions to fit the available space. When we bought our lifestyle property, there was only the shed, no house. We first built a small 65m² secondary dwelling with all of our bigger furniture, and everything that we wanted for our “bigger” house was put in the shed.

My wife and I, however, must have some squirrel in our DNA, we just keep acquiring stuff and only recently put real effort into actually organizing it. It came to a head when, while building my kit set aeroplane, the time came when the forward fuselage needed to be attached to the aft fuselage; it just wasn't possible in the remaining space.

We have no storage

The shed itself, while large, was an empty shell with no cupboards, shelves or internal walls. I've been adding those over the past few years, but we still have lots of stuff, boxed and crated up in stacks and piles.

I also have lots of things to build stuff with, screws, nails, hinges and those “useful” items I might need one day. I also have a lot of timber pieces of various sizes. I'll also say at this point that I am not a cabinet maker, there are no fancy joints in this project, it was designed to be used in my shed and isn't a piece of furniture, although it turned out pretty good.

My test project

I made a box a few months ago. I put it together from some scrap, and it didn't turn out to be much use (lesson learned), so I partially disassembled it and adjusted it to more useful dimensions.

This became a pattern for the



The starting point: all the mid-size pieces of 9mm and 12mm ply gathered up



1. How big to make the drawers? The easy thing to do is pull out the boxes of bulk hardware and try different arrangements. 2. The pattern box was turned upside down, and the assembly jig was created around it. It's just a flat, reasonably thick piece of scrap ply with strips glued and screwed down to hold the sides in position while they are glued and fastened together. 3. You need a pattern to cut drawer parts, especially in this case, as they were made in batches, and I didn't know until later how many of each size I would need. As the drawers only differ in depth, you need a pattern for the long side and another for the short side. Here, it's being used to set the cutting stops for another batch of parts. 4. Two stacks of drawer parts ready to be assembled. 5. The first box in the assembly jig. The assembly frame holds what will be the top in place, with four corner clamps to hold what will be the bottom of the box in place. I used a brad nailer and glued all the joints. Wipe off any glue that squeezes out before you put the base on. 6. The base was also glued and brad-nailed in place, and then the box was taken out of the jig. Don't leave it in, as if you miss some squeezed-out glue and this sets, you won't be able to remove it from the frame. The bases are 9mm ply, and I only needed the inside surface to be smooth

drawers of this unit. I cut parts for the first deep drawers and used them to make an assembly jig. I realized early on that I would need different depth drawers, and after deciding that 17cm was good for the deep drawer, I arbitrarily chose 13cm and 9cm depth for the shallow ones. The base was just nailed and glued underneath. I figured that would be strong enough for my purposes.

Wheels or no wheels

The fun part of making it up as you go was how many drawers would be in the cabinet and how would they be oriented?

I needed to take into account where it would



“My wife and I, however,
must have some squirrel
in our DNA”





go in the shed, I decided not to put it on wheels; it would likely be just too heavy when full, and if I wanted the contents of a drawer, I could just take the whole drawer out and over to where I was working. So with six of each size of drawer, I tried different configurations to make the best use of the material I had chosen for the carcass.

The cabinet

The parameters of the unit were lots of

drawers, a mixture of some big deep ones and smaller drawers to allow lots of choice when it comes to what goes where.

It also had to be built from what I had available to keep down the cost. While MDF is what most things are made of these days, I don't like it much. I prefer plywood, which is light, easier to work with, and comes in different thicknesses. I have reclaimed lots of it from crates and boxes and bought some offcuts from

a local business that wanted to tidy up their shed.

The ideal thickness for drawers, in my opinion, is 12mm; it makes a strong drawer without being too heavy. The carcass would be made from a combination of thick MDF and particle board, which would turn out to be a good decision later. This was really a make-it-up-as-you-go project, as I wasn't sure how many drawers I had material for or the exact arrangement I would use. ►



1. A completed box next to the frame with another medium-height drawer under assembly. I generally made up about six at a time, then sanded and painted them. 2. Two deep drawers at the bottom, three medium, and three small drawers turned out to be almost perfect for my carcass material on hand. The sides would be thick particle board and two vertical dividers were ply. I'm using very simple runners cut from rimu for the drawers to slide on. I'll tell you about the mistake later. 3. Three drawers across the base, with two dividing panels, again meant almost no wastage. 4. Close up, the cardboard adds a little space so that the drawers can be easily pulled out and any slight variation in box width plus the thickness of paint can be allowed for. 5. Starting the carcass, I built a footer underneath to raise it about 8cm. It shows just how much of a make-it-up-as-you-go project this is. 6. You simply put in the drawer rails above the drawer below with a cardboard spacer to create some wriggle room. This is where I made my early mistake: when I measured and cut the side panels, I didn't have the spacers and ran out of room



“Those
‘useful’
items I
might
need
one
day”



when I got to the top drawer. They had to be cut down about 1cm, which isn't noticeable. 7. The assembled carcass. One disadvantage of using different materials is that you really need to paint it. It takes a while to paint a structure like this as well as the 24 drawers, inside and out, with two coats of paint. The fourth rail in the middle was replaced by a solid shelf of the same thickness to add rigidity. 8. Twelve-millimetre ply was used for the back – a low-quality sheet glued and nailed in place. It adds a great deal of strength



1



2



3

1. Floor space is very limited, another reason to make drawers and paint in batches. 2. I made the last few drawers after the carcass was built; with the exception of the top row, they are interchangeable. Due to some imperfections in the carcass material, I had to sand a small amount off about four of the drawers, as, after painting, they were too hard to open and close. 3. Months after completion, I was looking for somewhere to put all my woodworking clamps. An unexpected benefit to using 20mm chipboard for the side panels. I think I can get all of them on there in stacks of two or three

I hope you are inspired

I'm hoping to inspire budding woodworkers to start making stuff like I did 20 years ago.

