THE shed

FEB/MAR 2026
ISSUE 125
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ENERGY

Our cover story this issue is on installing solar power – and how many of us have been considering that for years? The attraction of installing solar power is plain to see and there's a lot to like about it.

Harnessing energy from the mighty sun feels like a no-brainer. It's all just sitting there, with so much of it going to waste, kind of.

Solar power gives you independence from the greedy power companies. There's power there for you should the main grid go down for any reason. It's environmentally better and has no major infrastructure for you to support and contribute to the costs for. In the long run, it should lower your energy bills, and in an ideal world, you may even be able to create some income feeding power back to the grid – there's a lot to like about solar power.

But as with so many things in life, when figuring out if solar is right for you, there is a lot to consider. Happily for us, one of our *Shed* team has been through all the 'Should I or shouldn't I'? for us, and has written an unbiased and sheddie point of view on the subject. His journey makes great reading I reckon, and if you are vaguely toying with the idea, this article will be essential reading for you.

With all this power spinning around for the past months, it made me think about energy overall and government decisions on our energy needs over these past 50 years or so. Governments of all colours all seem to have a crack at solving our energy needs, and I'm not sure any of them have ever delivered us what we need for today or the long game.

The left lot subsidised electric vehicles for a few years, which did wonders for the car industry and got some gas guzzlers off the road, but should that subsidy have gone towards solar power to give us decades of energy gains?

The other mob did the 'Think Big', which meant they found so much natural gas that they needed foreigners to come here and help use it all. Recently, that company found out it was cheaper to not make methanol for a few months, as selling their Kiwi gas back to New Zealand users could garner them a better return. Reports tell us they are using 45 per cent of our annual natural gas supply – what the ...?

I must say, as I age (gracefully), I continue to get disillusioned by politicians. Voting them in seems to give them some sort of licence to put into action some crazy ideas that they have had tucked for decades. With the vast majority of our electricity suppliers 51 per cent owned by our government, and the cost of this supplied energy increasing at an alarming rate, this kinda feels like yet another, but sneaky, type of tax. And, with our three-year election cycle, they are either just settling in for a year, getting their schemes underway in the second, then promising us the world in year three!

Oh, no, I'm verging on ranting. Best I stop now and have a cuppa and a piece of fruit cake.

Back to solar though. If I was young enough and had the energy and time to fit it, for me, it would be up by lunchtime.

Greg Vincent
editor@theshed.nz

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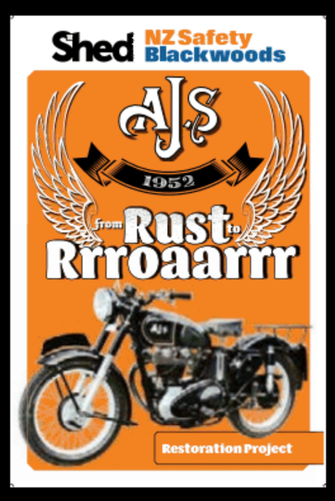

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Fitting solar power

GOING SOLAR

Solar power seems like a great idea – who doesn't want free power, right? But what to choose, and what are the pitfalls? *The Shed*'s Andrew Broxholme shares all the good, the bad, and the ugly of his recent large solar power installation journey

By Andrew Broxholme and Chris Hegan
Photographs: Andrew Broxholme and supplied



The solar collector on our cottage. It's only 65m² and doesn't have a big enough roof for generating the solar we would need

I'm environmentally aware, but am not an environmentalist, so I've gone solar for only one reason: because it makes good financial sense to do so. That said, it isn't necessarily going to be right for everyone, and its impact on your power bills will depend on where you are in New Zealand and the orientation and design of your house relative to where the sun rises and sets.

I've been interested in renewables for many years. I first looked at it while living in the UK. The early systems had promise, but really didn't make financial sense, as the cost of installation and ongoing maintenance wasn't offset by big enough reductions in power bills. They wouldn't repay that investment during their service life, which at the time was 15–20 years (maximum).

That's no longer true. With higher volume, the equipment has got a lot cheaper and more efficient, but we have also seen huge increases in energy costs; this, in particular, changes the economics dramatically. That doesn't, however, mean that you can buy the first solar system presented or recommended to you. Read on to find out why.

The solar bandwagon

There has been a big push towards renewables of late; maybe it's just me, but advertising is popping up everywhere. It is, however, a bit of a bandwagon, and you don't want to be on it if the music stops.

Even the most basic solar installations are a substantial cash investment, and it will likely take in the vicinity of up to 10 years to pay back the capital invested. Who you buy from is important, because a warranty is only good when something goes wrong if the company is still around (SolarZero was a high-profile failure, but I have no doubt that lots of other small solar startups haven't lasted or are struggling with the economy as it is).

So my first bit of advice is to talk to multiple installers – they should ideally be local – and do your homework. How long have they been in business? They should have referrals from recent customers, and they should also be open about issues they had and how they dealt with them.

Ask people who have recently installed solar if would they would do it again. The company I eventually decided upon, Solar Options, only buys its batteries from one manufacturer. They do that because, in the last decade, they have had only one failure from that supplier. The vast majority of solar systems are made in China, but if you're buying solely on cost, you run the risk of quality and reliability issues over time.

My property

On my property is a 24x14m industrial shed. It has a 6m stud and turned out to be ideal for the installation of lots of north-facing panels. Now, by coincidence, I rent part of my shed to a local solar installer, which did mean I couldn't really go elsewhere for competitive quotes, although I was



An added cost was a scissor lift to get the 32 panels and all the railing up to the top of a 6m stud shed.

Weather is a factor here; you don't want to be installing 2x1m solar panels if it's windy

offered a deal which I was happy with.

It also meant I could, and did, ask lots of questions. I therefore thought that I knew what I was doing, but I really didn't have a clue. Donald Rumsfeld was right on the money when he talked about "unknown unknowns". The most important thing for me being how to cost out the complete project. It ended up being around 50 per cent more expensive than the initial estimate (I'll you how much at the end; don't want you to stop reading at this point).

Paying for it

Many of the more recent ads are now telling you about cheap renewable energy loans (typically 1 per cent or less).

Finding out about these was the reason that I went ahead at this time. These are great, but they are tied to your mortgage. There are the usual hoops to jump through, but some simple mathematics shows that the expected power savings would cover the payments on the renewable energy loan. They are, though, only cheap for the first three years. To take full advantage, you need to pay them off at that point, or the balance adds to your mortgage at whatever the current rate is.

Don't rush into one of these. I made the loan application based on the initial system design. It was quickly obvious (after the loan was approved and drawn down) that we should have borrowed more. I increased the size of the inverter, added extra panels, and added a third 5kW battery. I also had to pay for significant electrical work.

I could have gone back and borrowed more, but we had enough cash to cover the extra, and while our savings took a hit, it does mean less to pay off at that three-year point.

Solar water heating

When we decided to build our two-bedroom cottage on our lifestyle block, we had the option of a gas hot water supply, but I was no fan of those.

We had gas hot water in our unit in town, and all too often the shower would go cold without warning. Even five years ago, gas prices were going up fast. I was investigating installing solar, and a friend gave me good advice to not worry about solar panels but to install a solar collector to heat our water. This would cut our power bills by at least 35 per cent. It's very energy intensive to heat water and keep it hot, no matter how well your pipes and tank are

> **"They should also be open about issues they had and how they dealt with them"**





The roof penetration fittings for the electrical feed from the panels into the shed. High voltage and lots of electrical current should not be mixed (it's also a metal shed)



All the rails in and the first six panels installed. The slope of the shed roof should mean that rain will keep them fairly clean

Power needs to get from the shed to our cottage and to our main house; main and backup power means four heavy-duty cables to be laid, which was a high cost that I hadn't allowed for



insulated. The system, fully installed, was only $5K and is incredibly simple.

Everyone knows that if you leave a garden hose in the sun, the water that comes out when you first turn it on can be quite warm, but the solar collector tubes, though, aren't filled with water. They are just reflectors with a copper core that captures the sun's heat.

The top of the tubes fit into a small reservoir, and in that reservoir is a temperature sensor with another in the tank. When the temperature difference is more than 4°C, a small pump starts up and pushes the water in the reservoir into the tank, with the cooler tank water cycling to the reservoir. Even on relatively dull days, it only takes a few hours to heat the tank from fully cold, and the pump won't keep transferring water once the tank reaches 55°C, which is the safe temperature for hot water.

A manual boost

The cylinder is a normal cylinder. It still has a heating element, which you can manually boost, but I've only needed to do that a handful of times over the last few years, usually when I inadvertently use all our hot water too late in the day for the solar collector to reheat it in time. In one case, when we had three really bad weather days in a row, by day three, it was down to about 40°C.

A friend of mine has just installed solar; he had gas hot water and a gas cooker with no hot water cylinder. He installed one of the new hot water heat pumps, which apparently uses about a third of the power of old-generation hot water cylinders. I don't know much else about these except that the cylinder has to be outside your house. I'm not sure I like that. He kept his gas cooker as it was relatively new.

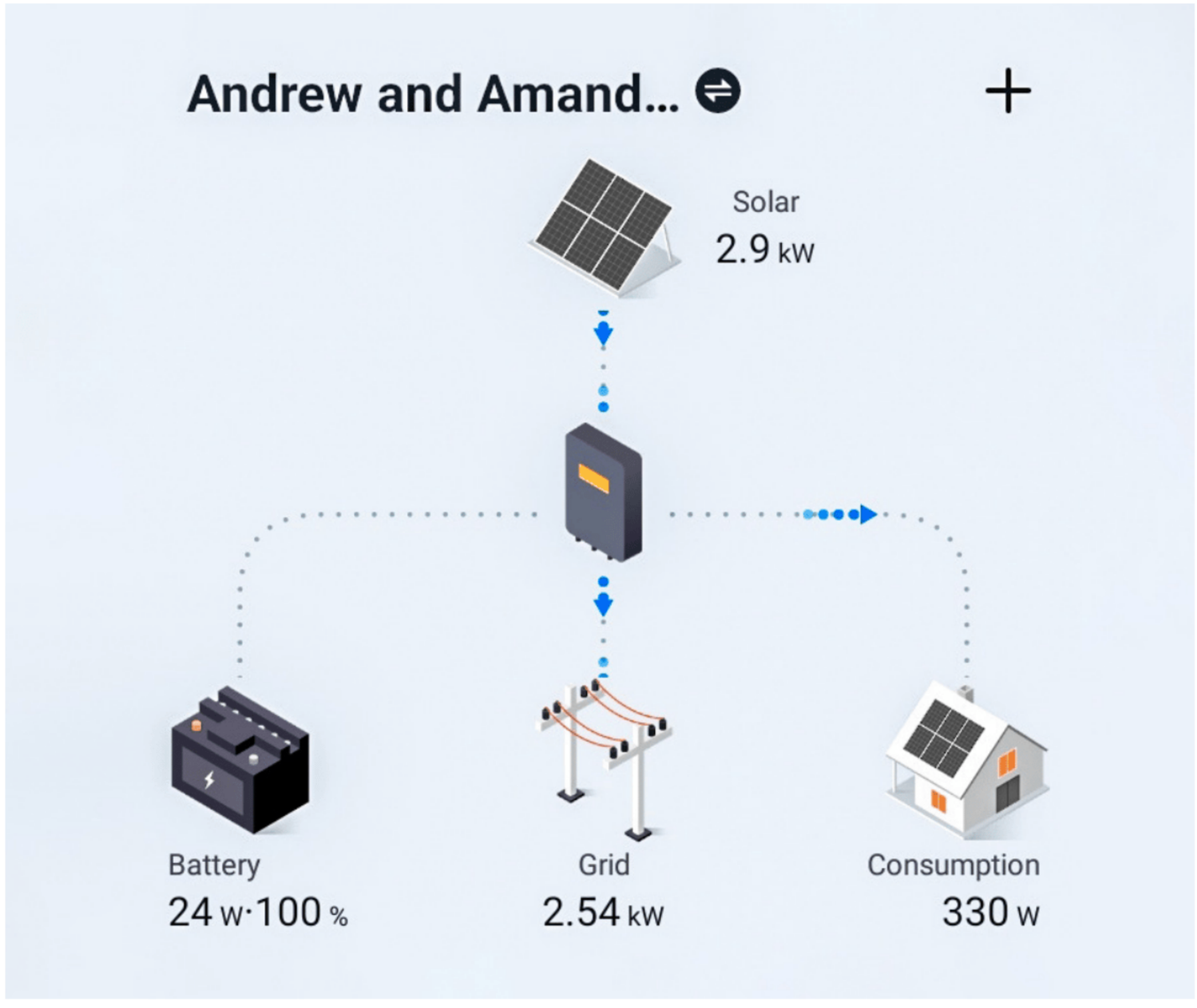
Basic system architecture

There are four options for a solar system. The simplest is just solar panels and a suitable-sized inverter. The inverter converts the direct-current (DC) output of solar panels to usable alternating current (AC).

The second arrangement adds battery storage. In my opinion, there is little point in a solar system without at least some battery storage. Both my wife and I work full-time and we simply aren't at home when solar generation is at its peak, and you get more value from storing some of that power to use at night or on bad weather days than you get from exporting it for others to use.

The third scenario adds a generator. In these three cases, you are still grid-connected, primarily so you can export power you don't use or can't store. We relocated a century-old villa to our property, which we haven't yet started restoring. Our system was sized to power this, as well as our current two-bedroom home and the shed. As the villa hasn't been restored, we are generating a great deal of power which we don't need. We get paid 13c per kilowatt hour (kWh) for this, but when designing your system, don't put in more capacity than you really need, as you don't get paid enough for the excess to make it worth doing so.

Once the villa is finished, we will still likely be net exporters in the summer but will need some grid power in the winter. The summer income is designed to pay for this, leaving us with a zero overall power bill or as close to that as we can get.



The main screen of the app shows the overall system performance

Grid connection

While I'm talking about power and the grid, one of the delays you will likely face if you are grid connected is the delay getting network approval to turn everything on.

This can take at least a few weeks and

> "I therefore thought that I knew what I was doing, but I really didn't have a clue"



All ready to go, but now the long wait for approval. Almost six weeks after panels were installed, we got to turn it on



The inverter's control display. You can usually only make changes on the inverter, but you monitor performance on a mobile phone app

> "I also had to pay for significant electrical work"

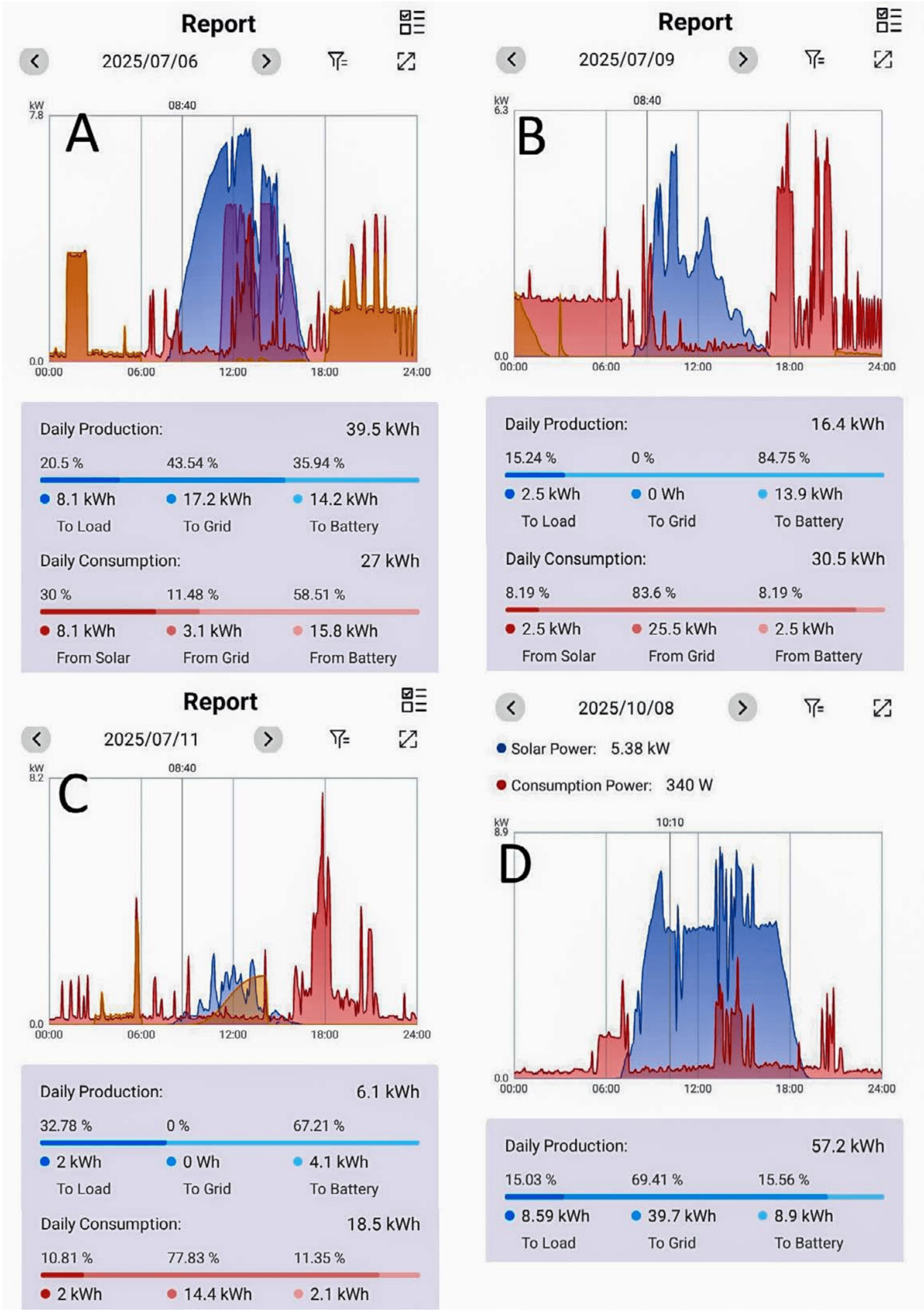
might be longer. My supplier failed to mention this, and it was frustrating to wait almost two months before I could get much benefit from my investment. You will also likely need a new power meter that can measure the power you use as well as the power you're sending to the grid.

The biggest aspect of my ongoing power bills is the fixed daily charge, currently around $1.80 a day. This means I need to export around 15kW to break even, and the per-unit charge for power is roughly double what I get paid for my excess, so for every kW I use, I need to export two to cover the cost. There is also an export limit of 5kW per hour; if you're generating more than that and not using or storing it, it's simply dissipated as heat.

This limit really discourages large-scale residential solar production. The limit may eventually be raised going forward, but the network operators are resisting change, so don't count on it altering anytime soon when you put together your system design and work out what it will cost and what it will do to your power bills.

The off-grid option

The fourth and final option is to be entirely off-grid. This only really makes sense if you buy or own a rural property that doesn't currently have a grid supply, or you are going to build a



The detailed reports for four very different days.

(A) This was a good solar day, and we were home, so we used quite a bit of the power that we generated while still charging our batteries and yet still exported 17kW

(B) Only 16kW of solar; we didn't use much, so most of that went into the batteries, but we still chewed through 25kW. Not enough panels, not enough batteries, but days like this are rare

(C) It was overcast or raining heavily all day. Batteries only got back up to about 40 per cent but this is where you need the grid or a generator

(D) Payday! For the last two months, we have had negative power bills as my 32 panels can export lots of power. The flat on the graph is where we hit the 5kW export limit; without that, we could have exported 75-plus kilowatts

home some distance from the nearest available connection point. In this case, you balance the size of the generator to a battery storage system based on maybe 24–36 hours of power and add enough panels to keep the batteries charged.

Don't oversize, as you can't export the excess, but it can be a lot cheaper to have a completely off-grid system compared with the cost of connecting to the grid, which can easily run into the tens of thousands.

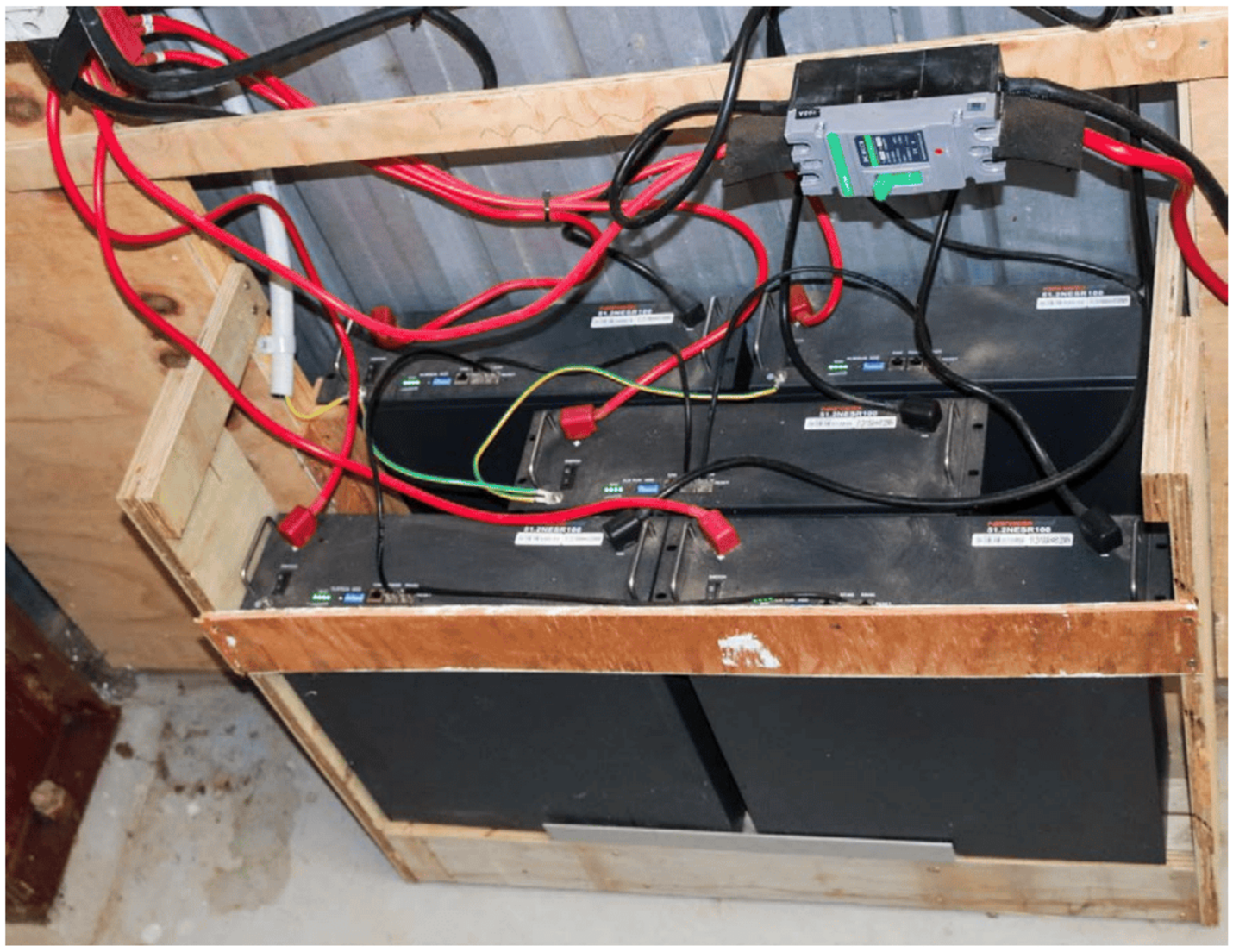
While you don't pay daily charges if you're off-grid, you will need to carefully maintain an off-grid system. Generators need to be run on a regular basis, so a prudent system owner would set aside money to pay for ongoing maintenance, which you shouldn't skimp on.

The install

I decided against going off-grid and having a generator, but did install my solar panels on our large shed.

This meant that our cottage and villa didn't need to be covered in slightly ugly solar panels (sorry, they aren't nice to look at).

I only needed about a third of the north-facing roof of the shed for the



The battery bank – these self-manage. My final job is to finish the enclosure to keep out dust, dirt, and any critters



The heart of the system – a 12kW Deye hybrid inverter

32 panels (14.4kW), and, as the shed has that 6m stud I mentioned earlier, you actually can't see them. I haven't yet figured out a plan for getting up there from time to time to check on them, but my installer, Solar Options, advised me that if they are fitted to a slope at more than eight degrees, the rain will keep them fairly clean.

Putting the panels on the shed was aesthetically great, but it did mean I had to run power from the shed to the cottage and villa, which is where a great deal of the unexpected cost came from.

The inverter

I have already mentioned that the inverter is the core of the system, and while its primary job is to convert the DC produced by the panels to AC, it's also a large and very complex device.

We also have a hybrid inverter. If you're grid connected and want to have power when the grid goes down (which is not at all uncommon for us in rural Whakatāne), then you need a hybrid inverter.

I have a 12kW hybrid inverter with 8kW of primary and 4kW of backup power. When the grid goes down, the 8kW side turns off, so I lose my oven and heat pump, but the backup powers the lights, internet, and a few power outlets. These are fed from my batteries, so I can boil the jug, watch TV, or read a magazine until the power comes back on.

Battery storage

The original design was for 30 panels, a 10kW inverter, and two 5kWh lithium iron phosphate batteries.

You can only discharge these batteries down to 20 per cent before they turn themselves off, and you really don't want to discharge them to 20 per cent day after day, as it will likely shorten their service life.

The timing of this project was accidentally really good; we ended up going live near the end of May, only a few weeks before the shortest day (or longest night). Not only was solar generation at its lowest, but power needs were steep, as it was cold last winter – heavy frosts in the morning and heat pump and electric blankets on every night. I added a third battery to the original quote and two extra panels, plus a bigger inverter, but that first month made it clear that even three batteries weren't enough. So two more were ordered, giving me 25kWh (20kWh usable).

Believe it or not, we even used all that on more than one occasion, but it's also useful if you have a series of ▶



Extensive solar panel coverage on this dwelling



SOLAR POWER?
What about our place?

Free power from the sun seems like a no-brain alternative to paying power and gas bills, but Gerry Magner of Bay of Plenty specialist Solar Options cautions that the numbers and the building have to line up.

"Swapping power from the grid for solar is not cheap. You have to look at your individual situation to make sure it will work for you," he says.

At an initial cost of at least $10K, if you want to see it pay off, you need to be able to look forward 10 years or more to amortise that cost, so from a financial point of view, the younger you are, the better. If you are heating your water with electricity, then solar will show a quicker return on the power bills, but gas is also inexpensive and an option worth considering alongside solar.

Whatever your situation, Gerry says that losing any hot water cylinder is going to be a win.

Roof-mounted solar panels need to face generally north, although surprisingly, a due-north aspect is not necessarily the best.

"We have found that the ideal layout faces north-west, because in many places and seasons, there is a fair amount of morning cloud and mist. And often in New Zealand you have a day or two of rain that tends to clear up in the afternoon of the second day, and you want to catch the best of that."

The steeper the pitch, the better

With a low pitch, you may be better off putting your panels on the ground.

Regardless of where in the country you are located, there will be a solar configuration that will work for your property, because solar panels are now extremely efficient, even compared with those of a decade ago.

"Their efficiency has doubled in a decade. Ten years ago, we were happy to get 12 per cent energy conversion. Our latest panels have clocked 24.6 per cent," Gerry says.

What about batteries? The latest lithium-ion batteries perform well, but Gerry has learned to be conservative. His family lives off the grid on Ohakana Island in Ōhiwa Harbour in the Bay of Plenty and most of his business is with off-grid dwellings around the country.

"Lithium ion may be good enough where you have the alternative of the grid, but they have not been around long enough for me to be certain of their reliability. I know of one company using lithium, and they have already had product recalled. Lead carbon is absolutely bulletproof and they can handle the load. We recently had a big reunion with more than 70 people – the oven was going the whole time with never a problem."



Tarquin and Gerry Magner of Solar Options

The most important consideration, according to Gerry, does not relate to configuration or type of equipment but to who you get to do your installation: "As with any innovation that attracts a lot of interest, solar attracts new entrants out to get rich quick, touting the very latest technology. You don't necessarily want that – solar is a long-term proposition, and what you want is proven reliability, both with the gear and the people installing it for you. Do your homework, ask questions, get references.

"Nothing beats experience."



The Solar Options team completes an installation on a home's minor dwelling



The ideal New Zealand panel layout faces north-west

> "I left it to the experts and don't regret doing that for a second"

days when overcast sky or rain means you can't get them fully charged. This is where a generator would be nice, but we really don't need it enough to justify the cost, since we can use grid power as necessary.

Dinosaur juice

While I'm talking about batteries, the biggest beef I have with the 'go renewable and stop burning dinosaur juice' crowd is that the energy density of hydrocarbons like petrol and diesel is about 60 times that of the best batteries we can currently make.

They have gotten a lot better over the last decade, but we will likely never get close to the energy density of fossil fuels. Lithium-ion dominates, because it wins in the trade-off between cost, energy density, how fast you can charge them, along with service life and safety. If you're off-grid, lower-cost lead-acid batteries are likely a better choice; they are less energy dense, hence bigger and heavier, but have a long service life, and flammability is not a concern. I wouldn't personally be tempted to experiment with any emerging battery technology. You also have the option of using second-hand electric vehicle (EV)

batteries, which could save you a small fortune but also carries significant risk.

Solar panels

LEDs, or 'light-emitting diodes', are everywhere; these are semiconductors which glow various colours when you apply an electrical current.

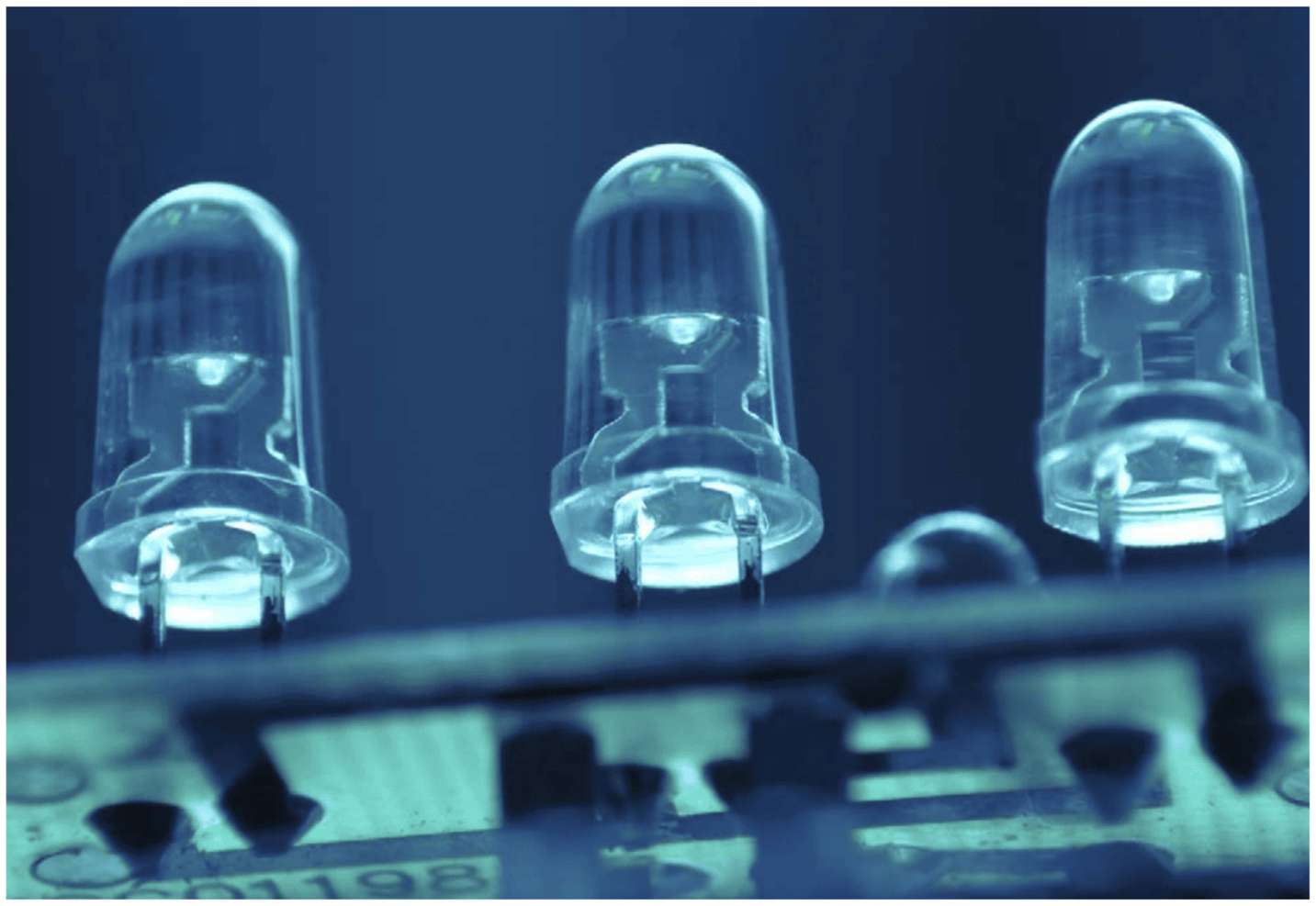
As it turns out, shine a light on a semiconductor, and you get the reverse: a small voltage. If connected to an electrical circuit, current will flow. A solar panel consists of strings of these specially designed semiconductors that capture the electromagnetic energy from sunlight. Each cell produces a small voltage, but string them together in series; mount them in a frame; and, depending on its size, you're now generating anything between 12 and 36V. Multiple panels are then connected in series (a string) to bring the output into the 400V range, which is the maximum for residential-sized inverters. I have 32 panels – each is about 2.10x1.05m and covers around 70m² of the shed roof. They are wired as two sets of 16 panels with independent feeds to the inverter.

It's worth mentioning at this point that there is no reason why you couldn't buy your own solar equipment (inverter, batteries, and panels) and, with the help of a registered electrician, have it installed. A major concern here is that these are very high-energy systems, hundreds of volts and enough current to kill you. So, as capable as I feel around most things, I left it to the experts and don't regret doing that for a second.

An added bonus

Apart from the immediate reduction in power bills, the other factor is that reduced energy costs likely increase the value of your property.

We don't have enough generating capacity in our country, more conventional capacity isn't being built, and our population and energy needs are rising. The cost of energy will keep going up, and these widespread calls to go electric everything ignore the fact that our infrastructure isn't there, and if we want it built, we have to pay for it in increased energy costs. ▶



Three LEDs



Rural properties fitting solar power can act as a great backup supply when stormy weather hits and the power goes off



Regardless of where in the country you are located, there will be a solar configuration that will work for your property, because solar panels are now extremely efficient

It's not unreasonable to say that up to half of what it cost me to put my system in has gone onto the capital value of my property. We are planning on selling in the next five to eight years, and we will be selling a property that will have provable negative or neutral power bills, which surely makes it worth more or certainly more desirable.

So, how much did it all cost?

We originally costed out the project for a little over $38K, which we borrowed from the ANZ at one per cent for three years. Repayments are $174 per month, which is easily covered by our much-reduced power bills. We are also setting aside money to clear the loan in three years; no point in paying off a one per cent loan early. It's a repayment loan, so the balance after three years will have dropped to around $34K.

We ended up paying $45,500 for the solar system (including five 5Kw batteries), and the electrical work cost $17,600 for an overall total of $63,100.

Solar suppliers will ask you for a couple of recent power bills so they can calculate potential savings, but this is inadequate. You need to work out your power bills across an entire year, and even better, two years.

We had separate supplies to the shed and house, and the shed was originally on a more expensive three-phase supply. When I worked out the total, it was a shock to find that between June 2023 and May 2024, it cost me $3752 for power. We downgraded the shed to single phase before installing solar, which helped, but in the following year, to May 2025, it was still $2915, and that included a few weeks with an operating solar system.

It's fair, I think, to say that my average energy bill was therefore at least $280 a month or $3360 a year. At first glance, that looks like almost a 20-year payback, but a large proportion of the electrical work was running cables to get power to our relocated main home. Putting in a new supply for that building from the grid would likely cost us at least $15K, as the house is over 40m from where the grid supply crosses our boundary. Now let's look at our energy cost in the last few months, given it was a cold winter.

2025	Power usage	Solar credit	Balance
July	$178.70	$38.61	$140.09
August	$93.50	$46.80	$46.70
September	$68.94	$83.33	–$14.36
October	$56.53	$134.16	–$77.63

Extra batteries

We added the extra two batteries in late July. While this means you export less after heavy overnight usage, you only get 13c a kWh for exporting but pay at least 25c for grid power, so it's way better to have the extra battery capacity in winter.

We use almost no grid power (typically less than 2kW); the bulk of the energy charges is the daily supply charge. Through the summer, I will continue to have negative power bills, and it's likely that if we manage usage a little better this coming winter, this will offset the colder months.

It's too early to be sure, but I'm fairly confident that at worst I will have a net annual energy bill of zero, and it might even be a lot lower. On that basis, the system will pay for itself in 10–12 years, but that will be shorter if energy costs continue to rise.

Was it a lot of money? Yes.

Was it a good idea? Yes, but do your homework, buy quality equipment, and learn how it works, or the economics may not be so good.

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Our latest Solar Pac range represents the culmination of that expertise. Each system has been designed to meet every requirement of off-grid living:

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- Compliant with all New Zealand Electrical Codes

To date, we've installed over 100 Solar Pac kits across the country. These systems are modular and easily scalable, allowing homeowners, farms, and businesses to expand as their energy needs grow - all while maintaining reliability and compliance.



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Choosing to go off-grid is about more than just independence - it's about taking control of your energy future. With power prices in New Zealand continuing to rise and outages becoming more frequent in rural and coastal areas, generating and storing your own electricity gives you stability, savings, and peace of mind.
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A red Vespa PX with beer-crate luggage holder



Fleets of scooters gathering in the New Brighton Mall car park



The step-through in the centre is heavily laden

Two-stroke tsunami in B-Town

The latest Syd's Run may have been the best attended yet. The event is for small motorcycles or anything with a small single-cylinder petrol engine. Some were modified motorcycles – one had a skateboard for a seat, another had a body accurately modelled on a Wattie's baked beans tin

By Ritchie Wilson

Local youths refer to Christchurch's seaside suburb of New Brighton as 'B-Town', but the previously neglected area is undergoing a renaissance, with elegant apartment blocks replacing ageing cottages on a major scale.

New Brighton Mall, once the centre of Saturday shopping in the city, is still virtually deserted except for the Saturday market, but here too there are signs of renewed life, such as the recently opened skate shop Tide and Timber.

Behind the Mall in Hawke Street is a giant car park, a relic of the retail glory days.

This year, the Hawke Street car park was chosen by organiser Ben Lappage as the assembly point for the annual 'Syd's Run', a day-long outing for small motorcycles: mopeds, motorised bicycles, scooters, step-throughs, paddock bikes – anything with a small single-cylinder petrol engine, really.

This was the 30th anniversary of the first run and would have been original organiser Syd Falconer's 100th birthday. Syd died in 2010, aged 85. Then–Christchurch mayor Gary Moore was lent a bike by Syd to ride in early runs.

A possible record attendance

This year, the weather was warm and very large numbers of participants showed up, possibly more than last year's record of 576.

As we drove towards the venue, we passed streams of bikes, throttles wide open, riders hunched over the handlebars, monopolising the road's cycle lane. At a red light, strings of two-wheelers emerged from the side street, heading for B-Town. There were marshals directing arrivals into the already crammed car park. I asked one of them if he was worried that there wouldn't be enough room. "We'll squeeze them in," he said, waving another caravan of cycles into line.

The planned route was inland from the beach; swinging around the back of the airport; and then south, through Islington and Prebbleton, to Springston, and then back to Islington. A fair haul for a tiny two-stroke. Quite a few of the participating bikes carried fuel cans in improvised luggage carriers; perhaps they had run out of gas on previous runs.

Quite a mix

The machines were a smorgasbord of small motorcycling.

Some were immaculately restored Vespas, Lambrettas, and Honda Super Cubs; others were virtually 'as found' commuter two-strokes from poverty-stricken post-war Europe. A lot were

modified small motorcycles – one had a skateboard for a seat, another had a body accurately modelled on a Wattie's baked beans tin.

Ben Lappage had only one rule for participants: Don't be a dickhead!

Prizes were awarded, then the bikes fired up and swarmed out onto Hawke Street. The noise was terrific. Biblical. Imagine a gigantic wasp's nest given a hearty punt, multiplied by 10. Louder than the start of an F1 race.

After the bikes departed, we drove back home to the other side of town, passing mopeds screeching towards the beach all the way.



Free to a good home

A Bruce McLaren sculpture is looking for a saviour





Once upon time, a larger-than-life tribute to West Auckland racing legend Bruce McLaren graced a West Auckland roadside not too far from where McLaren once did business.

Built with recycled steel components and called 'Oblivion Exprezz 3' (OXPRZ3), this was artist Frank Womble's third piece of 'assemblage' car art.

Included in the build was: a Volkswagen bumper, a Mini induction system in the front grille, a pair of Austin front fenders over the rear hump, an elongated tractor grille, and World War II lockers within the body panelling.

About eight years ago, the Auckland Council took the car down from its plinth for refurbishment, but that project never got started. In the intervening years, OXPRZ3 has been stored outside under tarps getting rustier by the hour.

At the time of writing the Oblivion Exprezz 3's future looks precarious, as it currently rests in a metal recycling yard in Penrose, Auckland. To date, the prognosis for the piece is: it's too far gone.

Frank, now 80-something, is asking are there any clubs or others – metal workers, epoxy specialists – looking for a restoration project to breathe life into this piece of pop culture and our Kiwi racing history?

If so, Auckland Council is willing to help with transport arrangements, within a reasonable distance of the city.

For further information, please contact Jason Burgess on 021 239 9320.

THE SHED ONLINE

What's happening online at theshed.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:*



Recreating history

A former principal of Piopio College, a local boat builder, and the whole community rallied around to recreate this Model T Ford bus.
https://theshed.nz/recreating-history/



Project: metal and wood shelving

Slim, strong, homemade shelves are simple to make
https://theshed.nz/metal-and-wood-shelving/



Hammering history

Volunteers ensure an original Mainland smithy flourishes
https://theshed.nz/hammering-history/



Video: Geraldine Military Museum military revival

Fifty re-enactors turned up in their historically correct uniforms and weapons for this annual event
https://theshed.nz/video-of-geraldine-military-museum-military-revival/

editor@theshed.nz

LETTER OF THE MONTH

SOME KAYAK-BUILDING ADVICE



A fitted deck beam

Interesting to see an article about building a stitch and glue kayak – *The Shed* Issue No. 123.

Certainly, the Guillemot kayak's design is not the easiest to do. My first two kayaks were built in 1983, one for my daughter, one for me. A few years later, I ran a building 'class', and we built four, all slightly bigger.

The next was a double which did a circumnavigation of Vanua Levu, Fiji, as well as a lot of trips in the Abel Tasman. My partner wanted a kayak, so she built the first of the Mac50s while I built a tortured-ply hull. The last kayak I built was a narrow version of my partner's Mac50, the Mac50L, 'L' being lean and light, 18kg.

Relating to the article about building a kayak.

1. Epoxy is not good on the skin. If it gets there, it needs to be removed as soon as possible, and isopropyl alcohol will do that. However, you will not ever want to drink that. White vinegar can be drunk, and it is the fluid to use to clean off epoxy from everything.

2. Glass cloth, if cut along parallel to an edge, will have threads falling off. Tape will have an edge. If cloth is cut diagonally, maybe 70mm wide strips, the threads are crossed, strongly linked, and don't have any chance of getting lost, and it is easy to sand down the edges.

3. Clamps, lots of them for almost nil price. Cut a 60mm OD plastic water pipe into 30mm long pieces and across one side to make a 'C'.

4. The design used in the article is a complicated design, and the builder certainly found a number of problems.

The Mac50, the first one built by my partner, is built on a bit of MDF or chuck-out particle board, 1.5x0.6m and two V-pieces glued to it, the same distance apart and angles as the bulkheads.

The bottom planks after wiring are placed in the Vs, and a screw or two to stop them from moving. The bulkheads are then glued in. The sides are fitted, wired, and glued . Simple and quick to do.

5. Two beams are made from two 20x20mm lengths, cut lengthwise to make six lengths. These are glued and clamped down on two formers to make two lengths, two different diameters. They are cut to the required lengths, the flatter ones aft and the slightly smaller diameter ones forward.

Once cut to the required lengths, they are glued to the sides. The deck ply is cut bigger than needed and tied down while the epoxy dries. The deck is then cut back to the sides. Very easy to do and no accurate measurements needed.

Sandy Fergusson
Christchurch



Bow without its deck on



Cutting off excess deck ply



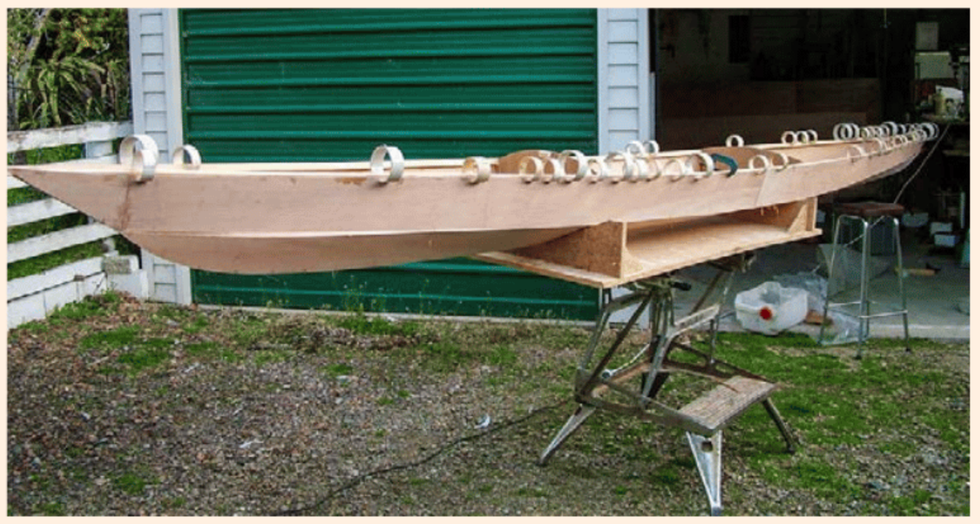
My first Mac50 – first time in water



Quail Island – Mac50 and Mac50L



Foredeck fitted – left



Sides not glued on. C-clamps on the upper interior wood strip

AJS LIGHTS

Hi from Papamoa Beach
I have been following your articles with interest.

I had a Matchy single (candlesticks) in the ’60s and still have my father’s 1956 Sunbeam twin. It is an unrestored runner, but it will be a lot better with a refresh due soon, including oil seals.

To the business at hand, lights.

Paul Goff in the UK does quartz halogen and LED ‘prefocus’ types in 6V and 12V – **norbsa02.freeuk.com/** or search ‘norbsa’.

My ’Beam is still 6V from a generator, old-style Lucas regulator, coil ignition, and I have a QH bulb, plus a QH park bulb for daylight running from Norbsa.

I used NZ Post ‘Youshop’, which takes about a week from the UK and is a local delivery for the co. in the UK.

Hope this info is useful.

Please pass this on to Peter.

Cheers,

Phil Gilgen

Peter Barton replies

Thank you, Phil, for the information and the website address.

I’ve checked it out, and it is brilliant. The prices for the LED units are out of my range, but the Quartz Halogens look good, and the 6V units are just right. For the moment, I still haven’t done much more on the electricals; the generator is not putting out much. I could run the electrics off the battery for a while (to get through compliance); somebody once said, ‘Gentlemen don’t ride at night’.

Thanks again.

THERE IS NOTHING WRONG WITH A GOOD RANT

Dear editor,
This is probably a rant as much as anything, so please be patient.

I have several 36V Ryobi garden tools, a line trimmer, a chainsaw, a mower, a hedge trimmer, etc., plus two batteries and two battery chargers. As you know, several hundred dollars’ of gear.

Well, I recently found that one battery was flat, so I put it in the charger to find that the charger wasn’t charging, put the battery in the other charger and found that it also wasn’t charging. I then put my other battery in the charger, and the same result, nothing. What do I do? Is it the battery or the charger? Off to Bunnings to get a new battery, they had a special deal, two batteries for $329, so I says yes, please.

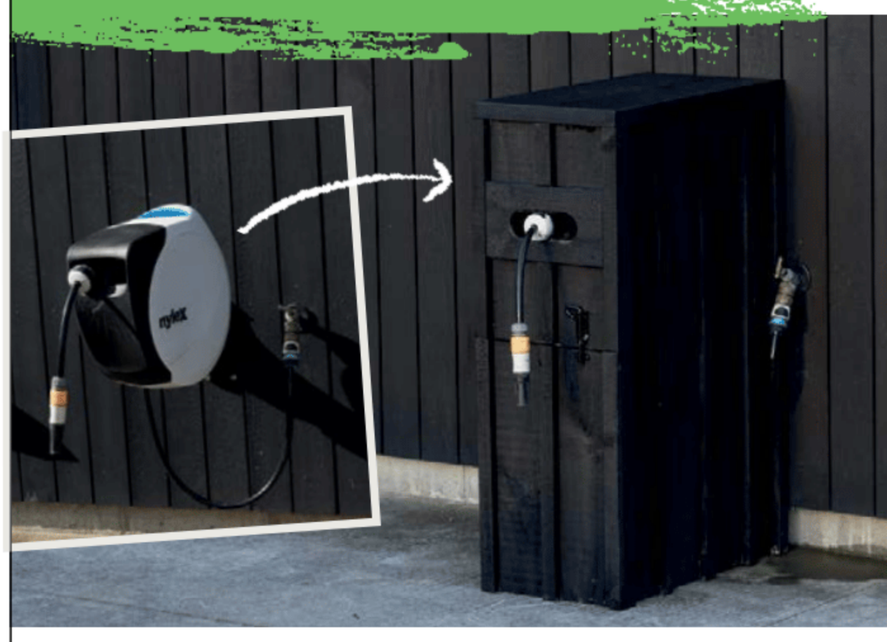
Bunnings didn’t have any in-store and could get them from Queenstown. After a week and no batteries, I go to Post Haste in Dunedin and asked them to track my parcel, they say sure they will go out the back and have a look, then they returned with my parcel that was out the back. Great, off home.