I've always gone for practical over what it looks like, so long as it's more or less square, does what I designed it to do and doesn't fall apart, then it's a winner. I've got better and much quicker at making stuff with practice, these days, I take my time to cut things accurately, they go together easier, are stronger and look better. I've made drawers before but not used an assembly jig, that was such a timesaver. The drawers are all square and the same size so except for those top ones are interchangeable.

While I haven't filled up the unit yet, I'm planning another one, which will maybe be two columns of eight drawers, which are a great size, you might have different needs. I also really didn't have the time to go down the fancy jointing route. Sure, they look good, but take that extra time, which I didn't want to spend. This needed to be built as quickly as possible from what I had lying around, but I'm happy, it turned out really well. 📷



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A regular gathering of bikers at Little River



Eric Hollenbeck

THREE DAYS

By Mark Seek
markseek@rocketmail.com

Never underestimate the time you spend with a person; it can be life changing for them

For most of us, the warmer weather arrived late in the piece, but that also depended on where your shed was located. All Jokes aside, I hope you have had time to get some of those summer jobs ticked off the to-do list before going back to work.

Perhaps this may have provided you with a bit of a head start on any new projects. Speaking of projects, I actually needed to focus on my own over Christmas, the back anchors and most of the braking system needed replacement/rebuilding on the wee Sprite. Ordering parts can be a stressful experience, and expecting them to arrive promptly from the Northern Hemisphere over Christmas was highly unlikely. The thought of the car up on blocks when there were shows and gatherings to attend over the summer months made me feel a bit grumpy.

This is the guy

But, I remembered a chance meeting with a bloke out at Green Park huts in Selwyn and that he'd passed on the details of a mechanic bloke who came highly recommended. "He's an

analogue guy in a digital world, Mark," he joked. On a scruffy bit of paper were the said details for a well-equipped and knowledgeable bloke on all things classic cars.

So, I gave Morris a call. Chaps in oily overalls and knowledgeable on all things imperial are getting harder to find these days, and expecting them to return your call requires a bit of smoke & mirrors and all digits crossed, fingers and toes.

Well, I reckon I struck gold when Morris from 'Driven Historics' returned my call for help; he also mentioned his workshop was nearby. Well, I was really chuffed to hear that and even more so when he offered to throw his tools in his trusty Series One Land Rover and, being mobile, he could do the work in my shed.

My job was to provide mugs of coffee and to pass the correct spanners. Morris has given me permission to give you his contact details, and if you're like me and have a limited understanding of English mechanicals, give him a call.

Back on the road

So, my Healey is now officially legal for country road ramblings and with as

much stopping power needed if a stray cow wanders across my path out in rural Canterbury. No such thing as airbags, but we will manage.

While all this was going on, If I wasn't staring up at the Sprite undercarriage, I was out on my old Morini attempting to remove the skin off rice puddings, yes, Moto Morini's are able to do this, but my mate Lloyd says it requires a lot of revving and vibration both of which are exhausting.

One day in particular, the weather Gods decided to oblige, so I took full advantage of this and headed out on the little 350cc machine with my fellow Italian motorbike fanatic on his 850T Guzzi. Feeling parched and peckish and close enough to the 'White Rabbit Cafe', we decided to pull into the gravel carpark.

Time for a cuppa

I leaned the red machine against the fence to cool down and proceeded to order a mug of tea.

Glancing around at the punters, there were quite a few old-timers on old bikes, in leathers that don't fit anymore, all giving each other a bit of earache (in



A Healey afternoon

jest, of course). In the background, they were being entertained by watching the new breed of hooligans/ lunatics riding up 'Gebbie's Pass', earning their stripes, laying over the tank on crotch rockets, all attempting to tame their Japanese machines.

To be honest, it can be a fun distraction while you wait for the bowl of chips to arrive. Perched on a stool, I began conversing with a rather tall bloke (name escapes me). I was admiring his cafe-style bike when we struck up a bit of a conversation. Apparently, he was worried about his wife, who was having a difficult time at her current work placement; when I enquired what she did, he told me she was working with at-risk youth. "Much respect to her," I said.

Undervalued and underpaid

I can remember my own experience working with rural youth in Nelson/ Tasman. I was much younger then and had more energy and patience. From my experience, the job is undervalued. Generally, you are underpaid, and you don't see much progress either, like one step forward two steps back. This can make a person feel disheartened easily.