I go and put my new battery into my old charger, and nothing happens, yep, you guessed it, back to Bunnings for a battery charger. $199 later, I have a new charger and at home I put my new battery into it, and all works well, I get a fully charged battery, also one of my original batteries has also charged up OK. It seems strange that I had two chargers and a battery die on me within a short time. These units were five years old; I don’t know how long they are to last. Now I have one charger and three batteries, hopefully for another five years. My problem is what should I have done when I can’t tell which is at fault, the battery or the charger? Nobody checks these things in today’s throw-away society. Ryobi says Bunnings are the agent, but they only sell new ones or replace them if under warranty. Good thing us old guys are tough, being a pensioner on $414 per week, it looks like beans on toast and cold showers for the next week. Thanks for letting me have a rant.

Graeme Flottmann

Odd Jobs

Build a sleek and sturdy hose reel cover



Add the finishing touch to your outdoor space with this smart timber hose reel cover. Finished in Resene Waterborne Woodsman penetrating oil stain, it’s built for both function and flair, with handy storage and a custom fit. A simple weekend project that adds polish – the perfect summer project.

Hose reel to-do list

- ✔ **Cut your timber, paying attention to the cut list and your own requirements.**
- ✔ **Assemble, secure and build the frame.**
- ✔ **Create the hose slot, side hole and add any details**
- ✔ **Stain the cabinet with Resene Waterborne Woodsman in your chosen colour – we’ve gone with Resene Pitch Black**
- ✔ **Hide that hose!**



Watch now!

See how to make your hose reel cover, plus cut lists and step-by-step instructions at masterstrokebyresene.com/hose-cover

Visit your local Resene ColorShop for all your decorating needs and the widest range of NZ-made paints, wood stains and colours.

MasterStroke by Resene

MAKING A DIRTSURFER

A simple wheeled board makes a great school project

By Ian Watson | Photographs: Stephen Barker

Taking the dirtsurfer across ground

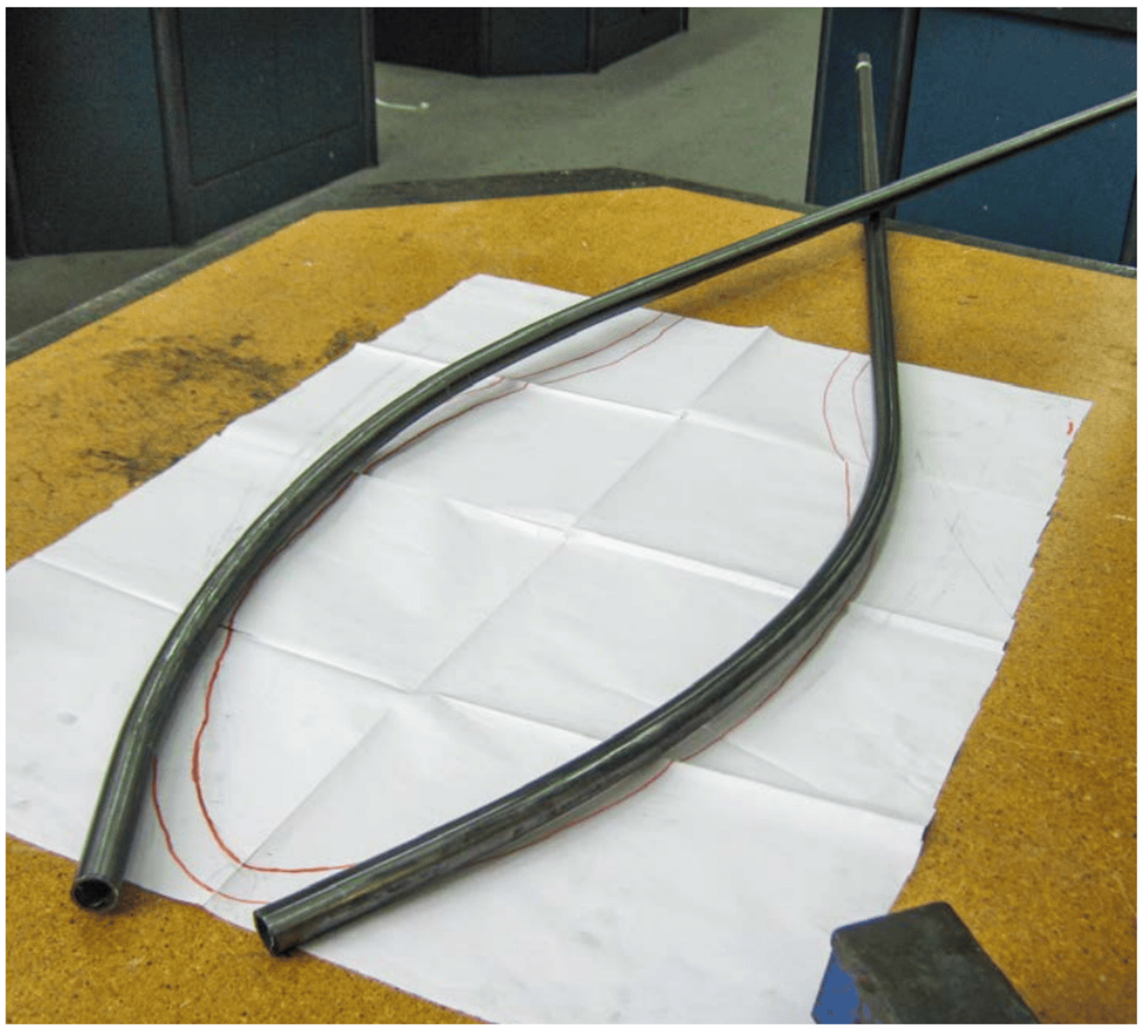


The bounce test for steel tube

Kyle Asplin, Otumoetai College, balances his dirtsurfer



Bending the steel tube



Tube checked against the full-size drawing

About 10 years ago my son attended a ‘have-a-go-day’ at the Tauranga domain.

He came home so excited about a new, wheeled, board thing that he had seen. He described it to me and I duly made one. It turned out to be a ‘dirtsurfer’. He rode it for years and got quite skilled at using it. My son then left home and the board got left in a cupboard. Until recently.

One of my Year 10 students happened to be surfing the net and came across a site showing a video of these people doing some radical things on what was called a ‘dirtsurfer’.

He had been to all the bike shops and sports stores in town and could not buy one anywhere. Most places had not even heard of them.

Then I remembered the dirtsurfer that I had made 10 years ago, got it out, and soon half the school wanted to ride the thing. The faster they go, the easier they are to ride. Students learn to ride them in seconds.

I then came up with the idea that this would make an excellent technology project for my Year 11 class. The real-life issue this all stemmed from was: “I wanted a dirtsurfer and I could not buy one in New Zealand. Therefore, I will have to design and make one myself.” At the same time, my students were able to record their technology practice and gain credits at Level 1.

> “We would design the details as we got to each stage”

The brief

The first step was to give the class a design brief that I had written. This was really generic and included things like:

- The dirtsurfer must be made in the school workshop.
- The dirtsurfer must be completed within 20 school weeks.
- The wheels would be provided by the students.
- The dirtsurfer must be made to a high quality.

The brief would be developed by the students as time went on.

The next step was to outline the most important aspects to consider when designing and building a dirtsurfer. These became our key factors. The class then analysed these and considered what was the most important and ranked them to the least important. The class was now ready to write the first design brief of their own. Their key factors became specifications.

The project’s stakeholders

The next step was to consider all of the stakeholders for the project.

The student was the primary stakeholder, as the project was for themselves, and an allowable test under the New Zealand Qualifications Authority or NZQA, the government body that does the final assessment at Level 1. The other stakeholders were listed and their influence noted. For example, Fletcher steel was a stakeholder, because they were supplying the tube. The student’s parents were also stakeholders, as they were paying the bills.

Then we had to produce an overall concept for the dirtsurfer. I have found it is impossible for my students to design an entire project at once. What I needed was an overall concept. We would design the details as we got to each stage. The students also needed to consider the school workshop at this stage, because we could only roll round tubing; any square section would have to be cut and welded. ▶



The finished frame underneath

Our first problem

We then got to our first problem.

The students had to ask, “What size and shape of tube will I use to make my dirtsurfer?” So that they could assess this, I ordered in every size of wall-thickness steel tube that Fletcher steel stocked in the 22mm and 25mm square- and round-section categories. The students then experimented by setting out blocks at the length of their wheel base, putting two tubes on these and standing on them to feel the bounce the tubes would produce.

So after researching the steel catalogue, they had done a trial and test, and now they made an informed decision based on their recently learned knowledge. They then rewrote their design brief with an exact specification – for example, that the frame would be made of 25mm round tube, which has a wall thickness of 1.6mm.

The next question was “What profile should my swing arm be?”

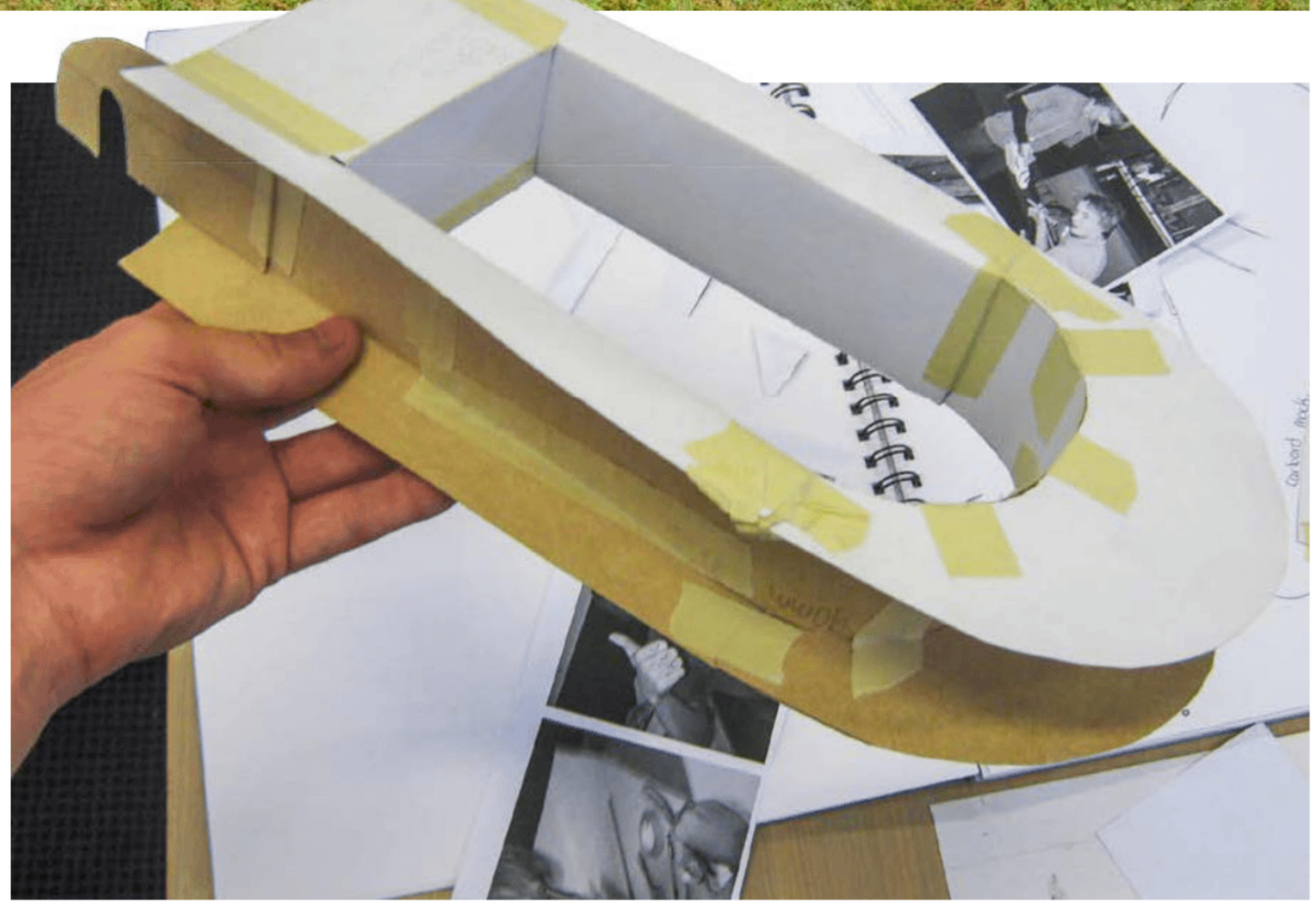
The class went back into the classroom and we did a study on the profiles of steel beams. We looked at I-beams, C-section beams, box sections, where the stresses were, where the neutral axis was, etc. They considered the folding machines that the school owned and their capacity.

Each swing arm was made of sheet metal that had to be cut and folded to the design of the students.

The swing arms

A clever part of the dirtsurfer is the front-wheel steering mechanism.

Inside the arms of the frame at the front sits a U-shaped swing arm made of channel steel and parallel with the ground. In our case, the arms of the U-shape are 200mm long and 50mm deep.



Cardboard mock-up of the swing arm

The back of the swing arm by the footboard holds the front-wheel axle which is fixed through the top arms of the ‘U’. The front end of the swing arm, the curve of the ‘U’, is attached to the front of the dirtsurfer frame with a vertical pin. The pin allows the swing arm with the front wheel to pivot sideways about 15 degrees to the left or right, but not up and down, in order to steer the board.

The vertical pin can be quite loose but setting it in a bearing is best. The design our students used has the vertical pin running in two bearings normally 10 or 12mm internal diameter (ID) at the apex of the bars.

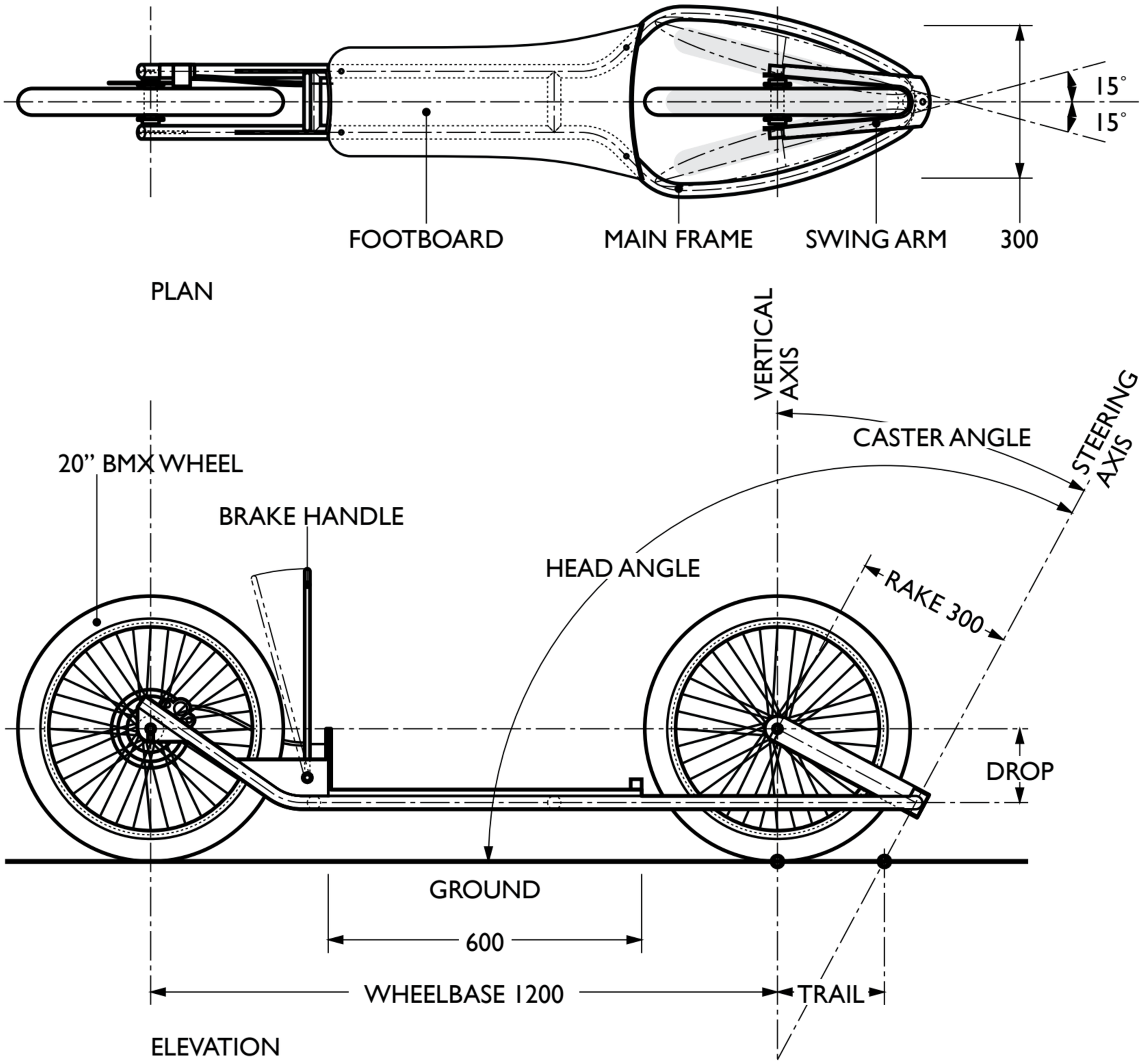
The pivot pin is tilted forward to produce a negative castor angle, which makes the rider steer using body weight, similar to the way a skateboard or surfboard is steered.

The ‘castor angle’ is the angle between the vertical line which runs from the axle to the point of tyre contact with the ground and the swivel line or steering axis. This steering-axis line depends on the angle of the steering mechanism and meets the ground ahead or behind the point of tyre contact. A negative castor angle is created when the steering axis is tilted forward and meets the ground behind the wheel. A positive castor angle is the reverse.

Our mock-up

To start designing their swing arms, the students did maybe three or four sketches that fitted into their overall concept.

They then made a mock-up of their swing arm in cardboard to see if it



looked OK (i.e., aesthetic), would fit their wheels and allow for enough steering movement (i.e., functional).

They made a further mock-up, out of steel this time, to check whether the school's equipment could do what they wanted and that the section they had chosen was going to be strong enough. The students were then able to rewrite their design brief with the required specification for their swing arm.

They made a cardboard mock-up of the axle hanger to see if it would fit inside the swing arm, hold the axle, and have room to be welded in place. This became the template for the real one made of steel.

Up to the point where the swing arm finally began construction, we had spent about 30 hours, shared between

MATERIAL AND DIMENSIONS

Tube used is 25mm diameter

Overall length, outside rim to outside rim – 1.8m

Back wheel axle to pivot at front – 1.6m

Wheelbase, axle to axle 1.2m

Wheels diameter 50mm (20 inches)

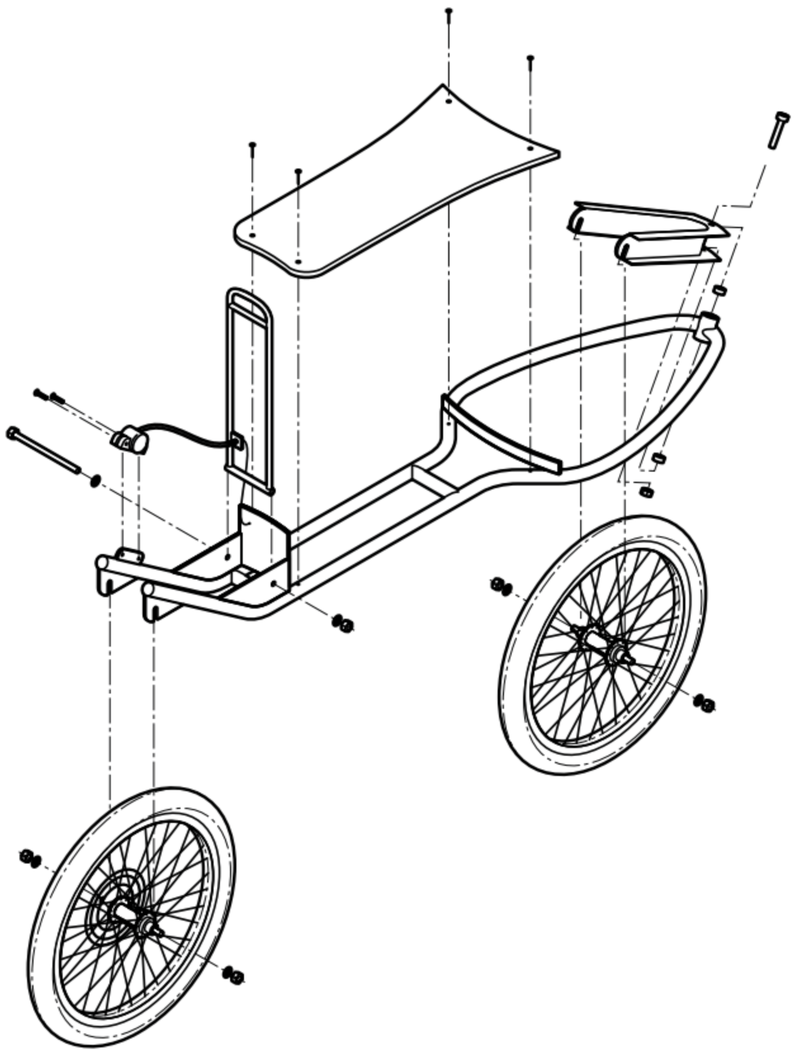
Footboard – 600x300mm at widest point

Ground clearance of footboard – 100mm

Swing arm axle to pivot point – 300mm

Depth of channel in swing arm – 50mm

Height of brake handle – 400mm





Bearing set-up welded



Frame being tack-welded



the workshop and the classroom, as required.

The main frame

Having built the swing arm, the students then had something concrete on which to base their design for their main frame. The students designed the frame and produced a full-size sketch. The students then rolled the steel tube to fit their drawing.

Throughout this process, unless the students had done some research of their own, as their teacher, I would not give them the answer to any of their questions or let them do anything. It was common for the students to ask me a question that was met with a stony silence and them saying, "You're not going to tell me are you?"

But for 90 per cent of the time, once the students had done the research, they needed very little help from me at all. This is not to say that I just let them loose with the instructions to, "research and build it". One of my key areas was safety and maintenance of a high standard of work.

To mount the swing arm, the better students bored out a boss and pressed in ball bearings. Some students mounted disc brakes; some built their own braking system. The same sort of system was used for all the projects – namely, state the problem, research, make a decision, evaluate and justify the decision. This was applied to every part of the dirtsurfer, from the footboard shape and material, mounting, to wheel guards, toe guards, brakes, castor angle for the swing arm, finishes, etc.

At the end of each lesson, the students would write in the folders of work what they did that lesson and what they planned to do in the next lesson and what resources that they would need.

The testing

At the end of Term 3, all the class had finished the construction of their dirtsurfer. It was now testing time.

It was easy to see the students who had put in the time doing the appropriate research, as their design worked a treat. Those of the less-able students, who tended to just copy the research of others rather than doing it themselves, were found wanting. Overall all the dirtsurfers worked. It was just that some worked better than others.

Some needed last-minute changes, which showed to me that the student had not done all of his technology practice correctly. The students then wrote an evaluation of how their finished dirtsurfer met – or did not meet – the specifications of their final design brief. They also commented on any areas that could be developed in the future.

I think that my class has learned a lot about doing things in real life, about making decisions based on what they have researched. They have solved real problems that affect their project and ultimately their final grade. They also ▶



The range of movement . . .



. . . in the swing arm



Swing arm attaches through bearing



Front wheel pivots on swing arm



Kyle reinforced the swing arm with extra welding





ONCE UPON A DIRTSURFER

West Australian inventor Graeme Attey came up with the idea for the dirtsurfer because of a double frustration. He likes surfing, but the surf around Perth is generally small. He enjoys snowboarding, but the nearest suitable mountains are 4800km away. So he came up with the speedy inline board on wheels for all-year-round fun.

Attey told the ABC's Perth edition of *7.30*: "What I wanted to do was just have a two-wheel device, with very low drag so it would go faster, and also turn with that same fluid motion of a surfboard or a snowboard.

"It can be used anywhere, from grass to bitumen to compacted dirt. You can jump it, you can do virtually all the things you do when you go skiing or snowboarding or something like that."

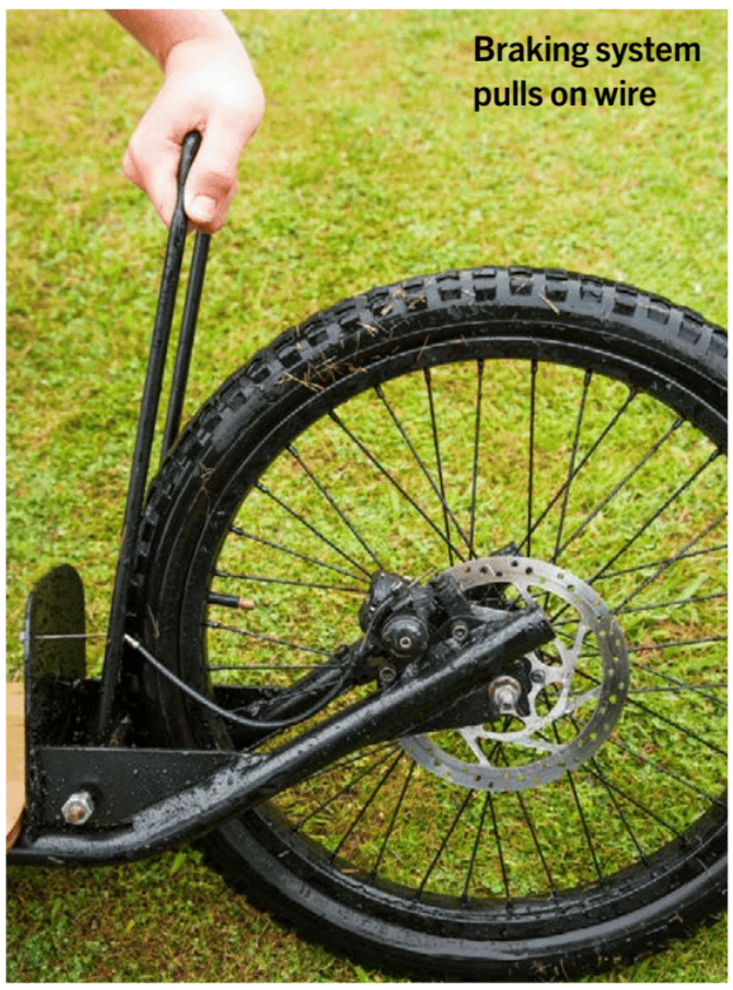
A dirtsurfer adaptation that is especially popular in Britain is 'wing surfing', using either a sail or kite wing.

made a project that they like and are proud to take home.

Hopefully, this not only illustrates the skills that technology students learn but also might encourage schools that may not be doing technology now to reconsider their stance. The expectations of students have been rationalised by NZQA. Maybe the next teacher that they employ could be a trained technology teacher and they could offer the course. Any bloke who has ever designed and made a project is a technologist, and the steps they take are the same as those that the students need to take, to record, and to submit in order to pass NCEA.



Brake pivot detail



Braking system pulls on wire

William Fisher, Otumoetai College, braking

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Malcolm in his workshop at the other end of his shed. It's not huge but is a testimony to his belief that making mandolins requires a hands-on workspace, one shaped by the need for precision and as much control over his working environment as he can achieve. Note the ceiling roof-truss-mounted dust extractor, used in conjunction with his other methods

FROM KEYBOARD TO FRETBOARD

FROM CODE TO CRAFT

Malcolm Locke is a computer programmer by profession, but his passion he undertakes from the other end of his work-from-home shed. Nigel Young follows Malcolm's creation of a mandolin from its green timber beginnings to an instrument that works beautifully for Irish and Appalachian tunes

By Nigel Young | Photographs: Nigel Young

At the back of Malcolm Locke's house is a long, narrow shed.

At one end, Malcolm – a computer programmer by profession – has a workstation, while at the other end, he has a workshop. One profession uses a keyboard and is about logic, predictability, scale, and robustness. The other, however, is about fingertip touch and tone, materials that mix and vary, moisture and humidity control, and the sort of precision that goes with aligning variables with handcraft and the exacting requirements of a musical instrument – in this case, mandolins. "It's also about repeatability over accuracy," he explains, and the ability to iterate over small batches.

Using hand tools

Malcolm and his partner arrived here from the UK in 2006, choosing to settle in Christchurch.

Calling on his experience back in the UK working with green timber was key to his use of hand tools. Interestingly, hand tools in an outdoor and unpowered green-wood workshop include foot-powered lathes, which Malcolm used to turn logs into furniture, and from which he learned, "that a lot can be achieved with hand tools applied correctly, and power tools are not the only way to get a job done". Hand tools help in understanding the wood, a part of the process that makes each mandolin unique.

Malcolm does use some power tools, as is evident from the pictures. But they are in more of a support role than



A combination of power tools and hand tools, and an understanding of the place and strengths of each

> "Fingertip touch and tone, materials that mix and vary, moisture and humidity control"

Malcolm with two of the mandolins from his current batch of four – the other two are in the cardboard box at the bottom left of the picture. Note the dust extractor in the far corner – used in conjunction with the ceiling-mounted one, as well as portable ones. Dust control is paramount to the quality of his mandolins



Taking a reading from the sling psychrometer in order to determine the humidity in the air prior to glueing

an instrumental role – if you'll excuse the pun. Hand tools used included drawknives, adze, shaving horses, wedges, mallets, axes, and 'froes' – L-shaped paling knives used for splitting timber and forming shingles, for example. Green wood taught him that no piece of wood is a static thing – it has movement and tension, and is something that is alive.

Understanding green wood

Another outcome of working with green wood is his understanding of the relationship between moisture and wood, and the profound impact of humidity.

By its nature, there is always a high moisture content, with corresponding instability and shrinkage. "Any woodworker who ignores it will eventually be taken by surprise," he says. "Working green timber is where those effects are at their most exaggerated, and [this] informed much of my understanding of working with seasoned timber."

Humidity control, then, is paramount



Using his home-made spool clamps during the glueing process for the sound-box



Using the heat gun–and–pie technique to curve the sides of the mandolin. Note the water spray bottle that he uses to keep the wood damp during the bending process

to Malcolm's processes, and he monitors his workshop with a sling psychrometer and calibrated digital hygrometers, aiming for around 45 per cent relative humidity (RH), particularly when glueing is involved. At some point in the future, he will look to improve sealing and selective dehumidifications – "Wet timber moves. Dry timber moves. Everything moves. Your job is to pick the right moment," he says.

The craft procedure

It all starts with a straight line of 358mm, measured at 1:1 scale on hand-drawn plans and which sets the rest of the drawing up as a template.

Malcolm comments: "All mandolins are tuned the same. The string length is the geometry's anchor; the whole instrument is essentially a structure to hold the strings, and that is the starting point of the design."

From there, it all unfolds – the neck, the body outline, the fretboard markings, the bridge placement – all hand-drawn. As an architectural



Home-made spool clamps – note his use of a very traditional and time-honoured container for them all

"Humidity control, then, is paramount to Malcolm's processes"



Malcolm checking the humidity levels by comparing the reading from his sling hygrometer with charts that he has on his door


The box of four mandolins – the current batch he is working on. Make no mistake – this isn't about mass-producing, as each instrument is deliberately bespoke

draughtsman trained with pencil, ink, and paper, I understand this, with Malcolm agreeing that the pencil, scale rule, and paper coordination is more conducive to letting "ideas move" than a mouse, a monitor, and a keyboard. Don't get me wrong, I use CAD all the time and have seen many of the efficiencies gained by it. But the purist in me loves a set of hand-drawn plans and drawings.

Once this is established, the rest is about procedure. But make no mistake, it is a formidable one that has involved around 15 different templates and jigs, most of which were developed on the fly.

It was this that got Malcolm into manufacturing them as opposed to just making one for himself. "I put so much time into making them," he tells us one morning at our Menz Shed smoko, "that I decided to just carry on." Just as well he did, because by all accounts, he makes very good mandolins indeed.

Mass production?

Malcolm has taken to making four mandolins at a time, partly due to the set-up time involved with some of the jigs – doing one means he might as well do more.

But this isn't a production run; it's still about the variances of each specific instrument, of the wood species chosen, even the choice of the sound aperture – the f-shape as opposed to an oval. It is the area of the aperture rather than the shape that is important, with the profile of the f-shape allowing for longitudinal rather than transverse bracing.

These mandolins are first and foremost handcrafted, numbered, and bespoke. The result is "a different voice – crisp attack, bright highs, and a certain 'pop' that works beautifully for Irish and Appalachian tunes," he explains, clearly, the musician in him coming through.

The 'bracing' – the position and shape of the sound aperture and the thickness of the top – all determine the 'voice' of the mandolin. These variables he 'tunes' by flex-tests, tap-tones, and osmosis – experience and knowledge that are neither mystical nor mathematical. Malcolm listens to the wood and will tell you that wood has moods. Understanding these aspects of his core materials is one of the reasons mass-produced

instruments can only take you so far. But as both a luthier and a musician, he is in the enviable position of knowing both sides of the strings, so to speak.

The craft process

Listening to the wood, determining the voice and the final layout of the top, the bridge, and the sound hole are integral to each instrument.

Even when making them four at a time, each one is still distinctive, still governed by its own variables as determined by its own intrinsic combination of materials, shapes, and even the forming process.

It all starts with sides, the selected wood being bent to shape using a very simple process. Malcolm uses a vice to hold a piece of steel tubing, and then attaches a heat gun to one end. After a minute or so, the tube is hot enough for him to start bending the wood across it. He uses a spray bottle of water until the water beads – formally known as the 'Leidenfrost effect'.

At that point, he both heats and bends the wood over the pipe until the lignin loosens and the wood feels like plastic. This is the moment that the wood stops resisting and starts yielding, the moment that he can feel resistance gone from the wood and its yielding to the shape that he's wanting. The previously formed neck and tail blocks are now combined with the sides, building a 'chassis' for the next stages – the formation of the sound-box and the fretboard.

No going back

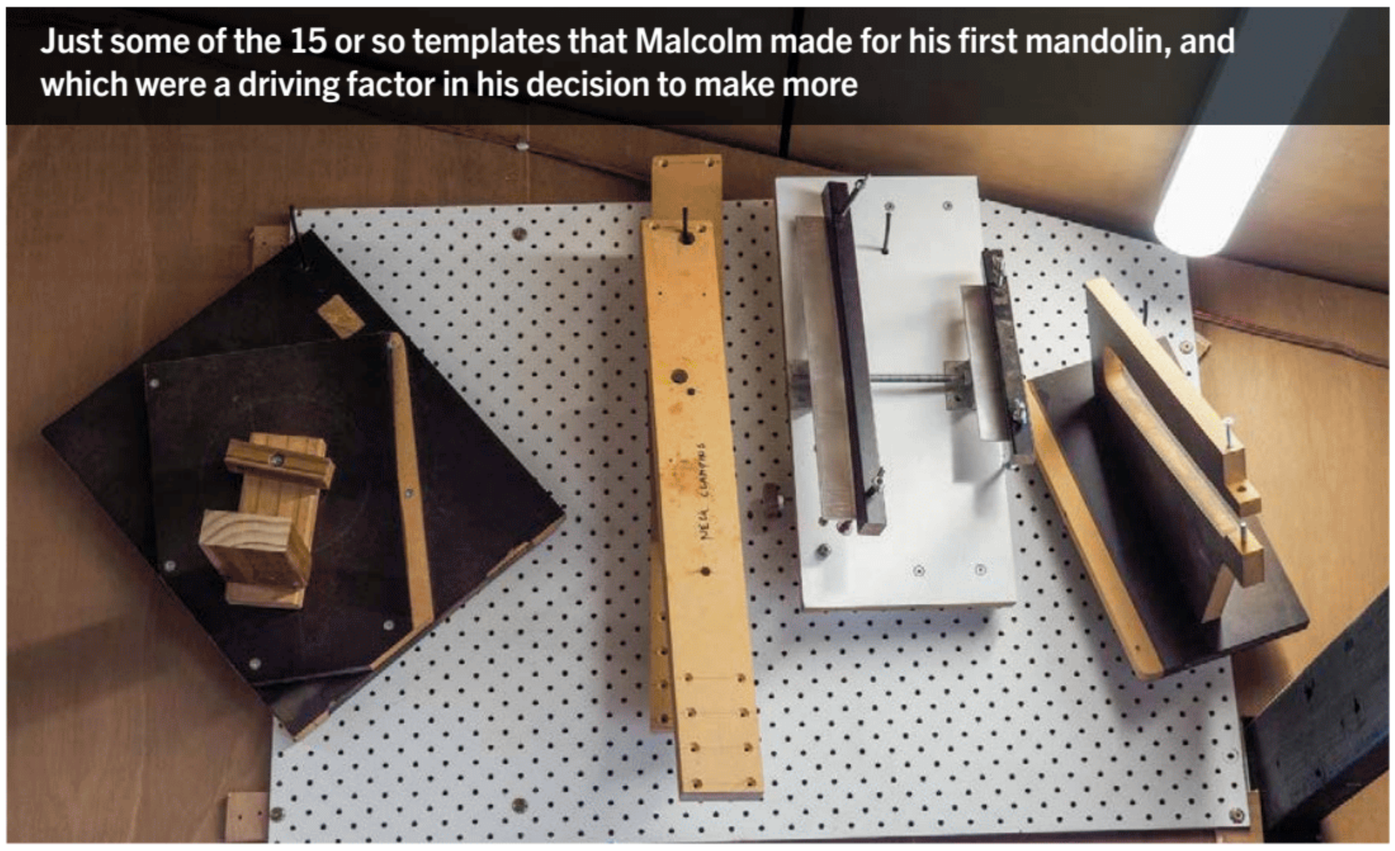
The sound-box consists of the top – the soundboard – and the bottom, glued to the sides.

But that makes it sound easier than it is. Once the top and bottom are glued, the process moves into the finishing stages – there is no going back. If they are not correct, they can't be modified or tweaked. The reason for this is the reason for one of the most interesting jigs in Malcolm's workshop. It's the one that forms the shape of the bottom plate, one that is domed to a radius of 15 feet. Malcolm describes it as a "trampoline" that is thicker at the centre, tapering out to the edges – while accommodating the 15-foot-radius curve. The top is made



Using a spokeshave to form the neck of a fretboard

> "The moment that he can feel resistance gone from the wood"



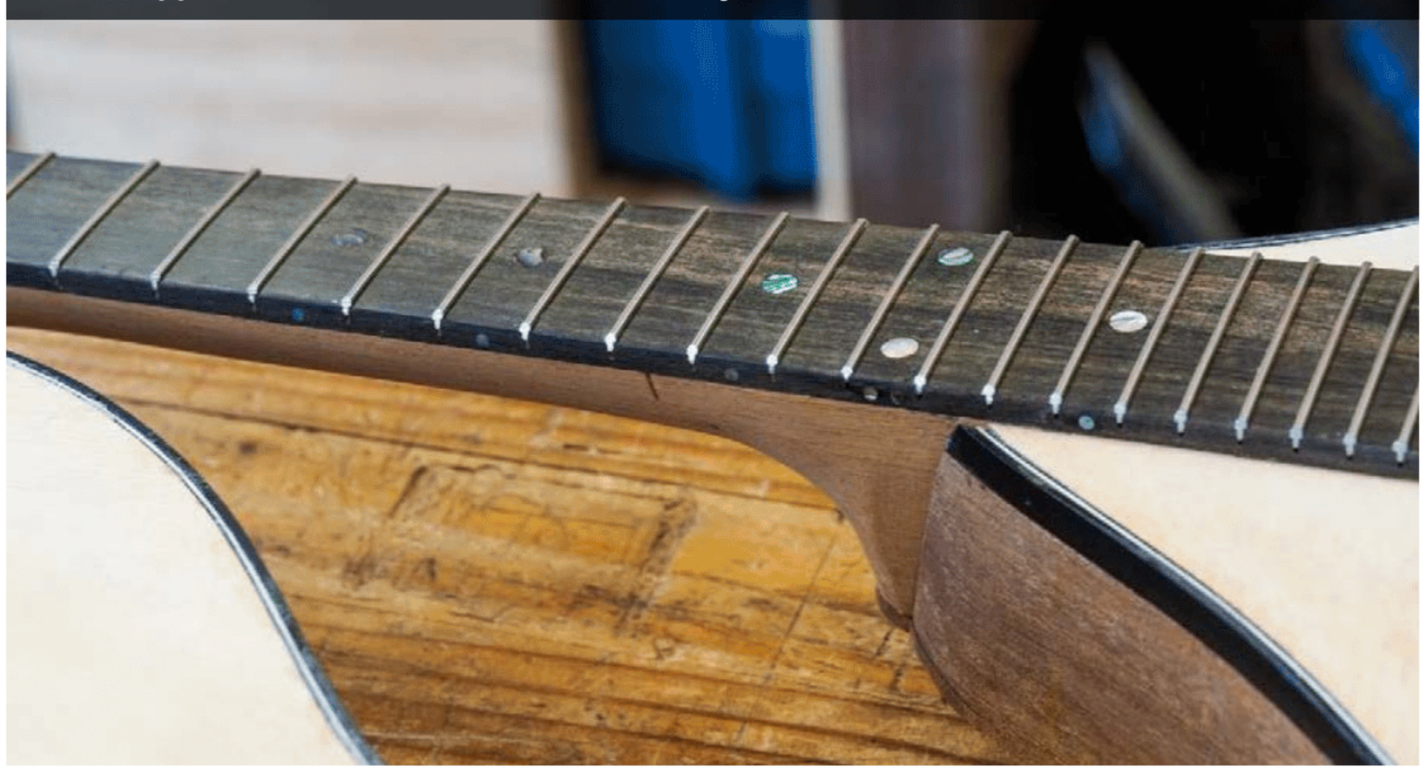
Just some of the 15 or so templates that Malcolm made for his first mandolin, and which were a driving factor in his decision to make more





The 15-foot-radius jig used for forming and holding parts of the sound-box during the glueing process

The fretboard and its intersection with the sound-box. Note the black scribing that he has applied in order to make the sound-box junctions look smart



from matched wedges of Sitka spruce, shaped by chisel work and cut to include the ‘f’ sound apertures, contour drilling, and a delicate thicknessing that allows for flexibility where vibration matters, and stiffness where stability matters.

The 15-foot-radius jig is made from thick MDF, cut into wedge-shaped spokes, each with a curved hypotenuse matching the radius. These pieces are arranged like a starburst, glued down, then overlaid with a 3mm MDF skin that conforms perfectly. “It’s simple,” he says, “but very hard to explain in words.” He’s not kidding!

> “It’s not a retirement plan as such, more of a shift in life planning”

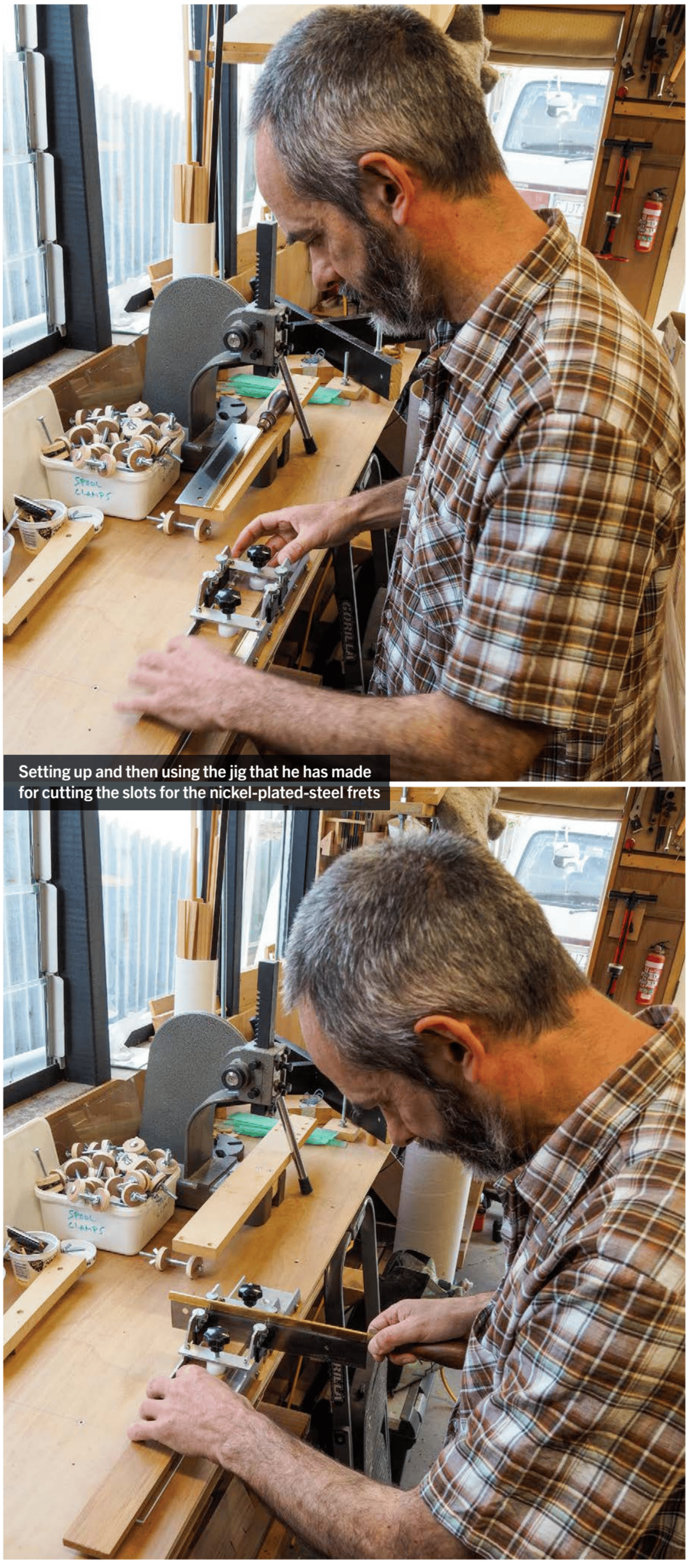
Jigs aplenty

This jig serves several purposes, as Malcolm describes: “on the flat tops, the radius dish is used during the bracing glue up to bend the top into the correct radius. The radius dish is also used to sand the glueing surface on the sides to the same radius, and to sand the correct radius onto the bracing.”