The tall bloke didn't know how to encourage his wife, and it was obviously affecting him. I mentioned to him that I had a story I hoped would provide some new perspective for his wife. The storyteller in this case was an American bloke, Eric Hollenbeck: an ex-Vietnam veteran and wood craftsman (if you

have not come across him, Google him, and well, you will, I'm sure, like me, be amused by Eric's old school approach to life.

A young struggler

The story centres around this young person in their formative years struggling with life, they stole, never attended school, ran away multiple times, and was put into numerous foster homes, etc.

Consequently, this young individual was destined for a less-than-average future. But at 19 years of age, in a storefront window, they noticed a simple sign which read, "Come in and take a test, which is consummate with a High School diploma".

Encouraged by the woman inside the store, the young person in question sat the test to their disbelief; they passed the exam with a very high pass mark. With this success, they again were encouraged to sit a college entrance exam again for "giggles and grins".

Eric says they sat the test and were awarded a full scholarship with housing because the exam results were so high. The long story shortened for obvious reasons; the young person in question studied to be an 'Attorney for Children' and worked through college, which took more than 4 1/2 years. Once completed, they passed the Bar Law School (no mean feat, I'm sure) the whole time, they focused on a family who they had stayed with.

A life-saving foster family

A foster family, they felt they had saved their life; they recalled being part of the family sitting around the dinner table talking about important things, a wholesome experience like nothing they had experienced prior.

The new graduate recalled discussing their day having meals together and how that made them feel. They made such an impression they were like a "guiding light". Sometime after, the law degree graduate decided they wanted to go visit this particular family and just tell them how they had made something of their life now.

Some weeks later they travelled across the country and went to see them they arranged to meet. After greeting each other over coffee, they shared how they had done something with their life and how the elderly couple were in part involved in this success. The conversation continued over dinner recalling how being part of the family created inspiration to keep going when things had become very difficult.

A big impression

Both the foster parents looked at each other with wide grins. The foster mother asked if they could recall how long they had stayed in their home after all these years: "I don't remember specifically, but I remember we ate together, we talked about stuff, and all of this was such a wonderful thing!"

The foster mother replied; sweetie, we only had you with us for three days because you ran away; you see, the three days had made a significant impression on this young visitor to their home, even though the couple most likely felt they had failed the young person who was vulnerable, unstable and somewhat reckless.

This story reminds me and maybe some *The Shed* readers that we can make a difference in someone's life, even if three days are all we have, or three hours or three minutes.

Never underestimate the positive impact that you impart that can lead to others' future achievements.

Morris's contact: email: morris@drivenhistorics.co.nz: 021 115 1905 📧

PAUL'S SHED

By Ritchie Wilson | Photographs: Ritchie Wilson

This small-town shed is home to a workshop, various cars, hot rods, and an extensive collection of advertising signs. The advertising signs relate to a broad range of products, from biscuits to bicycles, ice cream to colas and oil companies. It also doubles as a home. It may be sheddie heaven





Paul French and his 'fintastic' 1959 Plymouth Fury styled by the great Virgil Exner. In 1959, fins were near their peak

Most sheddies when looking for a new home, tend to look for houses with a larger than normal garage. Paul French did it rather differently.

He looked for a large industrial building and then built an accommodation wing – three bedrooms, a bathroom and a kitchen – onto it. So his 500m² shed is also his living room, with internal access, TV, couches, cable-reel table, woodstove and jukebox.

Twelve years ago, he bought a shed on the outskirts of a rural town less than an hour's drive from Christchurch. At that time, the town was not thriving and many of the main street shops were empty – as was the building Paul bought, which previously housed a car wrecking business.

The residential wing Paul built runs along the section's southern boundary towards the street. The front door is at

the end of a long entrance lobby that runs along the new wing's northern side and opens into the shed. The building's front yard is decorated with a small wooden WH railway goods wagon, the bones of a 1920s roadster, a 1960s petrol pump, garage 'open' and 'closed' signs and, along the northern boundary, a row of elegant pencil cypress trees.

The Rod Benders club

Paul is a life member of the Garden City Rodders hot rod club, founded in 1971, which is an offshoot of the Rod Benders club (founded in 1958), as are several of Christchurch's other hot rod clubs.

Paul says that there are at least 10 hot rod clubs in the city and he thinks that there is probably a rod garaged on most Christchurch streets. He would have a better idea than most because he has worked for decades at American Auto Parts, a Christchurch company which imports new and used V8 engines from

the USA. Most rodders in this part of the world would have dealt with the firm. He says that another clue to the number of rods in the city is the 'Hot Rod Breakfast' hosted by the Kustom Car Club on the first Sunday of each month at their area in the McLeans Island Recreational Reserve where, incredibly, a thousand rods may turn up.

Extensive collection

Paul's shed is home to his cars and his extensive collection of advertising signs. The signs relate to a broad range of products, from biscuits to bicycles, with a heavy emphasis on ice cream, colas and oil companies.