Other jigs include one for cutting the ‘f’ sound apertures, a sled for cutting the fret positions in the fretboard. For the



A fretboard showing the nickel-plated-steel frets and the pāua landmarks



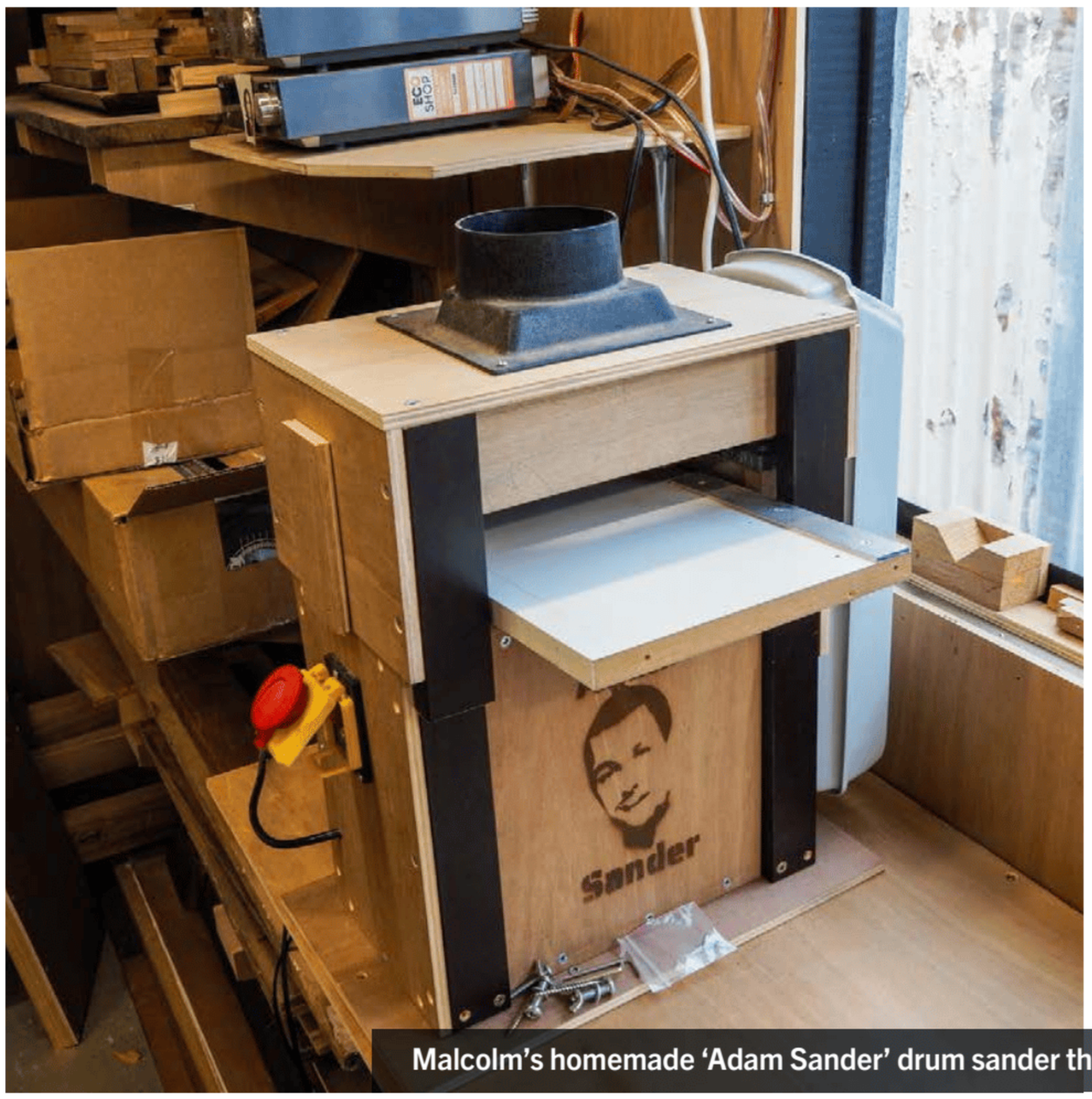
Setting up and then using the jig that he has made for cutting the slots for the nickel-plated-steel frets

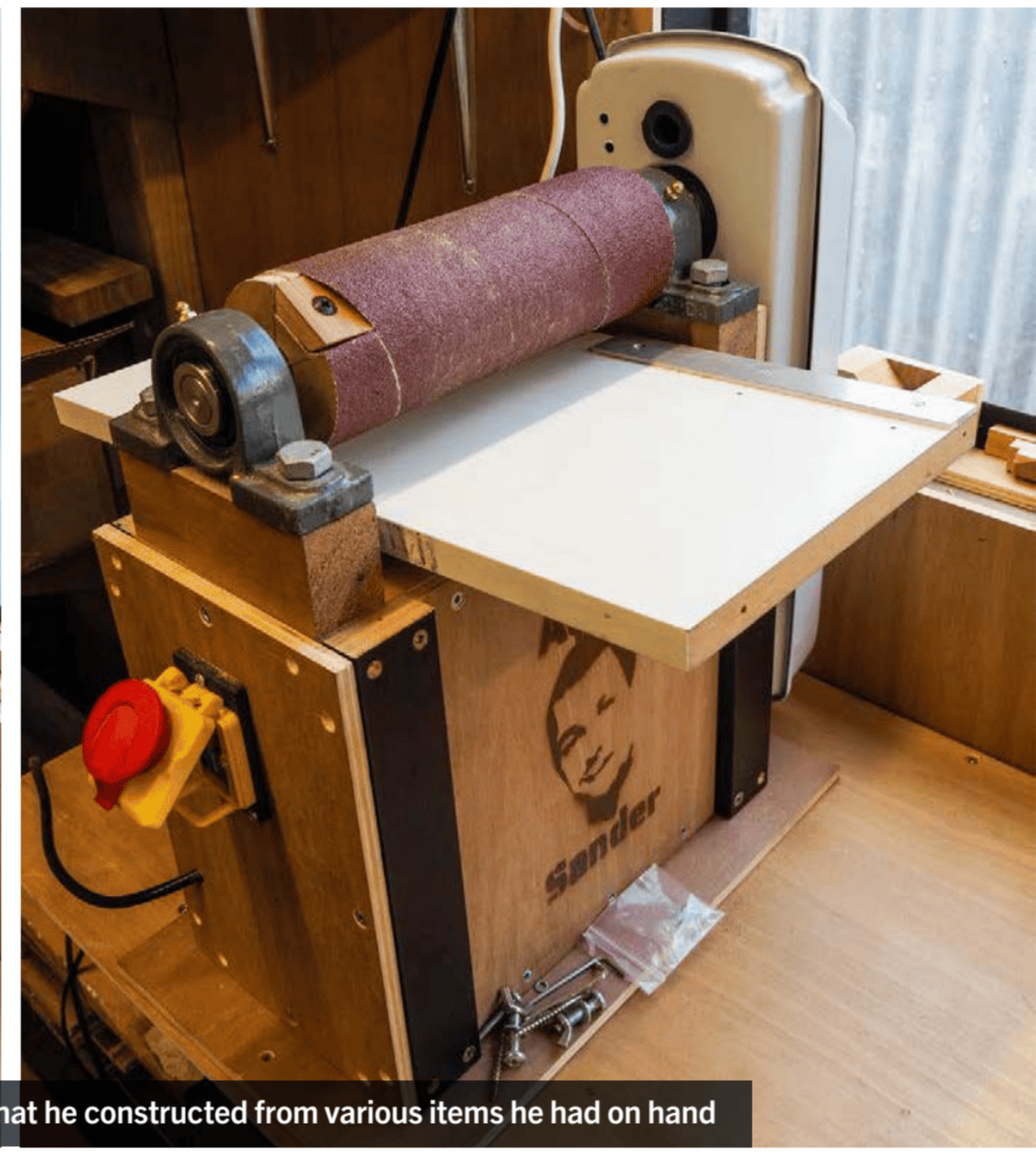
fitting of the frets, Malcolm tried using a bearing press. It didn't work due to the curve on the fretboard, but it has been useful elsewhere. There are jigs for radial sanding, drilling holes for tuners, sleds for his band saw for roughing out neck and body components, glueing a range of fixtures, parts such as the headstock and fretboard, contour lines on the carved tops, while there are others for setting drill depth for the lines.

The fretboard

The fretboard is the other major component that makes up the mandolin, with its length determined by the 358mm string line, before taking a combination of the neck and the headstock into account.

The neck has both the frets, which are made from nickel-plated steel, and position markers, which Malcolm makes out of pāua. These provide 'landmarks' to key positions on the fretboard for the player. The frets cover just under two octaves along their length, with just over one being practically playable. ▶





Malcolm's homemade 'Adam Sander' drum sander that he constructed from various items he had on hand



This is a 'grail' – a type of marking gauge that is used to scribe the binding channels. Malcolm made it at the New Brighton Menz Shed, where he is a member



Even more templates . . .

> "It just depends on which end of the shed he's heading for"

The build process itself starts with the various milling and thicknessing steps for the components, then moves to assembly. Malcolm starts this by bending the sides using his pipe and heat gun technique. The neck – which requires cutting a compound angle mortice-and-tenon-joint block – is then glued to the body.

The top, which has been formed specifically around the chosen wood and its subsequent shaping, forming, and the sound apertures, is then braced before being glued to the top of the rim.

The fretboard is then glued to it, with the back being the final component glued to the sides. A black binding into channels gives a black edge around the body, and it's finally assembled. A shellac French-polish finish is then applied. Once it's ready, the fit-out of the tuners; the bridge; and the nut, saddle, and tailpiece – the hardware for holding the strings – is all attached and secured.

Where did it all begin?

Malcolm doesn't build from hobbyism or nostalgia, but from a modern understanding of materials, processes, and engineering, combined with the timelessness of green woodworking techniques and a philosophy that simply is not willing to reduce a craft to a workflow chart.

Malcolm debugs wood the way that he debugs code – not by forcing it into compliance but by listening for where it wants to sing.

So where did it all begin?

"I've played guitar on and off since my early teenage years," he tells me. "I was in a few bands in my late teens. In my 30s, I became more interested in acoustic music. In the past five years, I've become interested in traditional music, Appalachian 'old time' from the US, and Irish music. Lots of folks at the pub playing instrumental tunes too fast for me to keep up with!"

And the long term? Malcolm is in his 50s and wants to slow down the programming in order to build more instruments. It's not a retirement plan as such, more of a shift in life planning that allows for the enjoyment of making his mandolins rather than the pressure of writing code.

In the meantime, 'going to work' or 'going to his workshop' is the same thing. It just depends on which end of the shed he's heading for. And in time, the workstation will give way to the workshop, and the keyboard to the fretboard.

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The bike, as I had assembled it at the end of the last article, Part 7

RESTORING A 1952 AJS

Part 8

Peter's restoration is taking much longer than he had hoped, with those snakes and ladders still frustrating progress. In Part 8, his goal is to start the engine and hear that throbbing piston music – but will he succeed?



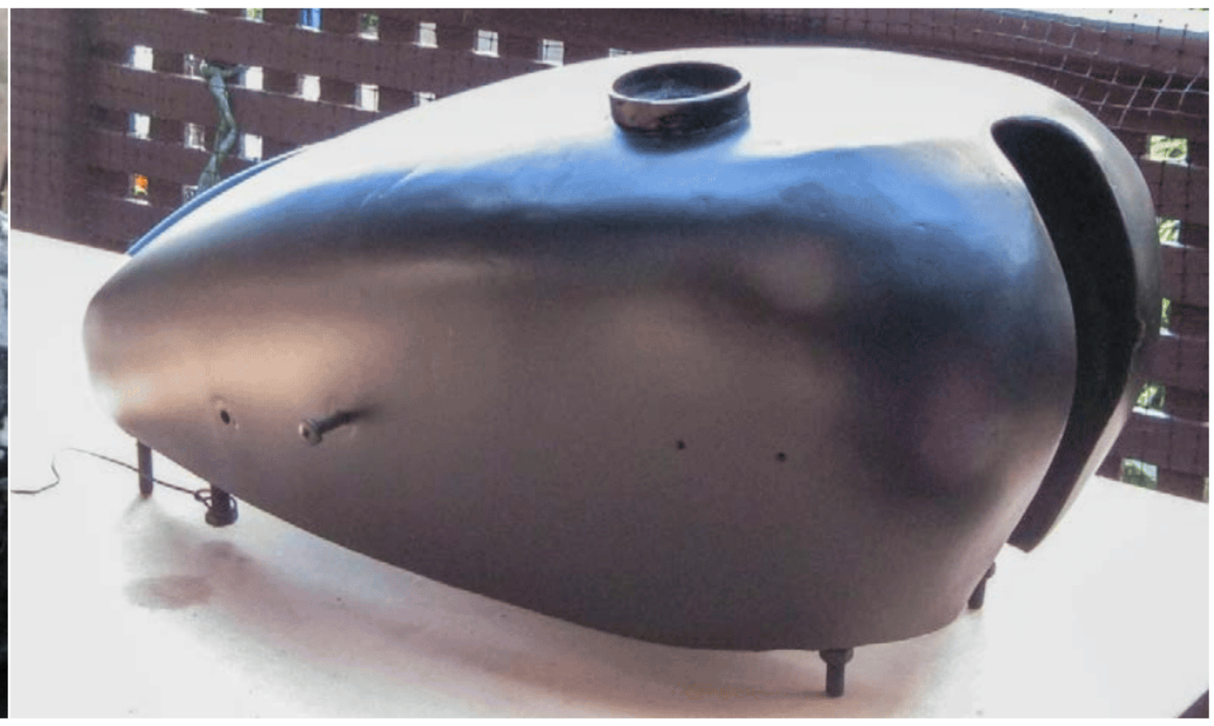
By Peter Barton | Photographs: Peter Barton

The 1952 AJS 500 is slowly coming together, much more slowly than I had expected over a year ago.

I knew that the bike is a bitzer, but along the way, I have found that it is way more of a mongrel than I expected. But you can still love a mongrel, and the upside is that I feel little pressure to keep things genuine. For example, I've nickel-plated bits where chromium was originally used, and I used part of a barbecue to fix the motor – see earlier articles.

Part 7 ended with the discovery that I had several leaks in the preferred and now-prepared fuel tank; probably to be expected with the bike's 50 years

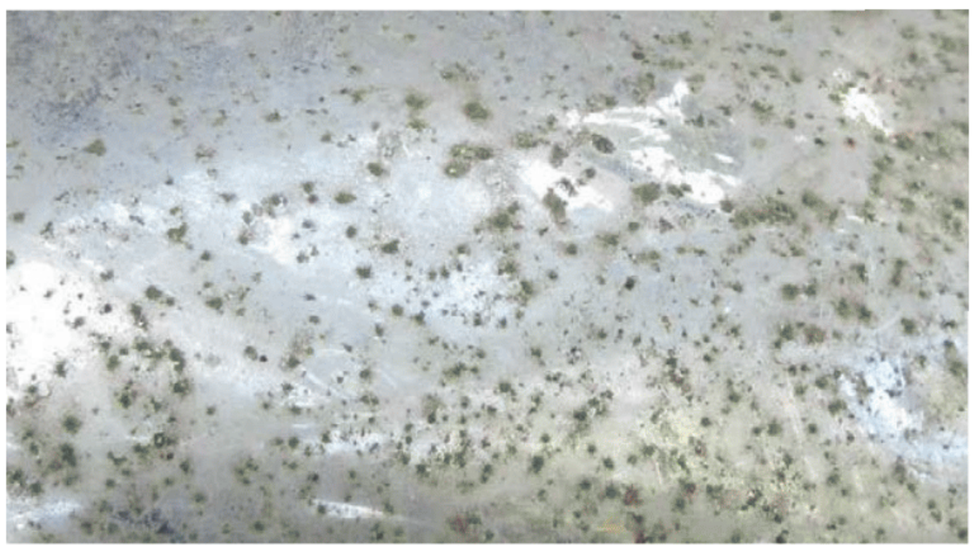




I had filled and sanded the dents in the chosen fuel tank and painted it with a satin black epoxy paint. I should have leak-tested it much earlier



A chromium-plated tank comes out of storage, dull and spotty



A close-up of the chromium surface

"But you can still love a mongrel"



The chromium tank had extensive internal rust; not surprisingly, it leaked when kerosene was poured in. A little chromium polishing, and the dents show up fully

of storage in a relatively damp shed. I had been hopeful that I had eventually got to the stage where, after what seemed to be like a year-long game of snakes and ladders, I could at least fire up the engine – a bit of throbbing to lift the spirits. Alas, any throbbing had to wait.

Fuel-supply issues

So this article starts with fuel-supply issues.

I had a second, spare (chromium-plated) fuel tank in storage, under much the same conditions as the first. Some small dings, and an area noticeable where a dent had been filled (brass?) below the chromium plate. I don't want a shiny tank with obvious defects. Difficult to clean up spotty bits and some small areas with the chromium peeling and showing rust. A rustling sound inside: a lot of rust was then shaken out. Filling it with kerosene indicated leaks. So this tank would be no advance. I'll keep it back in storage though, because you never know …

Early in the rebuild, I had imagined setting up a temporary fuel reservoir a bit like a hospital intravenous drip bottle, just to get the engine going pending tank refurbishment. However, I didn't (and still don't) like the risk of a fiery accident, and it would be a stretch of time just to set up a dead end.

Leak-testing choices

There was also the slight but obvious risk of explosion should I weld or braze the first tank to fix leaks, even with purging the tank with exhaust gas from my mower. I opted for a marine and fuel-resistant epoxy (JB Weld), which claimed to do everything that I wanted. A claim of about two tonnes per square inch tensile strength. A two-part resin which was easy to use and didn't sag too much as I spread it, like icing a cake. A couple of days later, a test and no leaks. Time will tell.

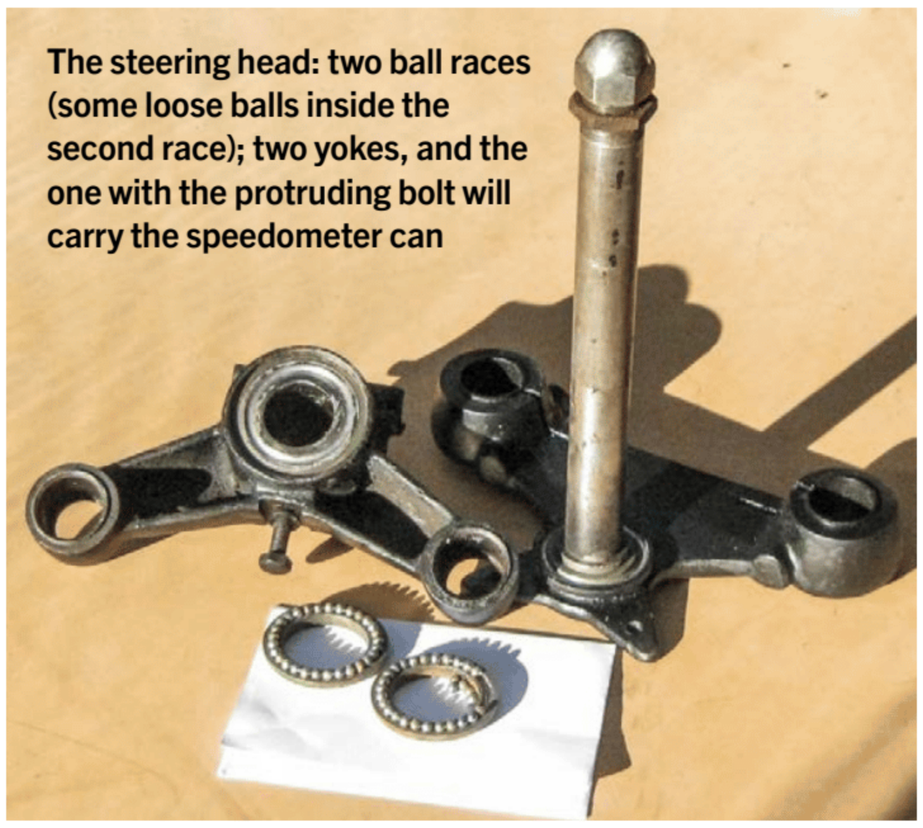
I used the same epoxy to repair an oil junction which had fractured as I was tightening it up on the pipe with its olive. Looking closely at the fracture, I



A small oil union connects to an oil pipe, which carries lubricant to the head. It broke when tightened: the fracture shows dull grey on a previous crack, silvery at the recent break



The oil fixture under repair with JB Weld marine epoxy, the same epoxy I used to fix petrol tank leaks



The steering head: two ball races (some loose balls inside the second race); two yokes, and the one with the protruding bolt will carry the speedometer can



These two tubes (one to fit over each fork tube) have brackets to carry the headlamp. The tubes need satin paint, and the small rings need replating



The rings for the headlamp tubes have been plated with nickel

could see it had been partially cracked for some time. So, always look on the bright side of life: it's good that it broke completely while at home and not miles away. It could have sprayed out oil (over new leathers); starved the head of lubrication; and, with pressure loss, let the piston/big end/crankshaft fail. Time will tell here, also.

Installing the front suspension

To avoid collateral damage, I took the tank and seat off the bike while I installed it. The second-hand tubes (fit between the top and bottom yokes), which I bought and which form the headlight bracket, needed some filler, sanding, and painting, and I had done that some time ago. The top and bottom of those tubes were rings which had been chrome plated; this plating was somewhat munted, and so I removed any remaining chromium (electrolytically); sanded off with wet and dry paper (sand or soda blasting would have been better); and nickel plated following the tank method, at a higher temperature, as I've described in earlier articles. That went OK.

Socket grinding

During dismantling, to get a tight, recessed bolt out of the bottom of one of the suspension stanchions, I had to weld a second spare bolt onto its head, and then I could fit a standard socket. (Old instruction manuals mention grinding down a Whitworth socket so it could fit into the recess; I had done that, but then the socket cracked under the torque.)

Anyway, time to cut off the spare bolt and restore/grind the hexagon head on the original. Done. The recessed bolts went back in well, and I could still use the ground-down but split socket to get a good enough torque.

I used a wooden chopstick to drive plastic collars and oil seals gently into position, going around opposite hours of a clock.

I had made some tube clamps to grip the Teledraulic (the pioneer suspension and damper system developed by AMC for their Matchless and AJS bikes) legs whilst dismantling, and they came in handy again for

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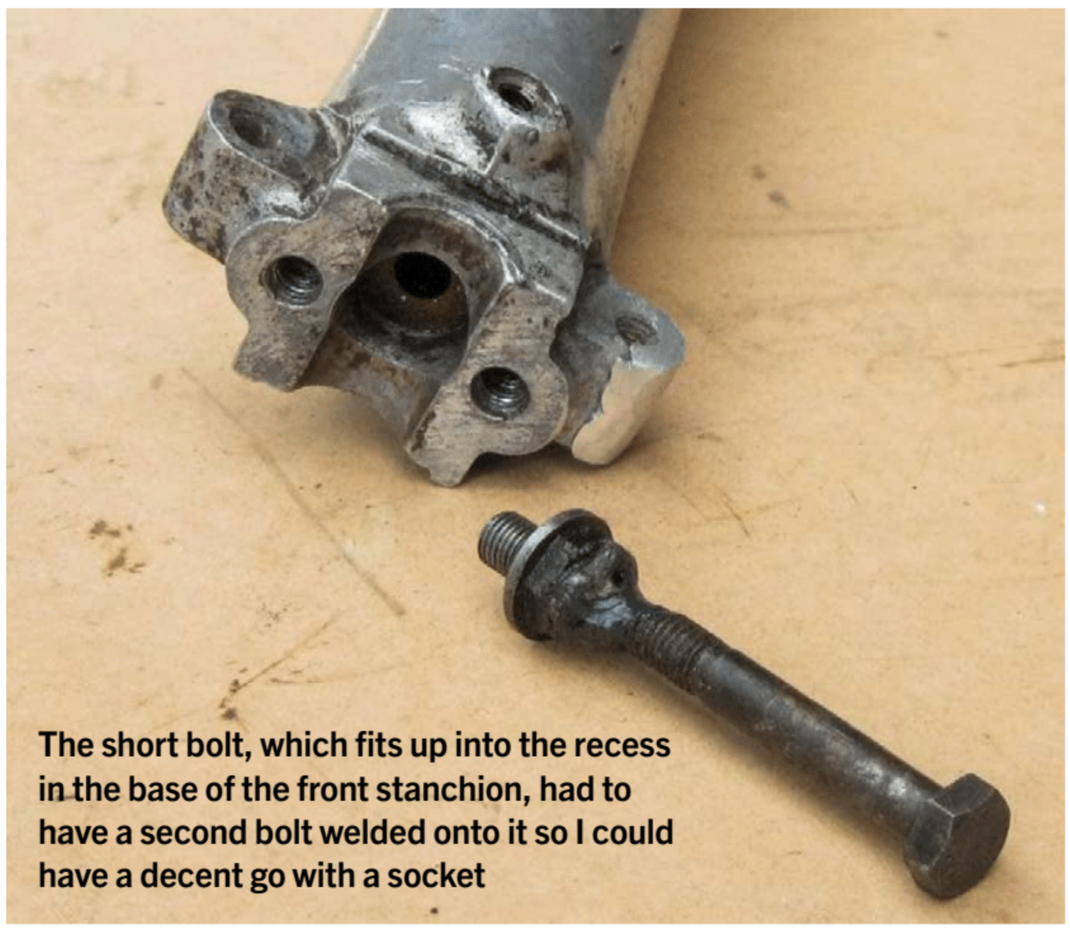
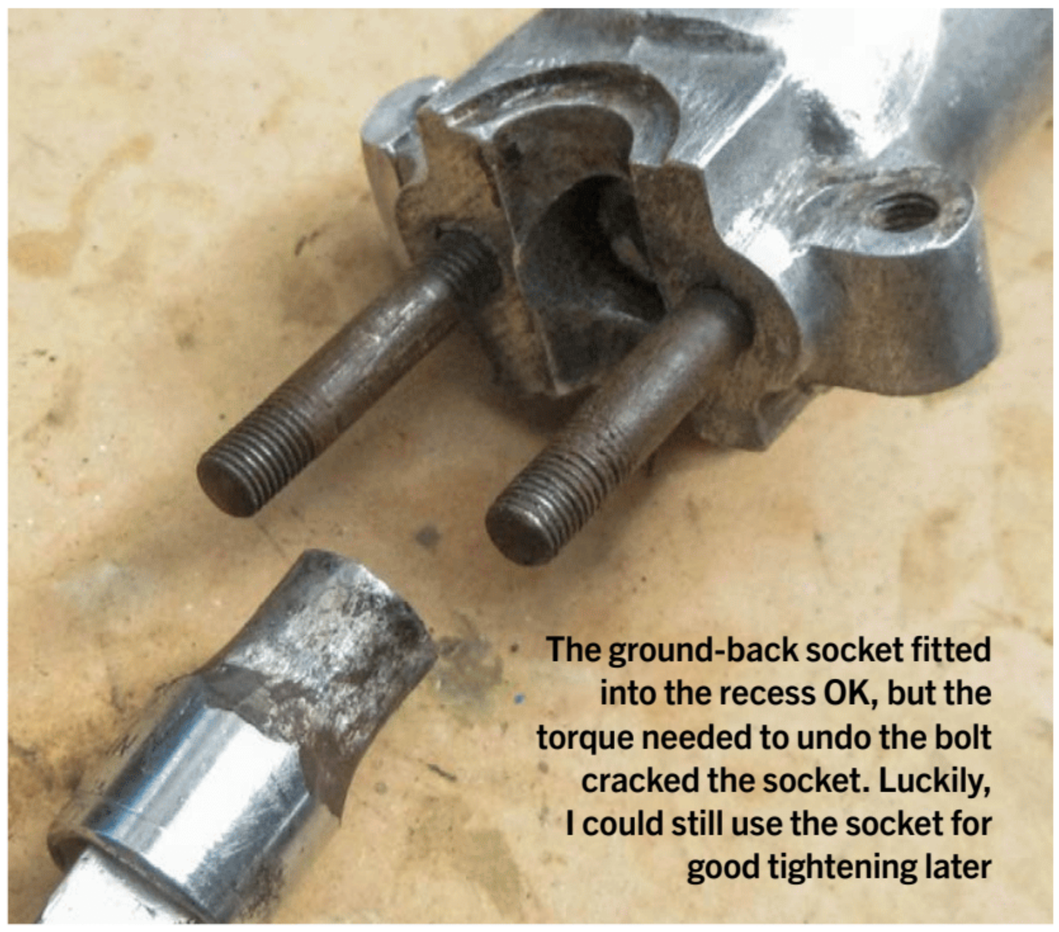
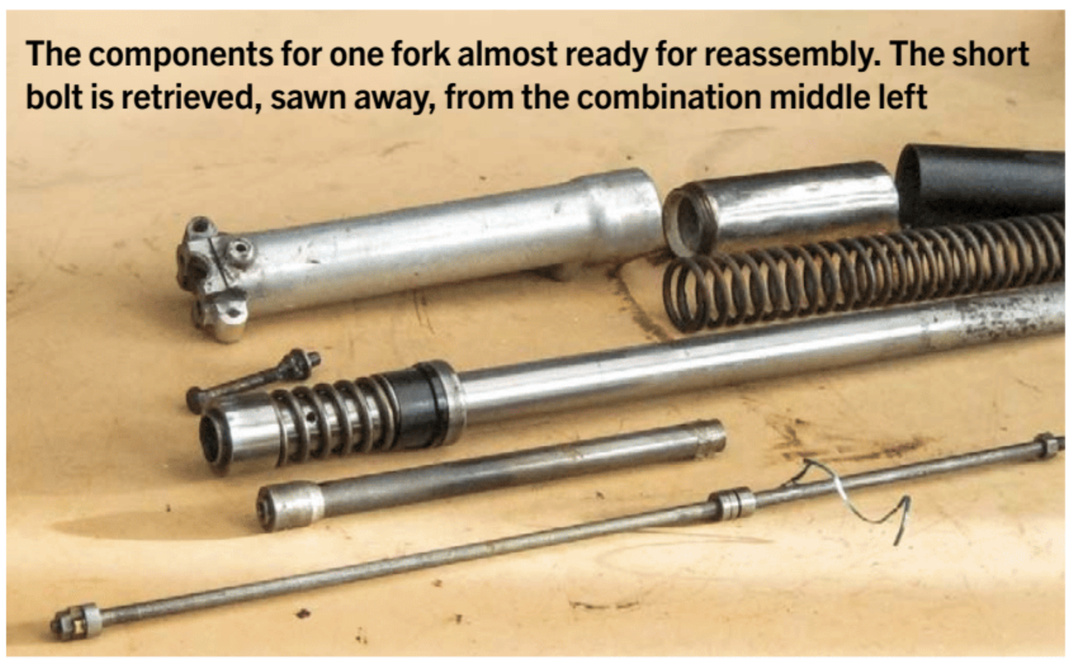


The short bolt, which fits up into the recess in the base of the front stanchion, had to have a second bolt welded onto it so I could have a decent go with a socket



The ground-back socket fitted into the recess OK, but the torque needed to undo the bolt cracked the socket. Luckily, I could still use the socket for good tightening later



The components for one fork almost ready for reassembly. The short bolt is retrieved, sawn away, from the combination middle left



The wooden clamps I made for gripping the suspension tubes for screwing together, posing here with one of the rebuilt rear jampots



Gently tapping down on a chopstick to get a plastic collar down into position, then an oil seal



The upper fork is more advanced in its reassembly; part of the damper system still needs to go into the lower alloy stanchion



Screwing two tubes together using a wooden clamp. Getting ready for the mainspring and its leather washers

"Old instruction manuals mention grinding down a Whitworth socket so it could fit into the recess"

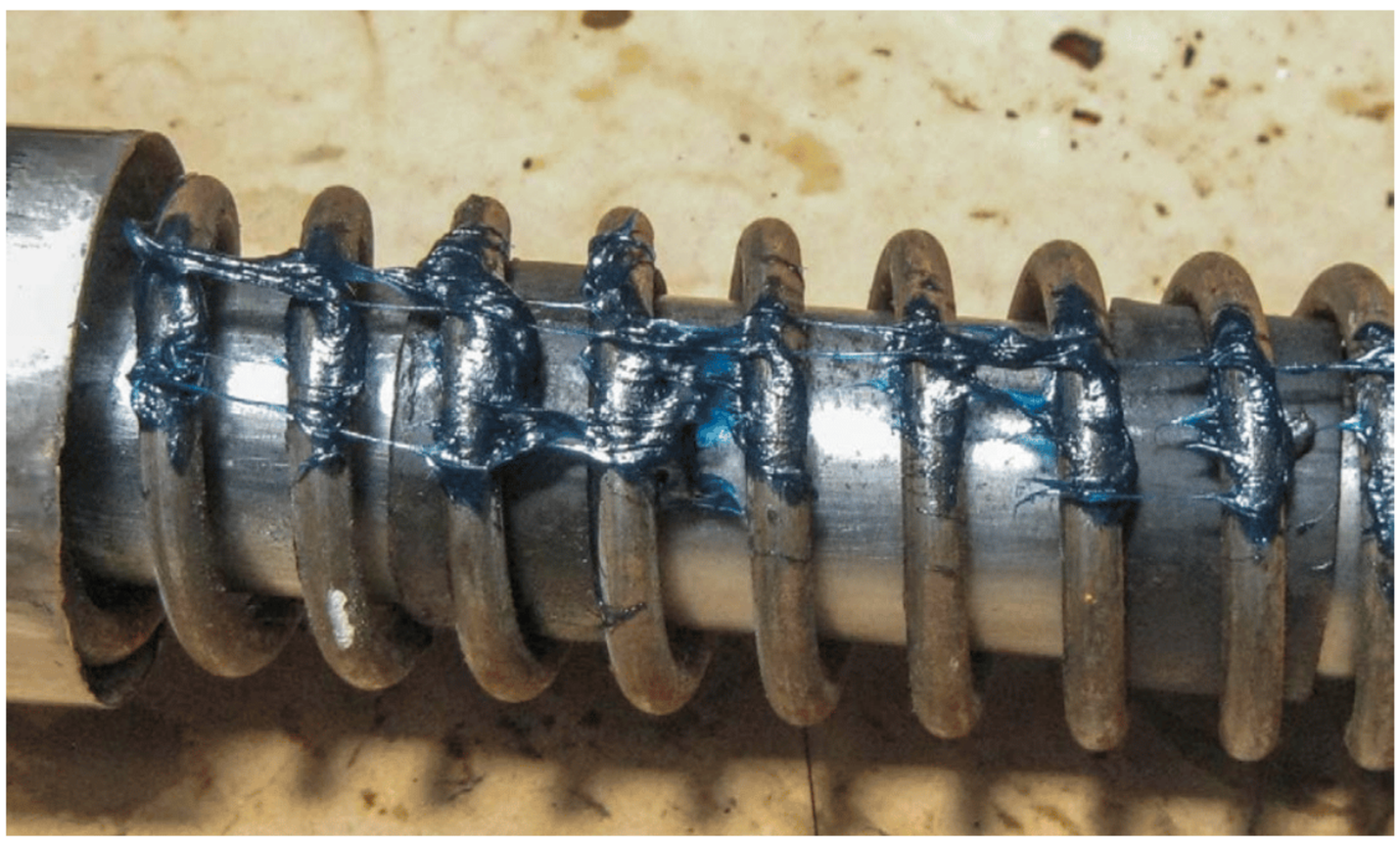
Rust to Rrroaarrr NZ Safety Blackwoods



Leather washers cut from the vamp of an old work boot



One leather washer in place for the mainspring, and three rubber rings



Grease on the main spring

the rebuild, where a newly nickel-plated tube extension screws into the lower stanchion.

Leather washers

I had needed two pairs of leather washers to go at the ends of the two main springs in the front suspension.

I cut them from the vamps of a couple of old work boots; the thickness of the leather looked about right. So a leather washer goes in; three rubber bushes to stop any audible slap of the main spring against the inner damper tube; main spring, and then grease onto the spring to avoid it grinding out or squeaking against the tube extension; second leather washer, and top tube.

The next step was to fit the pair of Teledraulic legs into the front yokes. I wasn't expecting much difficulty here: I had made a tool, basically a long construction bolt (zinc ground off for the weld), welded to a top bolt from a spare tube. The top bolt then screws down into the suspension tube. Tightening the nut on the long construction bolt would then pull each assembly first into the lower yoke, through the headlamp tube with its two plated rings, and then into the top yoke.

The bottom yoke has a small slot and an Allen screw on each side, so that when the Allen screw is tightened, the yoke will grip the suspension tube. I drove a small wooden wedge into the slot and removed the Allen screw. The wedge might have done some good.

Frustration hits – again

I slackened off the nut which holds the steering head and two yokes together enough so that I got the headlamp tubes between the yokes, but not so much that the ball races would get out of position. A bungee cord held the bottom yoke up.

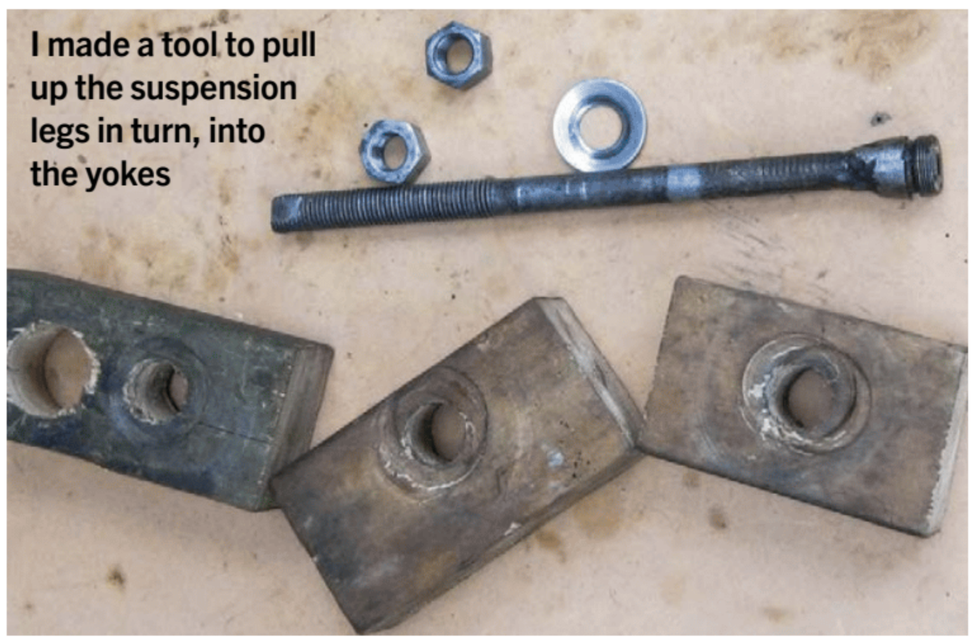
The first leg went in sweetly. For fitting the second leg (snakes and ladders again), an octopus would have been a useful helper.

After two days of intermittent work (I

NZ Safety Blackwoods Getting to the nuts



Two legs ready to go. Satin black paint, nickel plate, and aluminium alloy



I made a tool to pull up the suspension legs in turn, into the yokes



A spare suspension cap welded to a construction bolt – this end of the tool screws into the suspension inner tube



The tool screwed into a leg

walk away for a while when frustration hits), it finally went in smoothly, and I still do not really know why it kept jamming and then didn't. Copious amounts of lubricant had been used from the start. As much as possible (the headlamp tube blocked access needed to lever the leg around), I had pushed and rotated the leg this way and that, avoiding crushing the cover tubes.

The alloy stanchions needed studs plus a couple of bolts for the mudguard support and for attaching the bottom caps. I got replacements for missing studs quite easily from a spare stanchion using the two-nut method: tighten the two nuts against each other and then use torque on the bottom nut to screw out the stud.

Wheels on at last

My last article saw the rear jampots fitted; now that the front suspension is in, the wheels can go on.

I had laced the spokes on both wheels as I described, but had not done much about the axles and brakes. Spokes had been nickel plated. The front wheel, first



Two legs and a spare one attached to the tool

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When I welded up the tool, I put it into a surplus leg and then rolled the assembly to see if it ran true







Tool in action



Allen screw loosened, and a wooden wedge inserted, to help the leg slide into position through the lower yoke

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The chosen speedometer with its drive cable



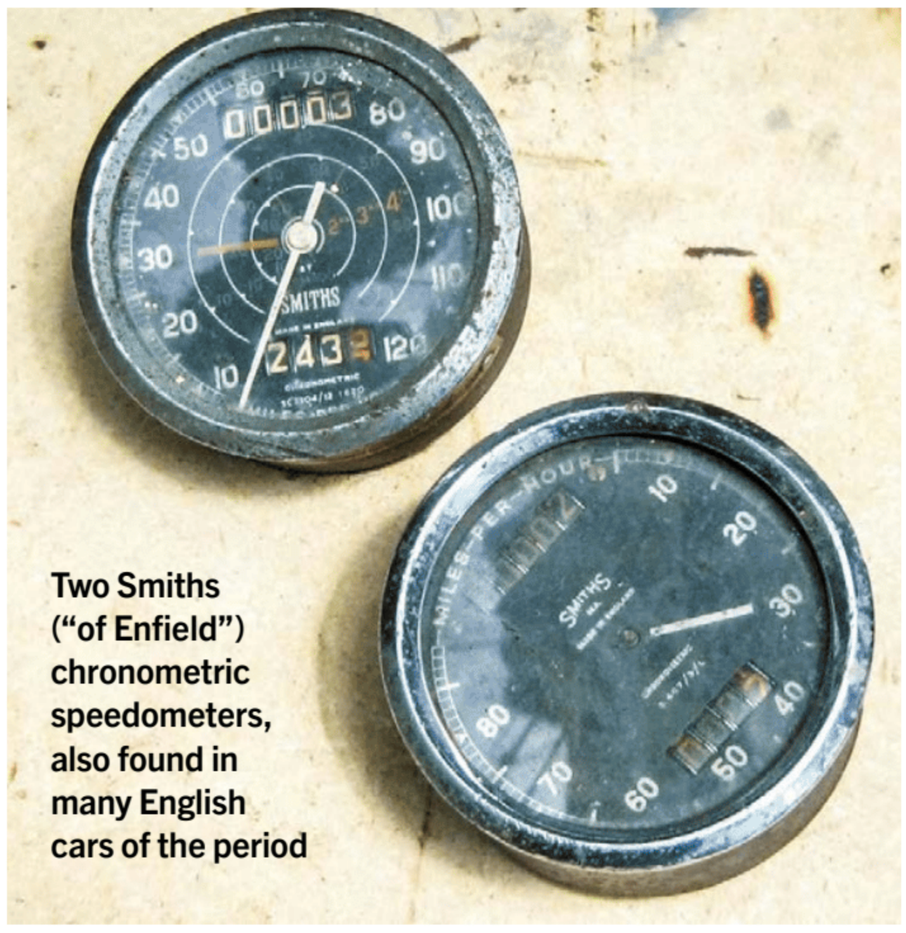
The chosen speedometer with its drive cable

of all, all good. There is plenty of fat on the brake linings, and I had cleaned up the alloy hub and cover plate.

The rear wheel: I had nickel plated the hub and sanded and painted the brake cover. However, the brake drum had to be bolted onto the wheel hub. This job was a bit annoying, as I had to fit the spokes first, and this made things slightly awkward. The linings are good.

The little gear-box for the speedometer fits on the side opposite the brakes and engages slots on the hub. I'm a bit curious that it does not seem to engage as fully as I would expect, but I have no parts – for example, spacers – which came off the hub when I comparatively recently stripped it. Both front and rear hubs were liberally packed with grease during reassembly.

> "I'm a bit curious that it does not seem to engage as fully as I would expect"

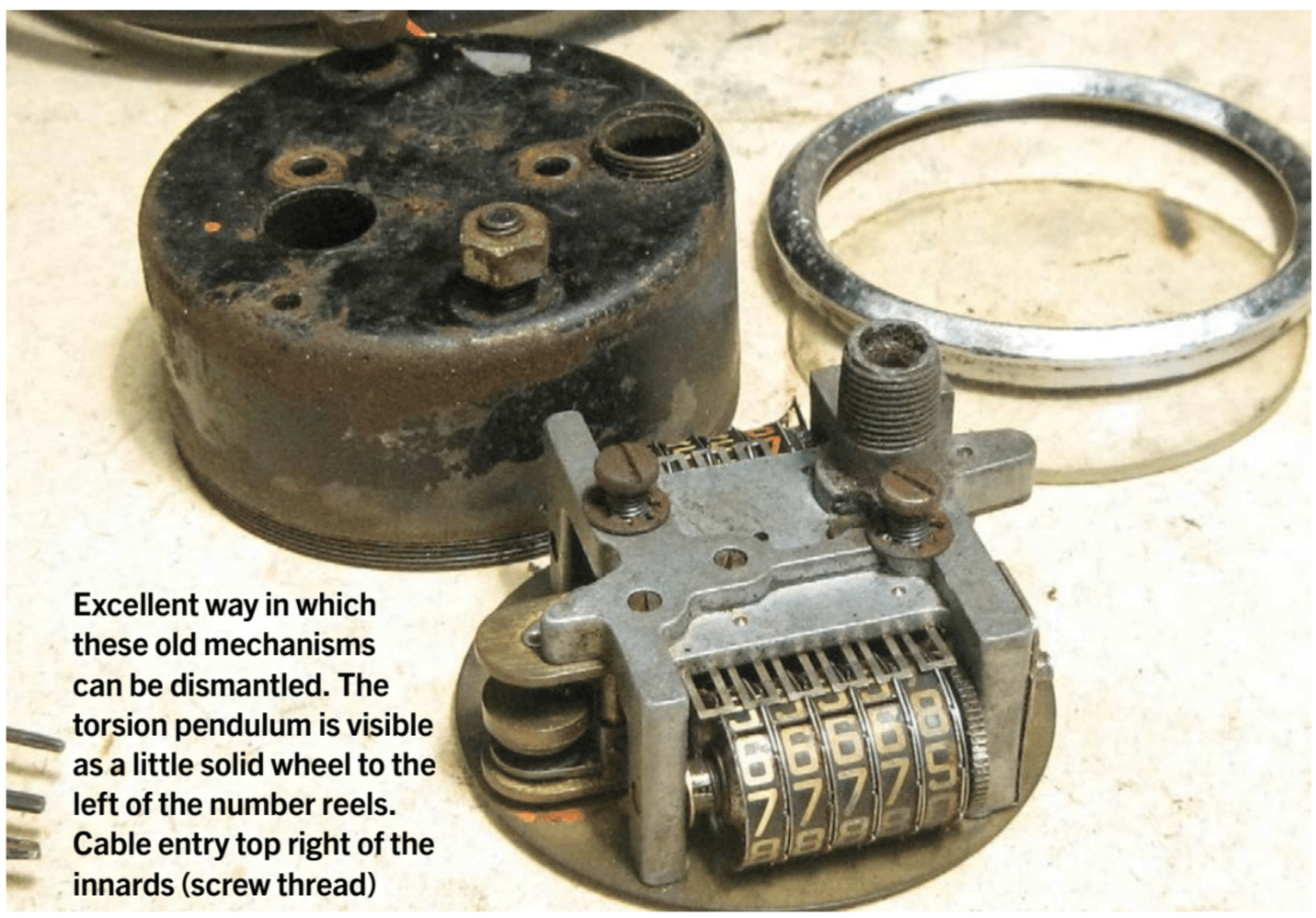


Two Smiths ("of Enfield") chronometric speedometers, also found in many English cars of the period

The speedo

I have two Smiths chronometric speedometer gauges. One is calibrated to read rpm as well as speed. I don't think I will use that one, as it is probably a bit misleading in that various different chain sprockets – that is, ratios – are likely to have been used. I have checked the innards of the other gauge, and it seems fine. Again, old gear is often beautifully accessible.

'Chronometric' means 'time



Excellent way in which these old mechanisms can be dismantled. The torsion pendulum is visible as a little solid wheel to the left of the number reels. Cable entry top right of the innards (screw thread)

Rust to Rrroaarrr NZ Safety Blackwoods



My happy time prior to installing the petrol tank

measuring', and one part of the device, which is easy to see and can be checked, is a tiny torsion pendulum which keeps time by twisting to and fro like those in old wrist-watches.

The spinning cable drive keeps the pendulum powered up, and the pendulum swing (of a constant time, say a fifth of a second) checks how much the cable from the rear wheel has spun in that fifth of a second. That amount of cable spin indicates the amount of rear wheel revolution – that is, distance travelled: bike speed has been indicated. Then there is a reset and repeat.

Give the pendulum a very gentle flick, and it should oscillate easily. It did for me, and all the other gears looked good and shiny brass, no corrosion. I'm not going to touch the plated ring around the glass, nor will I touch up the needle, numbers, or scale (old sepia/white). I will, however, sand and paint the body of the can, which is steel and is rusting.

The cable looks good, and when I twist one end of the inner, it spins OK at the other end. I have a variable speed drill, and later, before mounting the speedometer, I'll put the drill at one end of the cable and see if I get some action with the speedo and odometer.

Nickel plating not grabbing

Nowadays, of course, you could very easily build your own speedo (and tachometer as well) using Arduino or Adafruit microprocessors. There will be plenty of advice on the web. Perhaps a project once I finally get the bike on the road.

There are some parts of the bike, the larger parts, which have to be nickel plated. In my last article, I described the problems I encountered when trying to nickel-plate the wheel rims. Earlier brush plating (which I described) was successful for me, and I thought there would be no problem using that technique for the bigger rims, exhaust, and handlebars.

The nickel plate certainly went on, but it does not seem to be good enough

NZ Safety Blackwoods Getting to the nuts

Several photos were taken while I was happy for a short time

either to handle a subsequent plate of copper or to leave as a completed decorative coat. It's possible that my nickel solution has been contaminated, and it is not good enough for room-temperature plating now. The solution looks good though (clear and green). Nickel plating should really be done at 60°C–70°C, and I simply don't have the gear or volume of liquid to get up to those temperatures, with the tank method, for larger items. I am crystallising the nickel sulphate from old washings, so that I will get back to the chemical, which I know is pure (crystallisation is a good way of purifying).

For now, the two wheel rims,

> "I will get back to the chemical, which I know is pure"



Front wheel, bare rim, temporarily fitted. Castors in the background to be removed

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exhaust, and handlebars have been cleaned of rust, polished, and wiped with kerosene and oil.

Time to get some throbbing

Fitting the wheels was easy enough. I'm pleased to have the bike sitting on its wheel rims (no tyres or tubes yet) and centre stand, so that I can take away the board with its castors. The castors had independent minds of their own when I pushed the project around my tiny space.

I fitted some clear polythene tube for the oil lines as a temporary measure. I figured it would be useful to see how well (or not) the oil is circulating; the polythene would be OK provided it did not get too hot, and none of the tubes should be under pressure.

The tank goes back on, likewise the handlebars. Oil into its tank. Exhaust header on. The handlebars carry the ignition advance/retard control and the throttle control. Plus, you need the handlebars to balance yourself when giving a good jump on the kick-starter. Speaking of which, time to try to get some throbbing.

A mild disaster

Like in a good soap opera, I finish this episode with a suspenseful mild disaster (a snake in the game of Snakes and Ladders).

The kick-starter spun around its shaft into the gear-box, and there was little spring tension returning the starter to its correct position. No electric starter, of course. The outer gear-box cover will have to come off, and I would think, at the very least, the spring will have to be wound some more, and somehow the splines in the starter pedal will have to be cleaned up. And the electrics are still on their breadboard, although I have bought some spiral conduit for the wiring loom.

What doesn't kill you makes you stronger.

Tank knee rubbers and badges will have to wait.



The splines let me down. Actually, these two views of the starter shaft show that the splines here are OK; the problem is in the matching machining in the start pedal. I have strategies for next time



"What doesn't kill you makes you stronger"

Coming up in Part 9:

The saga continues: the kick-starter will need to be fixed, then another attempt to start the engine. Knee pads and badging. More tinware to be fitted, such as the rear mudguard extension, the primary chain cover, and the rear chain cover. Electrics. Budget permitting, tubes and tyres … I hope.