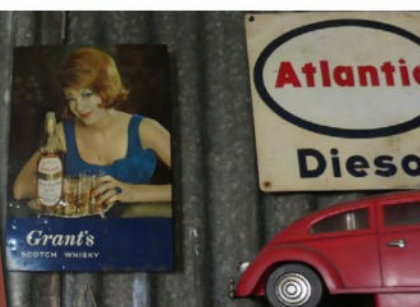
The oil company signs are far and away the largest – and the most valuable. There are windows on the north and south sides of the building, which provide bright light. Paul sometimes worries that the printed boxes of the very many collectables



Paul's first hot rod – the 1927 Ford. Its radiator grille is made from multiple pieces of aluminium sheet welded together



"He looked for a large industrial building and then built an accommodation wing"





Signs and magazines. Paul started his collecting with Coca-Cola signs and refrigerators but has branched out



Purple 1970 Plymouth Barracuda with a 460ci Hemi V8 and a four-speed manual gear-box



Nathan French's 1963 Ford Anglia with 1500cc Ford Cortina engine





The red track-roadster and the white '59 Plymouth Fury are both powered by Hemi V8s

he has on display will be faded by the sunlight but, as well, he also likes that they can be clearly seen.

Paul has two finished hot rods and another, which is being worked on.

The first rod is a red track-roadster based on a 1927 'New Beauty' Ford Model T open two-seater. Paul made its chromed tube front axle with 'four-bar' radius rods. It is powered by a Chrysler 440 cubic inch (ci) V8 from about 1970. The roadster's low body is fibreglass, made by Barry Livermore at Christchurch's Glass Repros. The hood, radiator cowl and underbelly are aluminium, made by Rick Murray, a very well-known fabricator in the hot rod world.

Paul's 'as-found-look' rod

The second is a radically lowered 1929 Ford Model A roadster, which looks rather like a 'Rat Rod' but pre-dates the whole 'as found' look by a decade or so. The outsized headlamps come from a 1928 Buick, and the motor is a 1952 Chrysler Hemi V8 with Chrysler's 'Fluid-Drive' (M-6) transmission, which has a clutch as well as a torque-converter-like fluid flywheel. The engine and

transmission are from a 1952 Chrysler New Yorker. The system allows the driver to select and change gear using the clutch, but with the advantage that the danger of stalling or juddering on first moving off is eliminated.

The Fluid Drive has a two-speed manual gear-box coupled to an electro-hydraulic operated overdrive, giving four forward gears. The transmission's solenoids are 6V so Paul has had to run a 6V electrical system in the car. Paul says that the combination of a big engine and a light body means that it is a delightful car to drive and that he uses it frequently.

A genuine barn find

His current project is a Model A 'Fordor' sedan, which is a genuine barn find.

It is presently having chassis rust repairs done professionally; no doubt it will end up Chrysler-powered.

Another project is a speedway racer. It is a midget No 6, which is based on Austin Seven running gear. Paul has researched its history and thinks it was raced by Dunedin's Gavin Wilke,

"Choppers weren't cheap when they were new, and today, some sell for four-figure amounts"

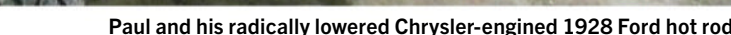
a highly respected speedway driver of long-standing.

No 6's 500cc J.A.P. single-cylinder engine is missing, and Paul supposes that it ended up in a racing motorcycle. He would like to hear from any *Shed* reader who could supply such an engine. He does have a Harley-Davidson engine but is saving that for a really minimalist single-seater cycle car he is designing.

The other cars and projects

Two Mopar products are housed in Paul's shed.

One is a white 1959 Plymouth Fury 2-door coupe, a very big car with outrageous tail fins. It also has a Hemi V8 engine with a pair of four-barrel Carter carburettors. The other is a 1970 Plymouth Barracuda with left-hand drive and a 426ci Hemi, which drives through



a four-speed manual gear-box.

Rounding out the shed's vehicles are a 1959 De Soto camper, which was built in Taupo in the 1960s, a 1963 Ford Anglia with a 1500cc Cortina engine – belonging to Paul's son Nathan – and a Bedford school bus. This last one is slipping down the list of projects to be completed.

Two large engines are stored. It won't be a surprise to learn that one is a Hemi; the other is a Chrysler six-cylinder side-valve from about 1960.

Near the shed's wide original roller door is a car hoist which Paul uses to service his cars and to work on his family's modern vehicles. He is getting his head around engine management computers.

He has lots of tools and still has his original toolbox and roll cabinet, which were both made in Christchurch by Robbie Farrah at Safa Toolboxes.

Push bikes and pedal cars

Various pedal cars and bicycles are also distributed around the ample space. One peddle car is a beautiful Austin J40. These were built in a factory set up by the Austin Motor Company in Bargoed, Wales, to employ miners who had become disabled because of their work. The men suffered from 'black lung' (pneumoconiosis) caused by inhaling coal dust.

The metal used to make the pedal cars was scrap from Austin's Birmingham factory. Paul says that the toy car fits exactly along the rear seat of the contemporary Austin A40 sedan. Two other pedal cars, one of which is incomplete, were made by the British Triang Toy Company – one a jeep, the other a racing car which lacks wheels and has a non-original front grille.

The bicycles are mainly 'choppers'. These have a small front wheel and a larger rear, "ape-hanger" extended and elevated handlebars and a very elongated seat.

They are an obvious homage to the motorcycles ridden by Peter Fonda and Denis Hopper in the 1969 movie 'Easy Rider'. The Raleigh versions were made in New Zealand by Hasting's Morrison Industries.



The American Auto Parts dragster burning rubber

Hydro thunder

Paul has a lot of experience with methanol-fuelled supercharged V8 engines as he was for many years part of the crew of the American Auto Parts dragster, which had a blown Chevrolet 427ci engine running on alcohol.

He is currently involved with Ray Hart's 'Thunderstruck' hydroplane, powered by a 520ci 'Big Chief' aluminium V8 with 1471 supercharger.

When I recently phoned Paul, he was on the shores of Lake Karapiro in the Waikato, where the carbon fibre-built hydroplane was competing in the Masport Cup. The day was fine and there were reportedly "big crowds on the bank" to see the action.

Unfortunately, 'Thunderstruck' had been involved in a pile-up on the racing circuit's first turn, the red flag had come

out, and racing had been abandoned for the day.

The Masport Cup is a challenge cup between powerboat clubs and was first run in 1925 – 100 years ago. Some years it hasn't been competed for because of financial depressions, world wars and such, so this year's competition is not, as is advertised, the '100th Masport Cup'. By my calculation, it is the 92nd.

Powerboat racing, like road cycling, doesn't get much coverage in the daily press these days, but I can remember when it was a very big deal, and Len Southward's 'Red Head' and Peter Knight's 'The Boss' were household names.

Interestingly, Ray Hart won in 2015 in a boat called 'The Boss', and he also won in 2023 in Thunderstruck.

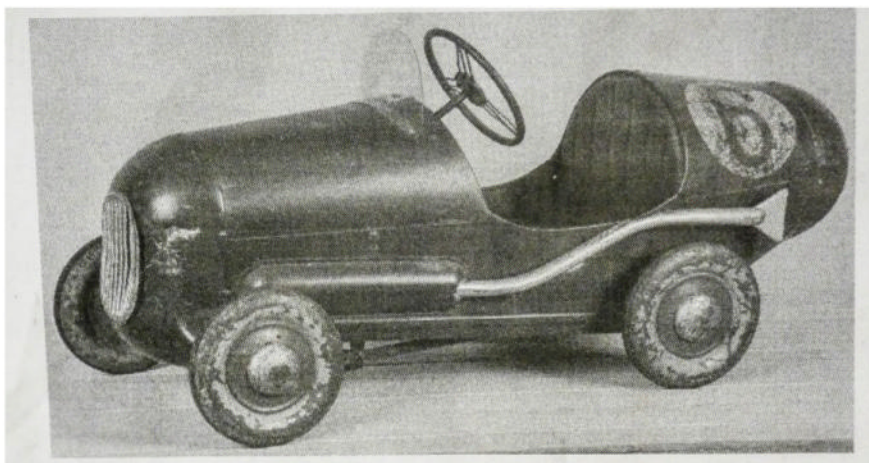
A homemade chopper

One chopper is homemade. Nathan French, in his early teens, decided he wanted a chopper and that he would make one himself.

He dismembered a small girl's two-wheeler and, using his father's MiG welder, cobbled the chopper's frame together and made a very respectable

job of it, too. Choppers weren't cheap when they were new, and today, some sell for four-figure amounts. Another bicycle is a new, locally made 'Penny Farthing' or 'Ordinary' – the two-wheelers from the Victorian era with a large front wheel and a tiny back one.

Paul has a couple of 'clip-on' cycle motors. These have no identifying



An advertising image of a sporty Triang pedal car. Paul has the real thing but it lacks wheels and front grille



A New Zealand–built example of a Triang pedal car. The decals were given away by petrol stations back in the day



A modern version of the Victorian penny-farthing bicycle. Vintage vitreous enamel–on–steel signs are behind



Paul has several 'chopper' bicycles, but this one was made by his son, who was in his early teens at the time



The black moped is a VeloSoleX



The bicycle motor is a Ducati Cucciolo clip-on. Over 200,000 were made, but only a few survive

marks. One is a real curiosity as it has the cylinder below the crankshaft, the sparkplug being at the very bottom of the engine. This is an arrangement which is only possible with a two-stroke engine where the oil in the two-stroke fuel mixture is continually being delivered to the engine's rubbing surfaces, such as the big and little ends and the main bearings.

Cycle motors were featured in *The Shed* issue 119 (Feb – March 2025) in the article on Doug Walkinson's bicycle collection.

The first Ducati motorcycle engine

He also has a clip-on fitted to a gent's roadster bicycle.

This is a Ducati 'Cucciolo', a 48cc four-stroke which drives the back wheel through the bicycle's chain. It was the first motorcycle engine produced by Ducati, today one of the premier motorcycle brands.

Over 200,000 of the small engines were made, but only a few survive today. The bike has front suspension, rear hub

brakes, a custom-made large-capacity fuel tank and very striking decorative pin striping. Cucciolo is the Italian word for a puppy, and the name was given to the clip-on motor because its high-pitched exhaust note sounds like the bark of a small puppy.