Solder on with NZ Safety Blackwoods

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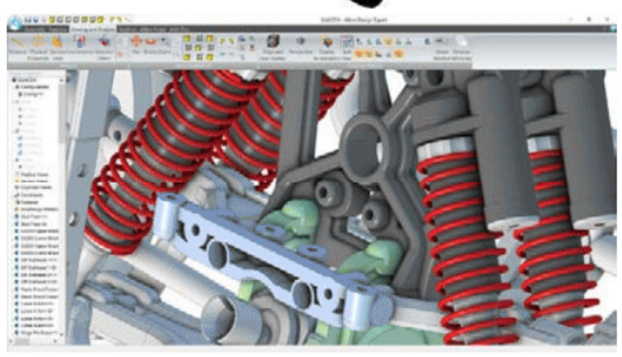

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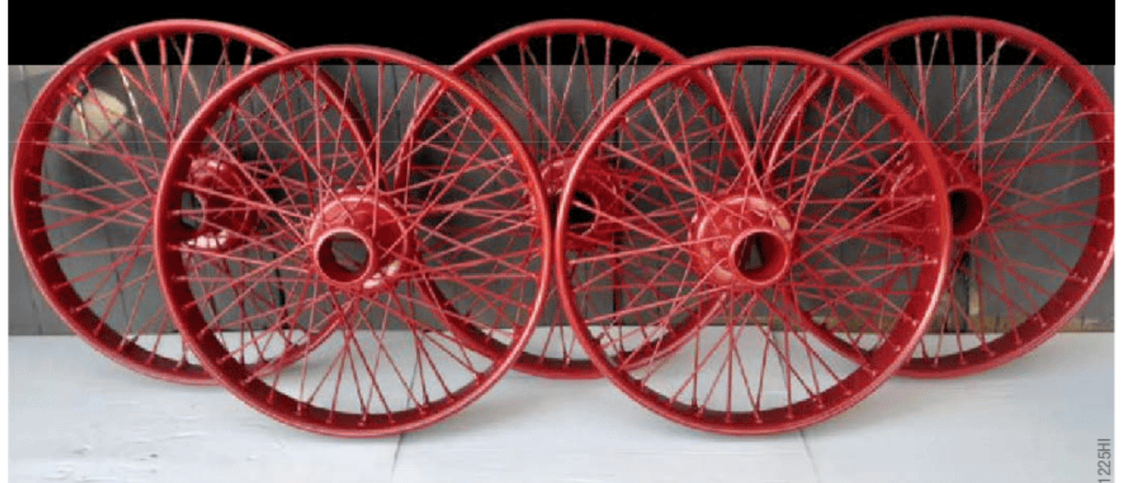

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Before: good old Chris



After: better young Chris

Before: dog with machinery

After: dog shake final

FIX THAT PIC
EASILY AND FOR FREE

Enjoy manipulating your digital images but find Photoshop too costly and complicated to use? Well, there is a great option for you, and it's free. Time to bring out the GIMP

By Chris Hegan | Photographs: Chris Hegan

Have you ever looked at a photo in a magazine featuring some ageing celebrity with apparently perfect skin and thought, "I wouldn't mind someone airbrushing some of my far less complimentary snaps?" (Although, as we'll see, airbrushing has nothing to do with it.) Or have you ever had a great photo ruined by some intrusion or accidental artefact that you would otherwise happily have printed and hung on a wall?

As the world knows, the universal tool for fixing such issues is Adobe Photoshop, a professional app that is both too technical and too pricey for casual amateurs like us. What the world does not know is that, thanks to the international Open Source movement, there is an entirely free, downloadable app that does the same job, and most of what you might want to do to fix your special snaps requires only a couple of its many functions.

With those and a very small amount of practice, you can pull off the same tricks, leaving no traces of your handiwork.

See the before and after pics as proof – all done using a couple of easily mastered functions.

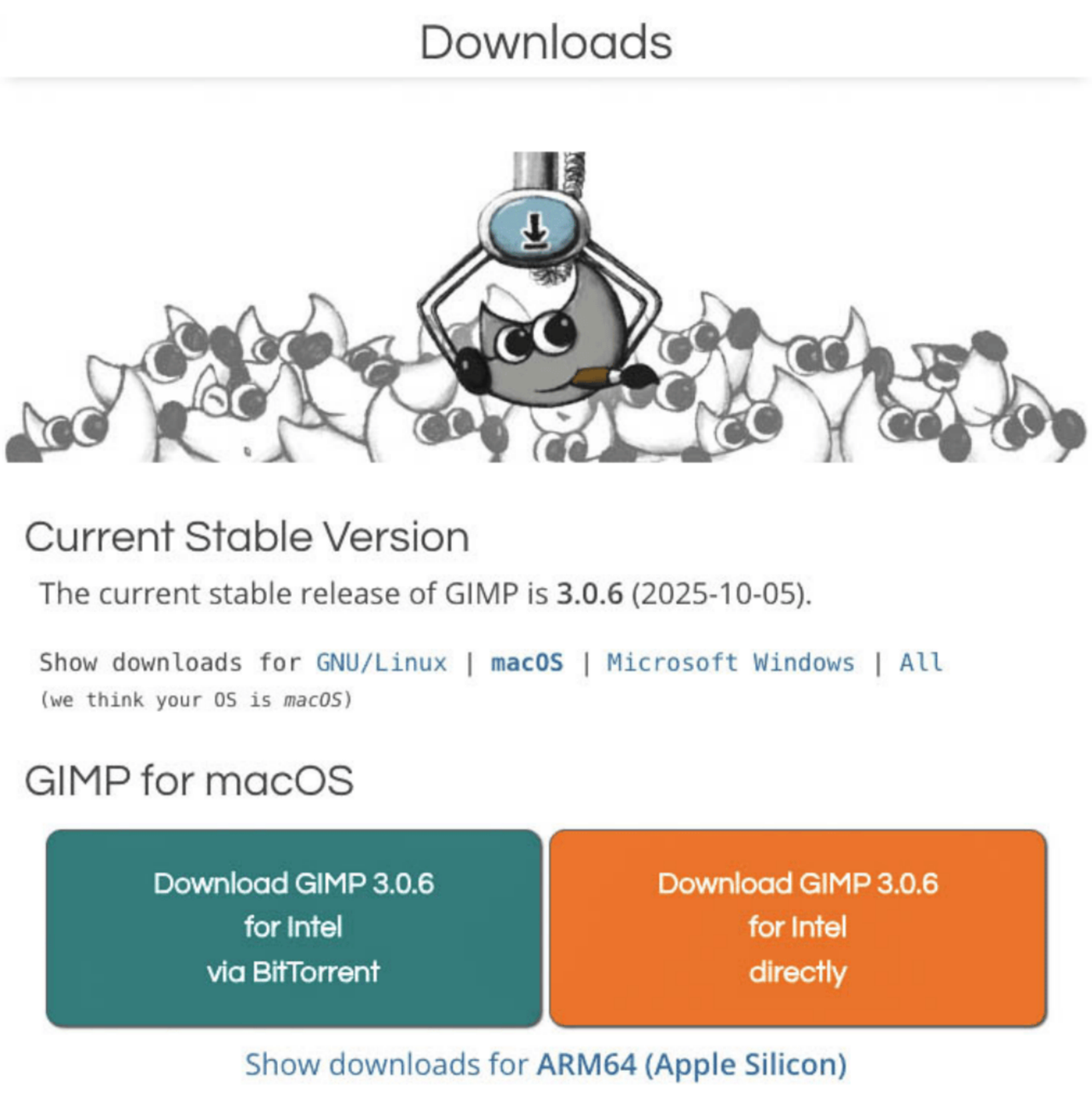
Let's get to it.

Get GIMP

First, download the Open Source alternative to Photoshop: GIMP.

This is entirely free, unlike the many 'free' photo apps that offer only limited functions and require you to subscribe in order to do what you really want, such as share or print the results. With many subscription scams, unsubscribing can be easy to forget and finding out how to unsubscribe can be extraordinarily tricky, making your free trial ruinously expensive.

Go to the GIMP website at gimp.org. Avoid any other source offered by your search engine. Many scams operate by offering downloads of Open Source software that take you through their



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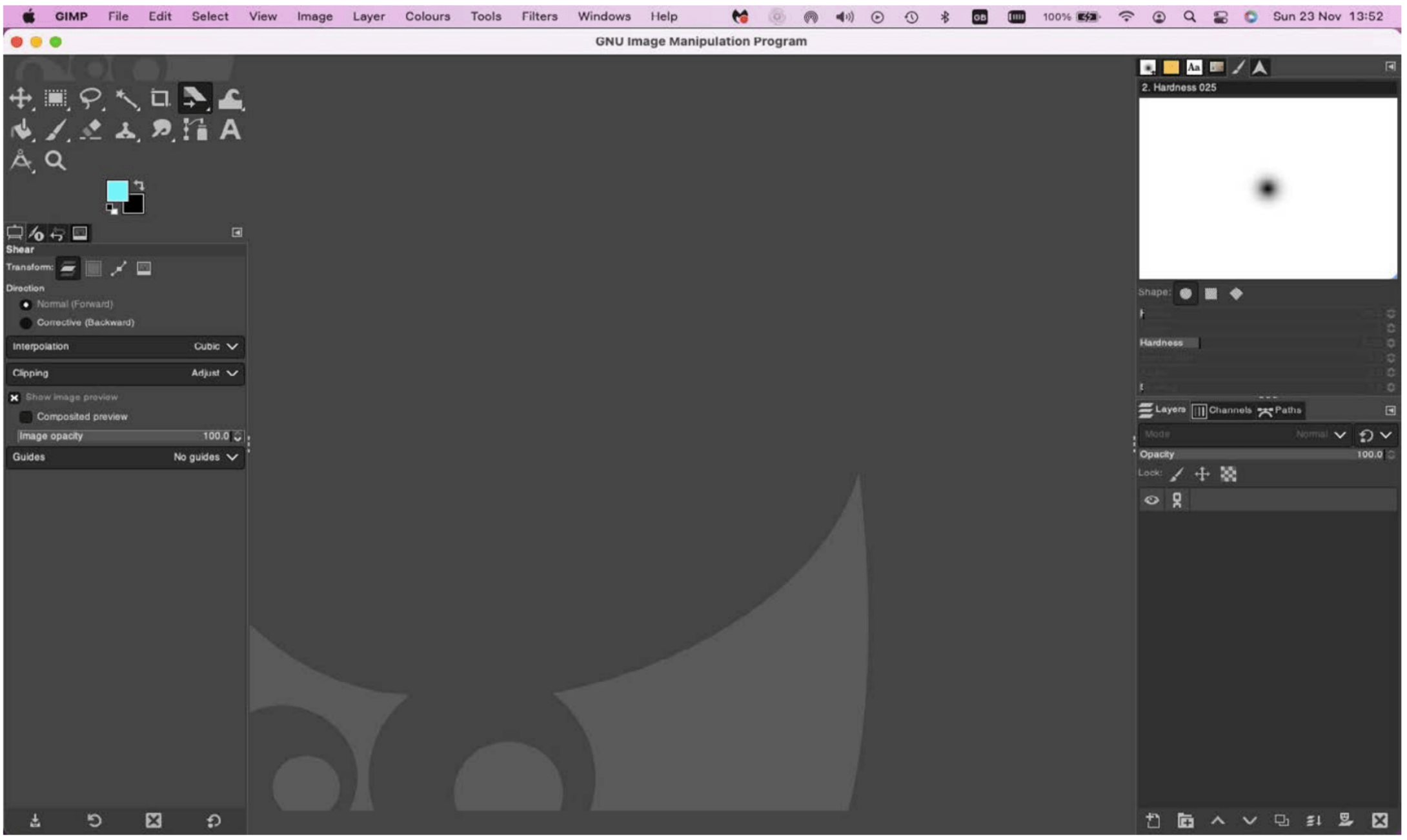

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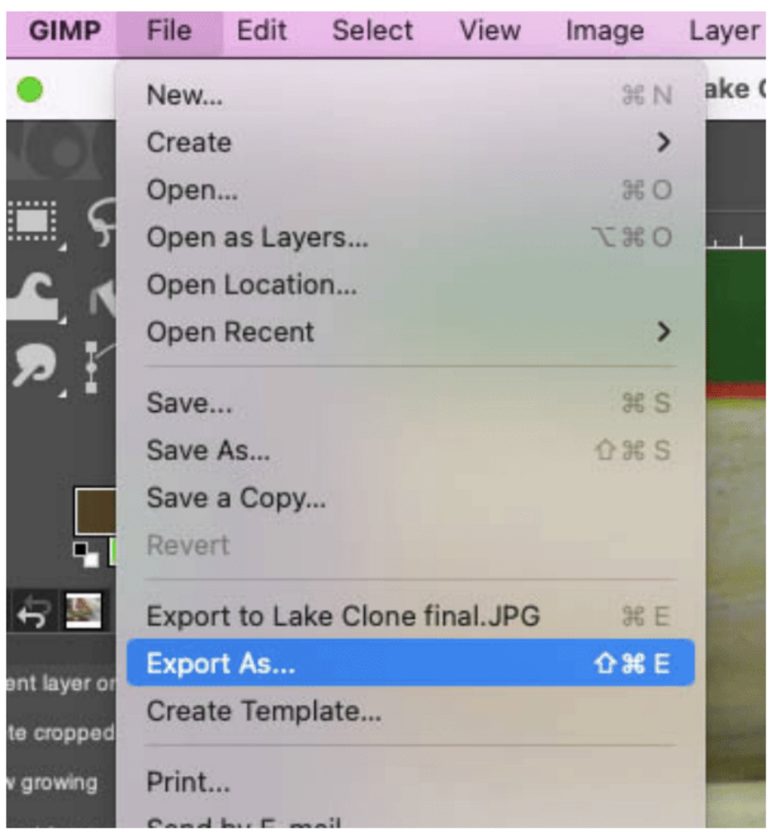
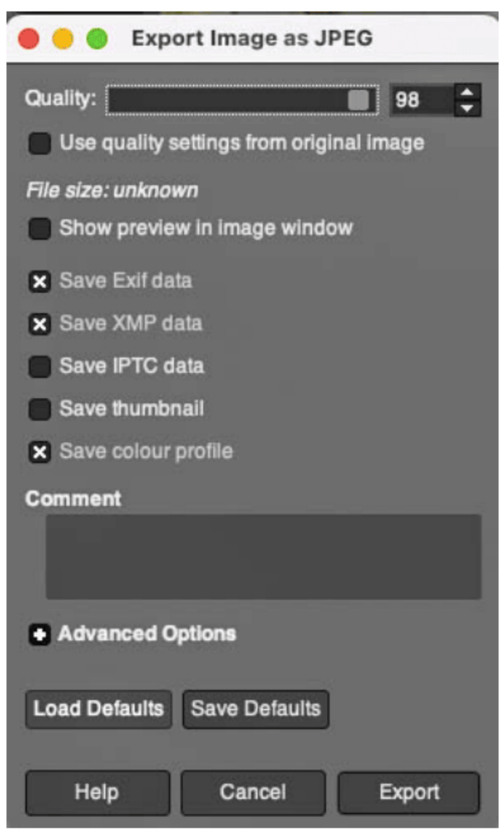
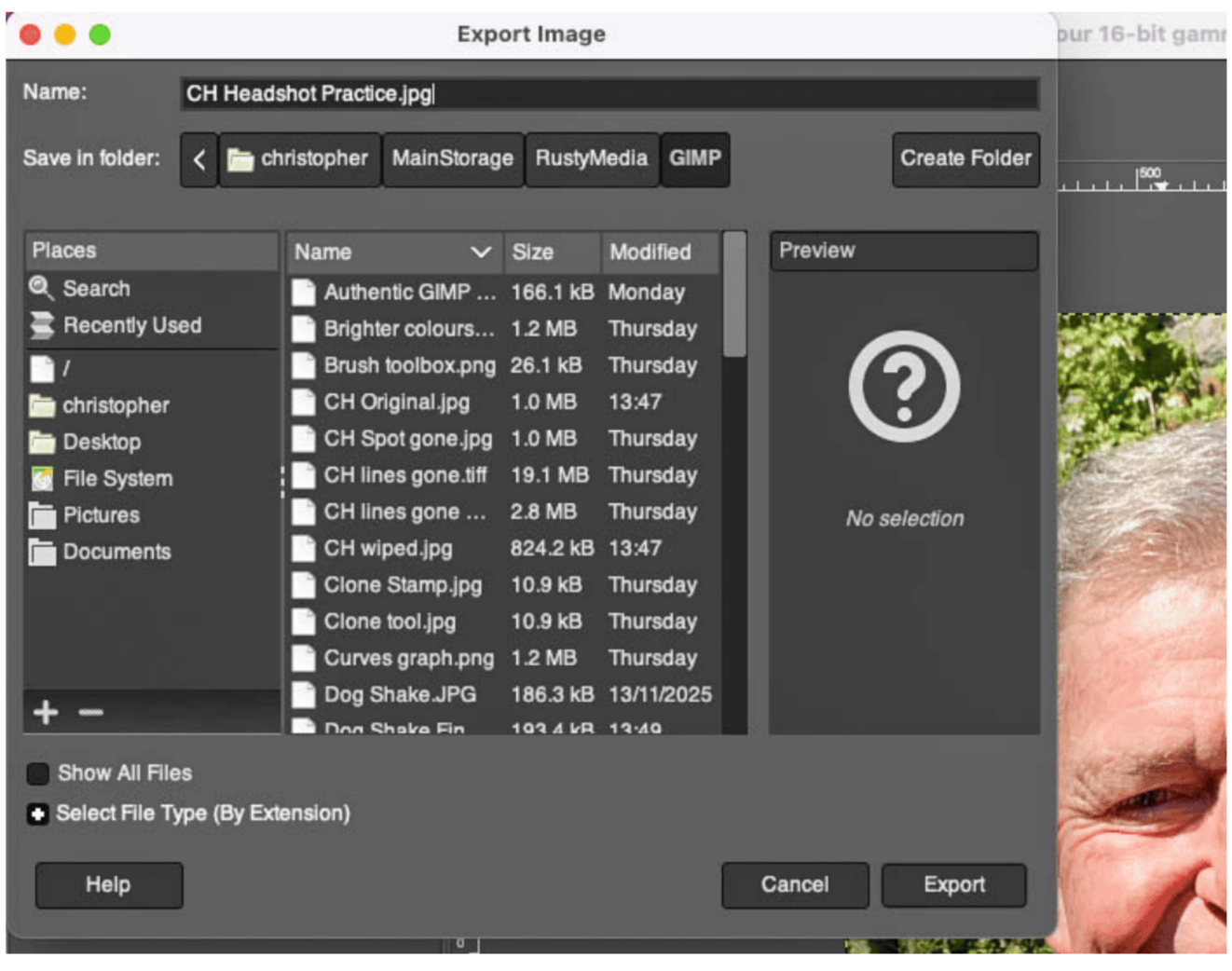


Export As



Uncheck all options



Rename the file as a .jpg

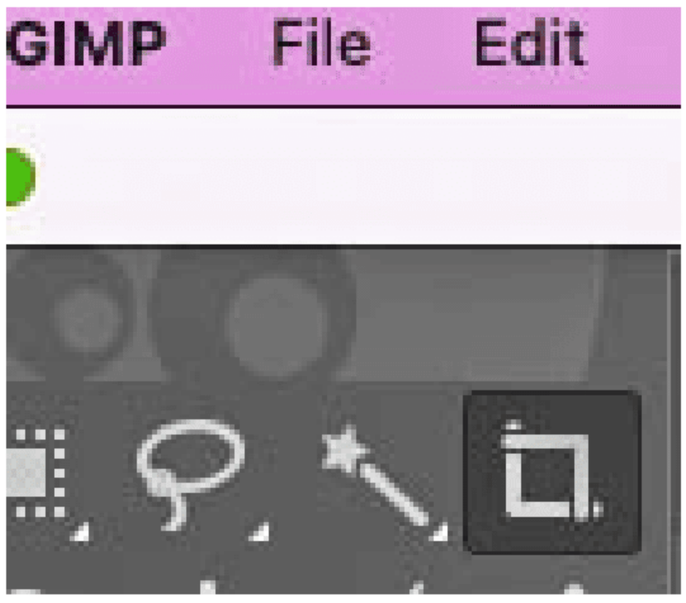
data-harvesting and advertising mill. If you do not see a version of the screen shown on the previous page for your computer type, start again – something has gone wrong. Choose 'Download for [computer type] directly'.

Follow the simple steps to install GIMP and open the app. You now see the GIMP workplace.

Using File/Open, open the picture you want to tune up. Crucial first step: now export the image, giving it another name so you don't accidentally destroy it. Do not use the usual 'Save As …' Use 'Export As …' instead.

In the image I chose, I have called it 'CH Headshot Practice'. If the file extension is .HEIC or .png or something else, change it to .jpg, the universal photo type, simply by replacing the letters.

Click on Export. This brings up a confirmation screen with a lot of choices about saving XCF data and other things. Unselect all of these; they are not important for our purposes, and saving all that graphics data will make the file grow to an enormous size. An ordinary snap can end up using 20Mb of hard-drive space because every time you make the smallest change, it saves it as a new picture hidden in the same file. We



Crop tool selected

don't want that.

Now to work. First, we will look at a couple of optional adjustments to the whole image, then get down to the surgery.

Use Crop first

In the photo of the dog, I wanted to remove the piece of farm equipment above the dog's head.

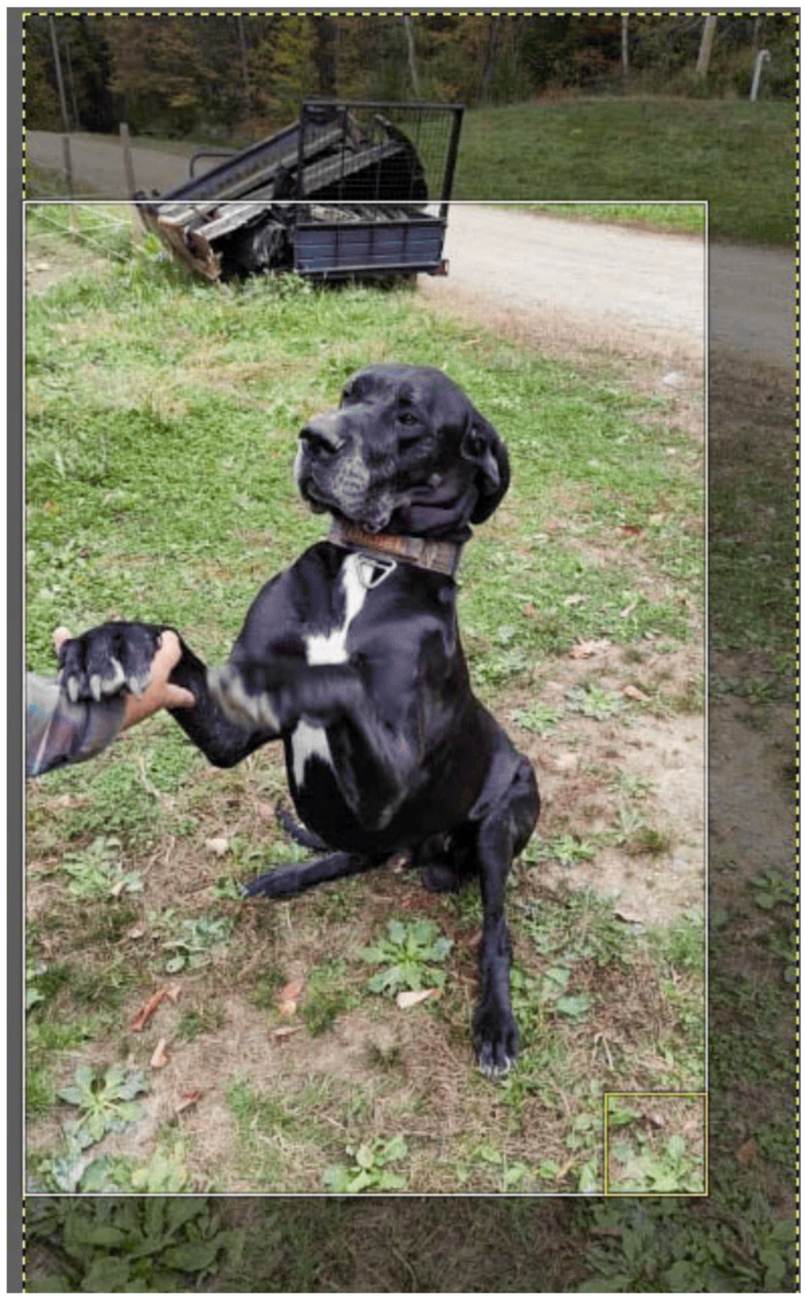
I knew I was going to have to get fancy to get rid of it entirely, but I figured I could reduce the amount of retouching and still have a good shot by cropping out half of the unwanted intrusion. This could hardly be simpler – select the Crop tool from the Toolbox in the upper left-hand corner of the screen: place the cursor where you want a corner to be and drag it to select the optimum area of the image. Little oblong handles appear whenever you hover over a side, so you can re-frame the picture horizontally, vertically, and diagonally. Hit Enter, and the crop is done.