The perhaps more famous Vespa is also named after the sound of its exhaust. Vespa in Italian means wasp and the sound of the first Vespa's two-stroke was likened to the buzzing of a wasp. ►

VITREOUS ENAMEL—ON—STEEL SIGNS

From about 1880 to 195, signs exposed to the weather, such as street signs, were very often made from vitreous enamel baked onto a sheet steel base. Vitreous enamel is a tough, shiny surface coating which was used to coat, for example, cast-iron bathtubs, the interiors of kitchen stoves and cast-iron pots and pans.

Vitreous enamel is similar to the glazes used in pottery: it is a combination of finely ground glass, called frit, and metal oxides which, after being heated to around 800oC, form a smooth, scratch and chemical resistant layer when cooled. Vitreous enamel is unaffected by ultra-violet light, so it is virtually fade-free, but, like glass, it does crack and splinter when bent or struck, and the steel substrate can rust.

The first coat of enamel, called the ground coat, is applied to the cleaned sheet steel as a slurry (a suspension in water) of the frit and oxides of, for instance, cobalt, nickel, manganese, copper, or iron. When the slurry dries, the coated steel is fired in a furnace. The glass particles melt, dissolving the metal oxides and bonding with the metal sheet.

The final coat is then applied, again as a slurry of water, frit and metal oxides chosen to give a particular colour. The slurry is either sprayed on using stencils or screen printed. Firing in the furnace is repeated, and the final coat melts

into the ground coat.

There is plenty which can go wrong.

Contamination by dust particles can cause defects in vitreous enamel. When I worked in the long gone Shacklock stove factory in Princes Street, Dunedin, grains of sand from the company's disused foundry – where the famous 'Orion' coal-burning stoves had been cast in years past – would sometimes cause craters in the vitreous enamel of the electric ranges' ovens.

The fix was to sandblast the enamel off and start afresh. Even worse, if the oven wasn't properly supported in the furnace, it could distort due to the heat and have to be scrapped. Ovens were fed in one end of the furnace on trolleys and eventually emerged from the other. My memory is that the furnace was rarely shut down. If something got hung up inside the furnace, the furnace man had to don an asbestos suit – like a deep-sea diver's suit made of asbestos – and enter the furnace to sort out the problem. The whole enamelling process was complicated and expensive. The ovens were covered in the slurry by being dipped into a slurry-filled tank. This was done by hand, with the worker having to lift the coated oven up out of the slurry and hang it on a rack to dry. Very heavy work.

The size of a vitreous enamel sign would have been limited by the size of the steel sheets and the

size of the furnace which fired the enamel. Paul French has a couple of very large signs from the old petrol station in Akaroa. The bowser suffered a serious fire about the time of the Second World War and the signs were damaged. Paul says the temperature of the fire was so high that the vitreous enamel has melted in some parts of the signs.

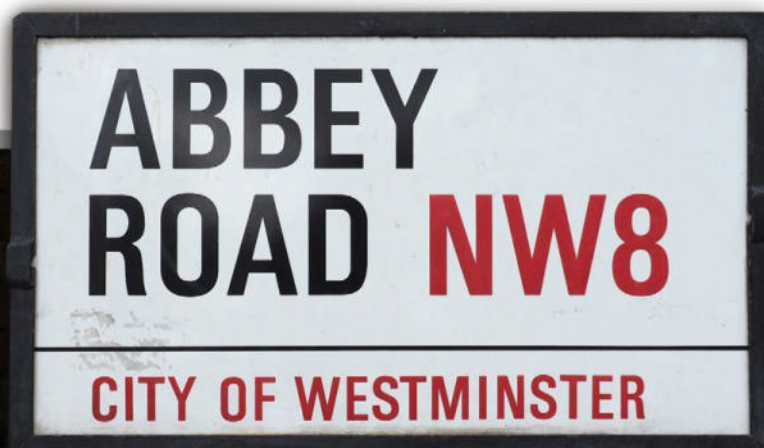
In 1940, an RNZAF Oxford aircraft on a training flight stalled when turning sharply above the town and crashed onto the main street, killing the two pilots and injuring two young girls on the ground. I wonder if this was the cause of the petrol station fire?

Vitreous enamel on steel signs are very sought after and can command high prices, with the condition being the most important determinant of price.

London street signs are often enamel and are often stolen. No surprise that the most stolen sign is 'Abbey Road'.

As paints improved, they were increasingly used for signs. Vitreous enamel signs are still made by specialist firms but are usually reproductions of classic signs from automobile manufacturers or similar. They tend to be very expensive.

Vitreous enamel is still unrivalled in protecting steel from chemical attack, and so is, for instance, used to coat the internal surface of steel hot water cylinders.





A display cabinet of collectables. Paul worries about the effect of his shed's light on them



Paul sitting in his Chrysler-engined 1928 Ford hot rod



Chrysler Hemi V8 engine with blower and hat (centre) and a Chrysler flat-head six-cylinder engine (left)

"After 20 years with American Auto Parts, he was offered the traditional gold watch. He asked if he could have a jukebox instead"

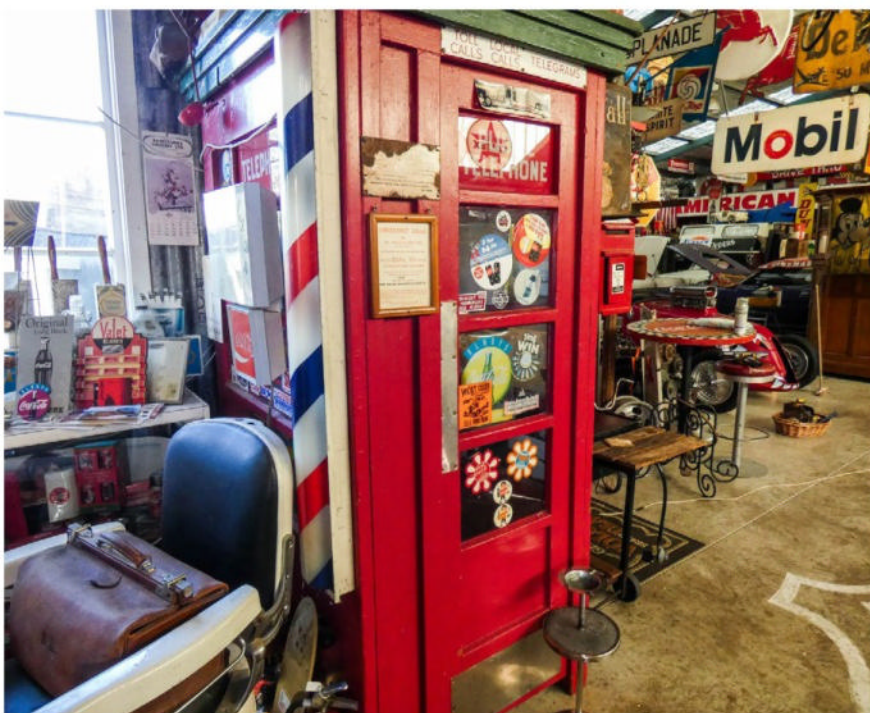
Hidden in a thicket of other bicycles is a French 'VeloSoleX' moped, like the one ridden by Robert Redford in the opening scenes of the 1975 movie *Three Days of the Condor*. Its motor is mounted above the front wheel, which it drives by friction.

Boiler-making apprenticeship

A large cable reel, repurposed as a table, dominates the front of the shed.

It has a wagon wheel suspended over it from which hang the cast-metal emblems of various car clubs. Paul got the idea from western-themed restaurants he patronised when he lived for several years in the USA, working in an auto parts warehouse.

On leaving school, Paul did a boiler-making apprenticeship with New Zealand Railways at the now-closed Addington Railway Workshops, where he learned heavy metal fabrication. He has decided views on the value of government departments training young workers, even if there is no immediate economic return. He also worries about



Once very common – a public phone box



One pedal car is a beautiful Austin J40



Vitreous enamel-on-steel signs for Perfection ice cream and Victoria insurance

the threat artificial intelligence poses to semi-skilled worker's jobs.

After 20 years with American Auto Parts, he was offered the traditional gold watch. He asked if he could have a jukebox instead. His 1960s Wurlitzer 'Astro' jukebox is an imposing device decorated with celestial bodies and came with a full component of vinyl 45 rpm records from the time. Jukeboxes should be used regularly to keep the mechanism in good order, so Paul pressed the buttons to call up a number from 1945 – Arthur Smith's hard-driving "Guitar Boogie".

The shed's most striking feature

The hundreds of 20th-century advertising signs are the shed's most striking feature.

The ones which Paul likes most are the two very large vitreous enamel signs – about 1.8 x 1.2m – from the Akaroa petrol station. One advertises 'Supercharged Shell', the other 'Vacuum Plume' a product of the Vacuum Oil Co Pty. Vacuum Plume was sold in New Zealand between 1916 and 1954 when its name was changed to Mobil. Both signs have been fire-damaged but are most evocative of bygone days.

Other vitreous enamel-on-steel signs are Hallenstein Brothers clothing; Brown, Ewing & Co drapers; Victoria insurance; the Post Office; Mobiloil; Blue Pennant Kerosene; Bensdorp's Royal Dutch Cocoa; and Big Tree Petrol. Examples of others are several street signs, Scotch whisky advertising signs and three Perfection ice cream signs of various sizes.



Wurlitzer Astro jukebox. A gift from Paul's employer

Perfection ice cream was made in Christchurch between 1926 and 1967, after which the company was sold to Tip Top (General Foods). It is probable that the three signs were made in Christchurch as well.

Small regional ice cream manufacturers

Other ice cream signs are from Apex (Christchurch 1932-1960), Crystal (Dunedin 1925-1964), Gay Time (Various 1964-72), Frosty Jack (Wellington 1924-1967), Walls (1966-1981) and Van Kist. Most, perhaps all, ended up being sold to Tip Top.

Snow Freeze was a Tip Top brand, and Talley's now owns Deep South. The story these signs tell is of lots of small regional ice cream manufacturers thriving for a time before being swallowed by the leading brand. I remember visiting the



Brown, Ewing & Co, Dunedin, enamel sign, unusual both in its colour and the busyness of its design. Note the year the firm was founded



'Garagenalia' is collectables related to old service stations. This Dunlop sign with clock would be one of the best



The 'attic', which holds children's toys and is just above some of the ice cream signs

Everest ice cream factory in Sydenham with my father, who was a friend of John Cahill, the owner. It was only operating for five years before being bought by Apex in 1960, which was, in turn, bought by Tip Top the same year.

My favourite?

In a large space filled with interesting and valuable objects, it is hard to decide on a favourite, so I will have to pick three.

The first is a small J.A.P. engine,

perhaps unused, which was probably intended to power a rotary hoe or similar. It is really beautifully made with red paint, the maker's initials pressed into the petrol cap and a V-shaped 'Brooklands' chromed exhaust tailpipe.

The second is a large, fairly modern electric clock branded Briggs and Stratton, which I can just picture on my own workshop wall.

The last is a vitreous enamel sign which puzzlingly reads: 'IN CARS STOP HERE IF REQUIRED'.

I remember this style of sign from when tram cars were the public transport in Christchurch before they were replaced by red buses.

My guess is that an 'In Car' was a tram heading towards Cathedral Square, as opposed to an 'Out Car' which was heading the other way. The trams would stop at the sign if signalled to do so by a potential passenger: the tram would 'Stop Here if Required'. The 'In' and the 'Out' trams would probably be travelling on the same rails in the centre of the road. Why trams travelling in either direction couldn't stop at the sign to pick up passengers is a mystery to me.

Paul has a prodigious memory and is a lively conversationalist who has met many interesting people through his passion for high-performance engines. His John Britten story was a beaut.

Hot rod clubs occasionally visit Paul's shed, and I am sure that they are as impressed as I was with both the wonderful cars and the scale and quality of the objects he has collected over many years. Objects which tell a story and give an insight into days past. 📖



Paul French at home in his shed

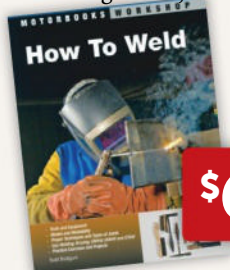
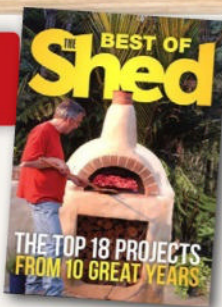
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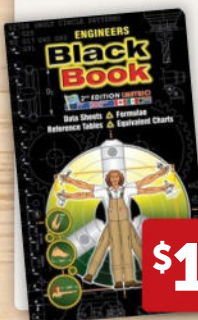
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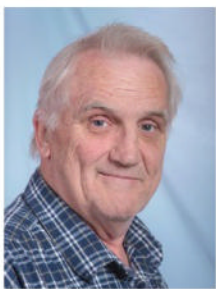
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Where have all the blowers gone?



Jude laments our current lot of politicians, both here and abroad, who are neither great orators nor have any semblance of, or even a smidgen of, wit



David Lange

By Jude Woodside | Photo: Courtesy of Horowhenua Historical Society Inc

I have been musing lately that there are no inspiring politicians. We seem to have achieved peak mediocrity, and don't get me started on the grown-up toddlers in the White House capriciously destroying their own state. It's interesting to consider why Tweedledumb and Tweedledumber are wrecking the American public service. It is to pay for \$US4.3 trillion in tax cuts for billionaires? Who would do such a thing? ... Oh, yes of course.

Our lot are just small change in comparison, though, they are only looking to recoup a couple of billion at the expense of the health department and 40% of the public service, but it is all for the same aim, to make people richer ... rich people. They could have aimed higher.

The present government are a very mediocre lot. Imagination is clearly lacking. With moribund policies that have been tried and failed before many times. We are led by a caricature, the Very Model of the Modern Middle Manager.

Where are they?

Where are the stirring orators, the brave visionaries, the bold reformers? The quick wit and the sparkling intelligence.

They are a very moribund and uninspiring lot, on all sides of the house, although the Māori Party are at least capable of a spirited response and can even hold a tune.

We have our own DOGE (Department of Government Efficiency) service courtesy of Mr Seymour's Department of Regulation, whose aim is ... de-regulation. That's straight out of George Orwell's 1984.

In Australia, the Liberal party leader, Peter Dutton, wants a DOGE of his own and is seeking to start some pale imitation of the MAGA movement targeting specific groups to bark at. We have seen it all before. Conservative parties are singing off the same hymn sheet that hasn't changed its tunes since the 1970s. The left-wing parties are no different. The Labour Party in Britain turned out to be more of the same,

delivering more disappointment to an already jaded populace.

There was quick wit back then

Many years ago in Australia, I worked on a TV show on the history of the old Parliament House.

It was narrated by the Hon Sir James (Jim) Killen, a former Defence Minister under Menzies. He was a great raconteur and formidable orator. In the Kings Hall, the lobby in the old Australian parliament, he recalled how he encountered Prime Minister Menzies, "leaving the non-members bar propped up by two of his stalwart supporters." "Ah, Killen," he said, "I have had cause to question your judgement of late." To which Killen replied, "What a remarkable coincidence Prime Minister."

Would that we have someone of that quick wit today? The closest we have come recently was David Lange in the Oxford debate, "... if you hold your breath just for a moment ... I can smell the uranium on it as you lean forward!" and that was forty years ago. 📄

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