Add a little wow!

Let's make sure the exposure is perfect.

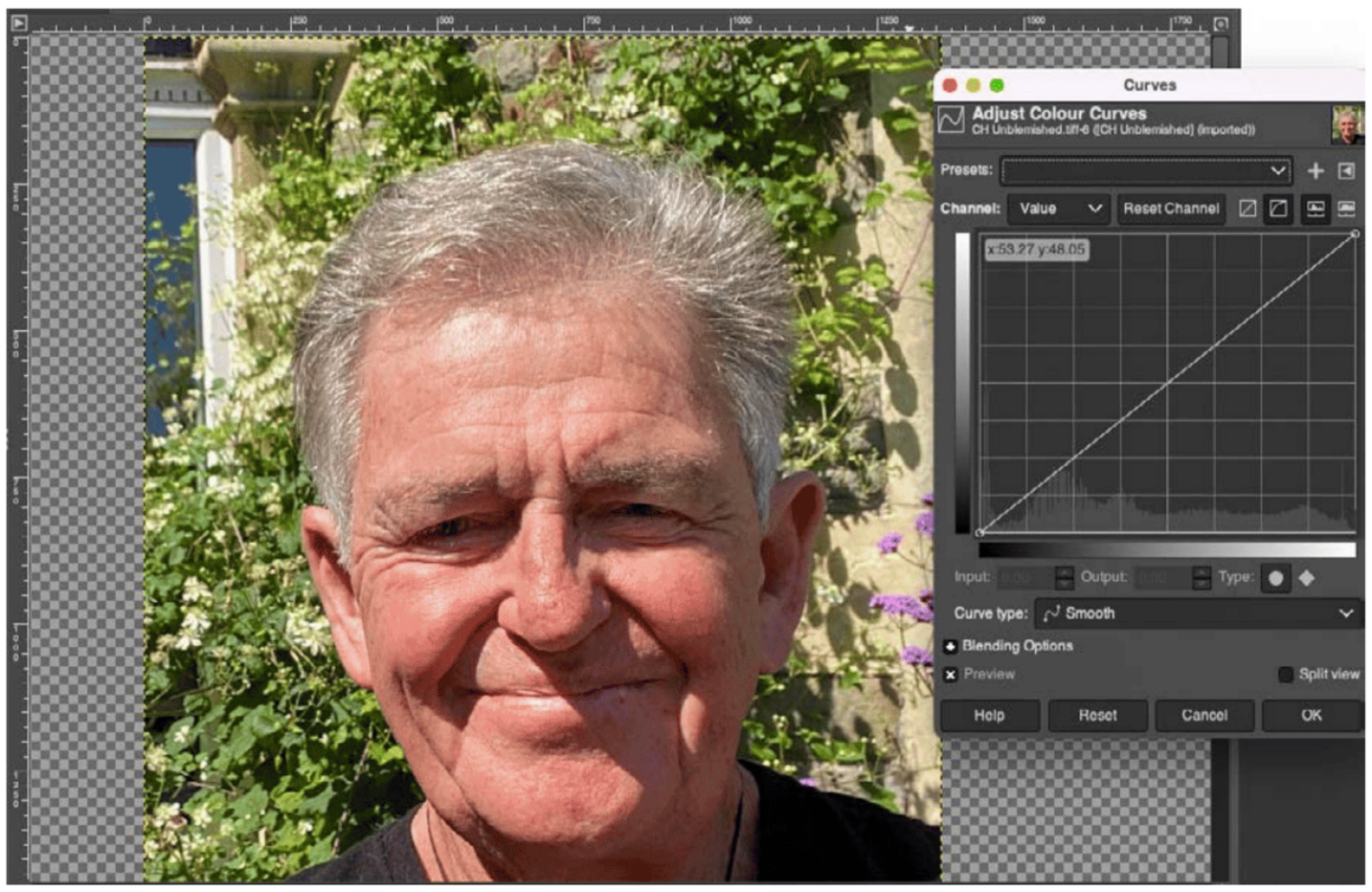
If the photograph is a little dull, maybe because you took it on an overcast day or indoors, or too bright for the opposite reasons, we can fix that to make it look its best. Zoom out by clicking the – key until you have the whole picture surrounded by the chequered background.

Then, from the Menu bar, select Colours/Curves. A window with a straight-line graph will appear. Grab the window by its menu bar and drag it to the side so you can see your complete image. Click and hold in the middle of the line of the graph and drag it diagonally up and down. The picture

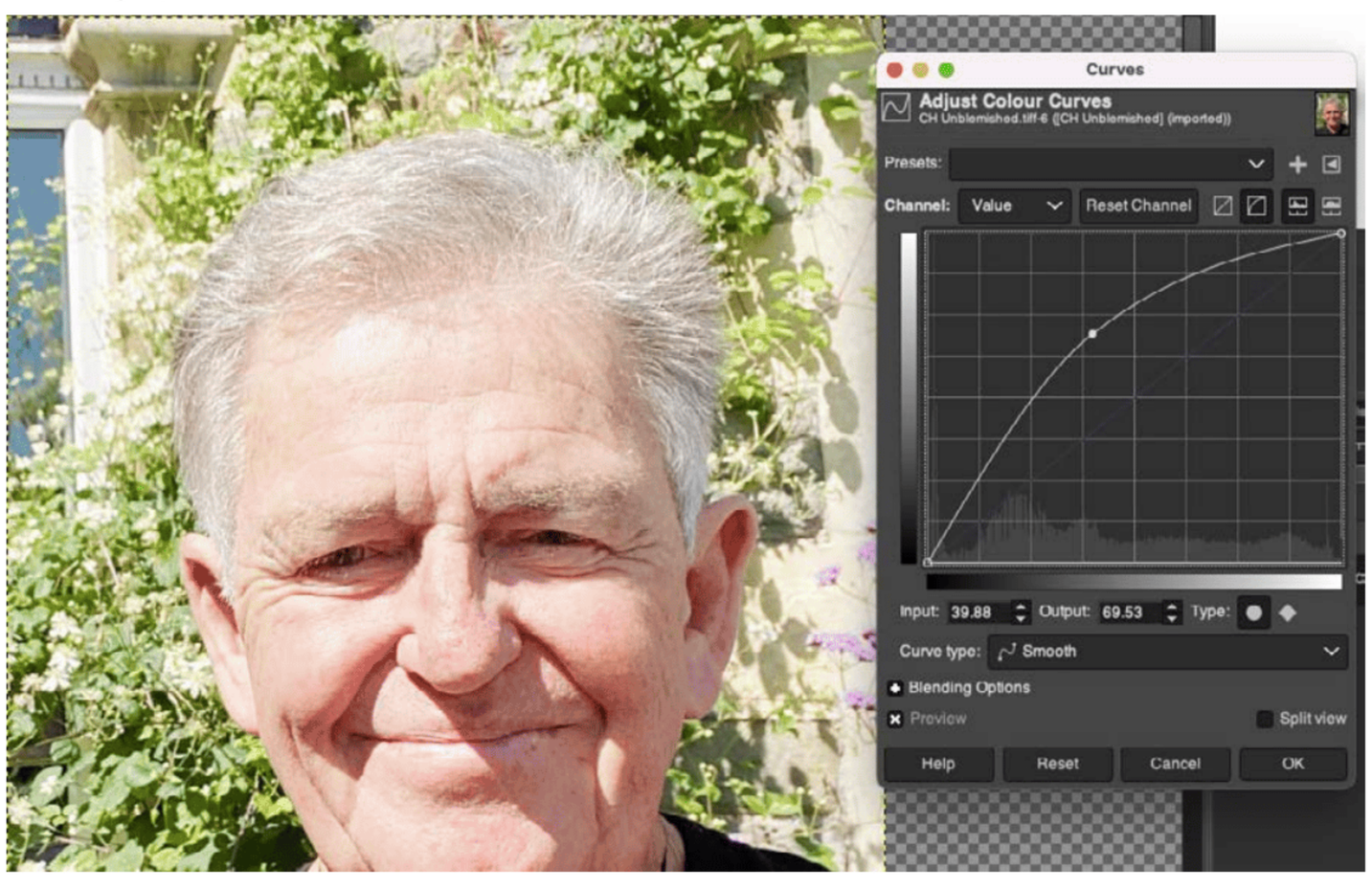


Dog shot being cropped

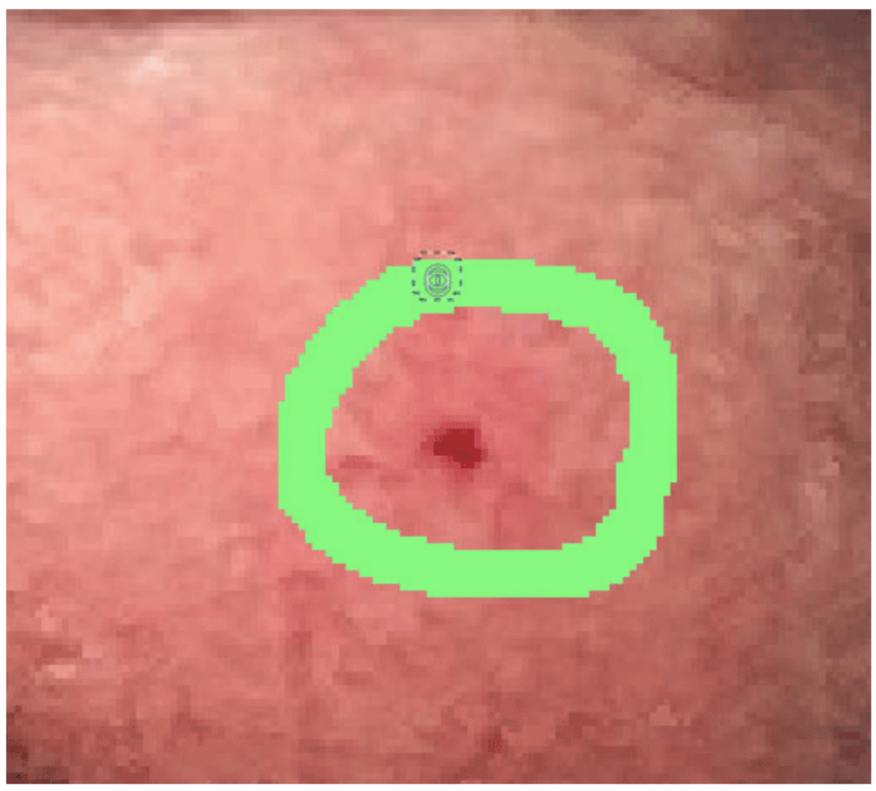
> "Pushing the colour curve brought out the highlights"



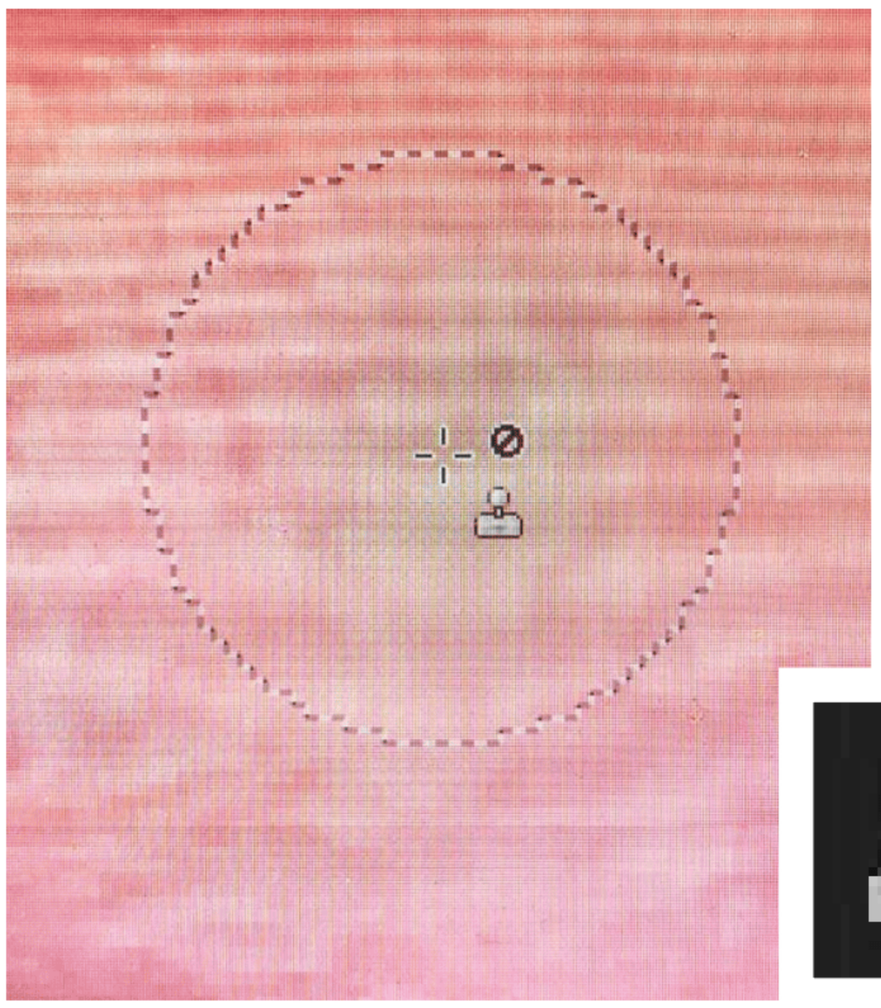
Curves graph



Not too much or you will wash it out



Spot the spot



Initial Clone dotted circle

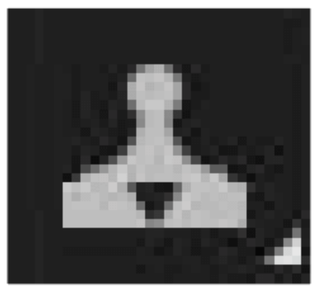


Brush toolbox

> “Picking a piece of skin of the right tone and painting it over the bit you don’t like”

will grow brighter and duller. Once the picture looks its best, click OK. Now we can start cleaning it up.

In the Before and After examples at the head of this article, you can see I have brightened both of the After shots in this way. There was nothing terrible about the originals, but pushing the colour curve brought out the highlights like the shine on the dog’s coat and the green of the grass.



Wave the magic wand

The tool we will use almost exclusively is Clone.

The name makes sense because what this tool does is select a piece of your photo and stamp it over the top of the area you choose. What we are going to do is remove spots and wrinkles by picking a piece of skin of the right tone and painting it over the bit you don’t like. Let’s start by getting rid of that spot on my right cheek.

Zoom in on the spot by holding down the Shift key and repeatedly pressing the + key, dragging the image as required to place the spot in the centre of the screen and make it big – really big. We are going to work at the level of a few dozen pixels at a time.

If necessary, zoom out again by repeatedly hitting the – key until you can see a bit of skin that matches the tone of the skin surrounding the spot. We are going to pick that area and paste it over the top of that pesky spot.

Get used to zooming in and out and dragging the picture around. We are going to be doing that a lot. Go to the Clone tool and click it. It is represented as an old-fashioned rubber stamp.

Then choose the correct brush by clicking on the little Brush window in the toolbox to the mid left of the main screen. Click on the small, fuzzy, round one. Make sure the Opacity is 100%. If you find that the area you are trying to fix still shows through your work, it will be because the Opacity is not 100%. Leave the other values below at their defaults.

Move the cursor around the image. You will notice that you now have a dotted circle instead of an arrow. The Stop signal will disappear as soon as you start to use it.

See the magic

Press the [and] keys a few times. You will see the circle grow and shrink.

This is also something you will be doing many times, so get used to it. Now make the circle about half the size of the area you want to paint over. Place the circle over a piece of skin of the right colour and size (your source point) and do Ctrl/click once (Windows) or Cmd/click (Mac).

Now move the cursor over the

spot to be removed. You will see that you now have two circles, one around the source and one around the target.

Click once and see the magic! One or two clicks and the spot has gone. Zoom back out just to appreciate the effect.

Time to get to work. Remember, this is a practice image, so don't worry about mistakes. Also, by repeatedly pressing Ctrl/z and Ctrl/y keys, you can step backwards and forwards through your work history, immediately reversing out of any mistakes. Pick another blemish, or maybe a wrinkle, and get rid of it. Get used to the tools, zooming in and out, and making the brush bigger and smaller.

Note that the tool works in two different ways. By clicking repeatedly on the target area, the source circle remains in the same place, and you place those same pixels again and again as you move around.

By holding down the mouse key and dragging, you drag both circles around, replacing a patch of the target area with a patch of the source area of the same size and shape. Experiment.

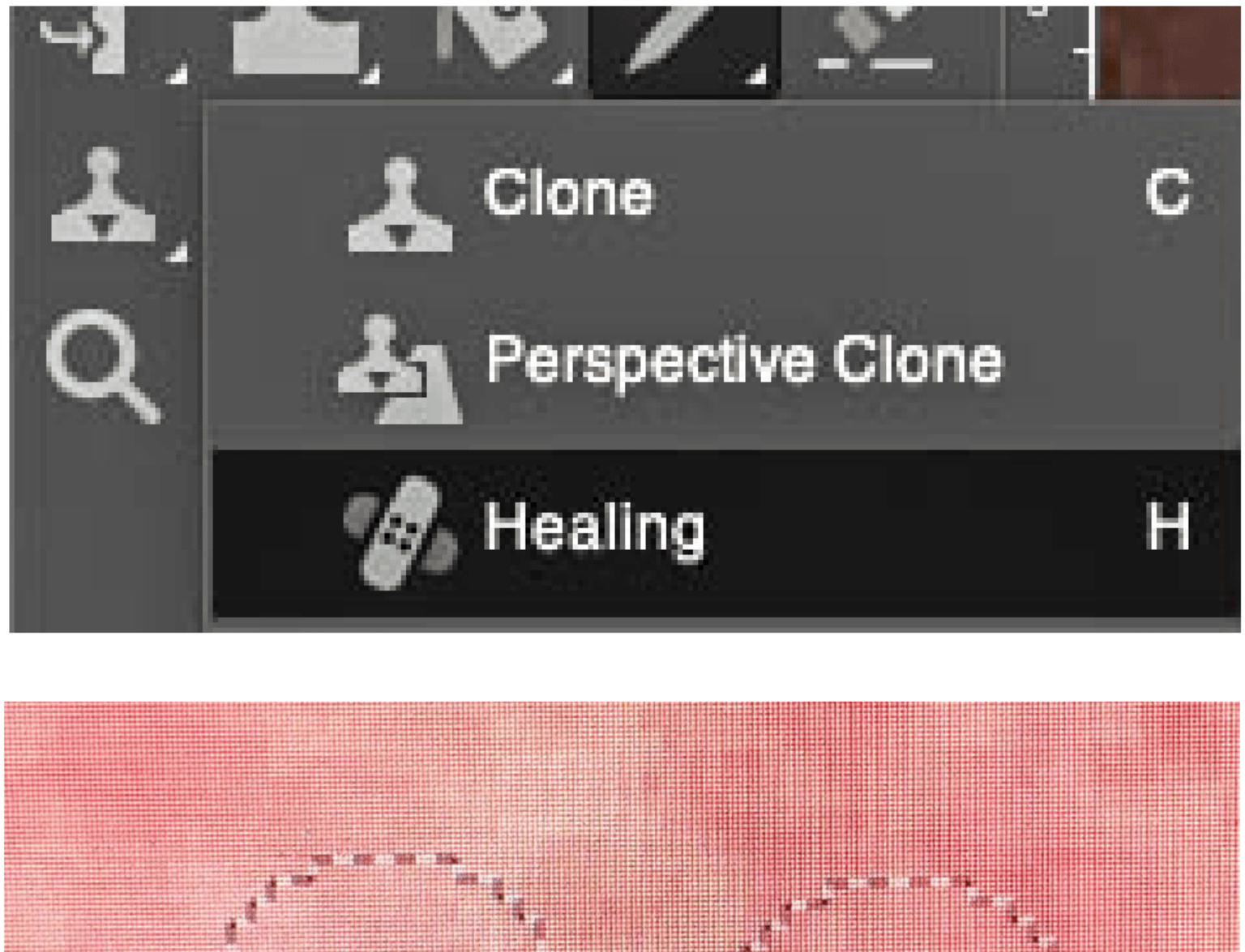
A couple of tricks

There is a variant of the clone tool called Healing, represented by the image of a sticking plaster.

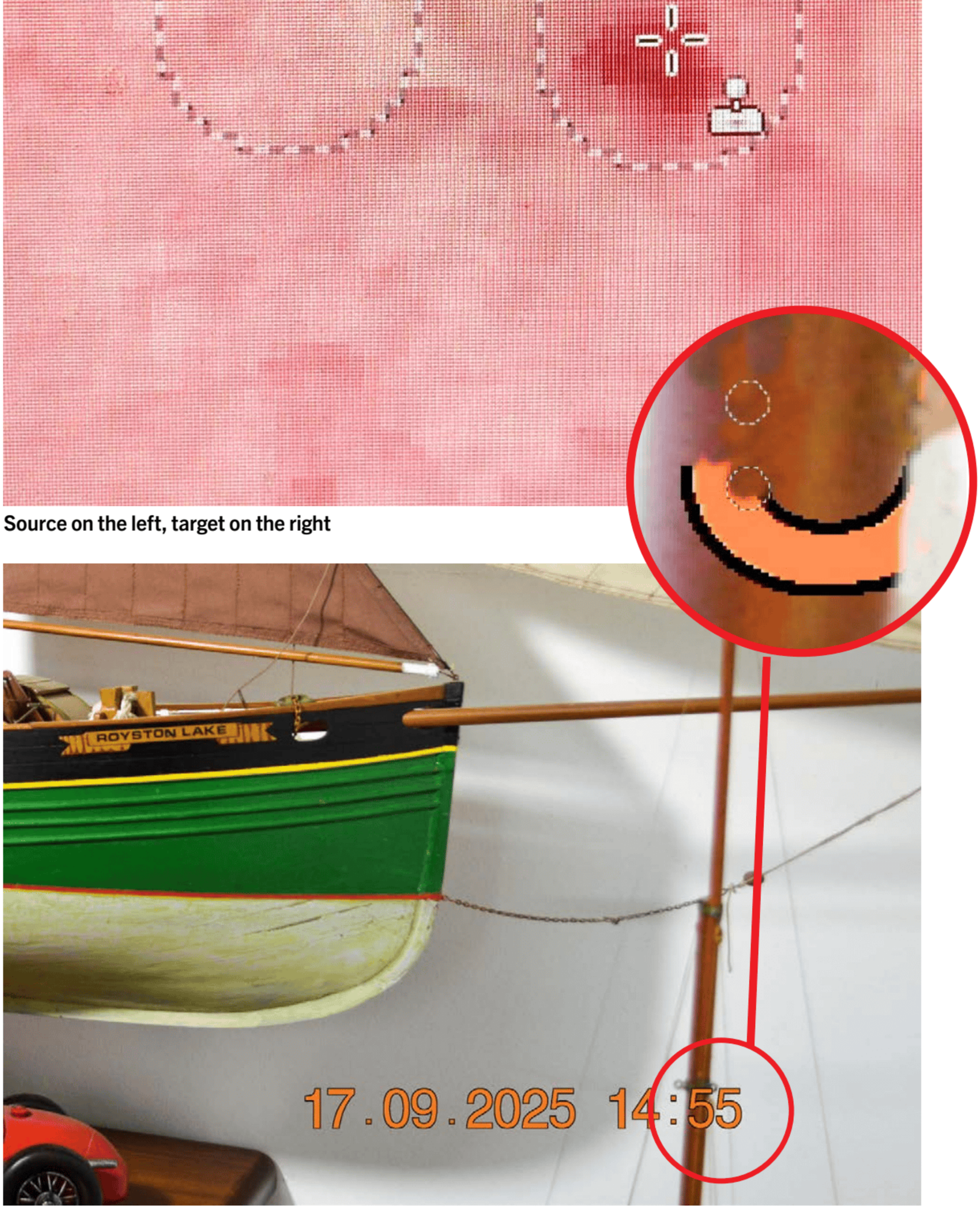
Once you have grasped how to use Clone, switch to Healing by clicking on the tiny triangle in the corner of the Clone icon in the Toolbox and selecting Healing. This can be a little buggy and doesn't always work the first time. If you have trouble, use the Menu bar: Tools/Paint Tools/Heal.

Clone works by blindly replacing pixel for pixel. Healing has some added intelligence, taking note of the source area's texture and colour while keeping the destination area's light and shade.

Sometimes you don't want this. For example, in the image Ketch,



Source on the left, target on the right



An image of a ketch with a time stamp. Inset: Dragging the clone tool to clone pixels over the numbers, erasing the time stamp



Result: a clean pic with no time stamp

I wanted to remove the date and time stamp from the corner of the image. Because of the variations of colour in the boat's mast, it worked better to use Clone and drag vertically across each section.

When clearing the numbers from the sail areas with their fairly even colouring, I achieved a better result by repeatedly clicking rather than dragging, as dragging left visible lines of variation. Where there were visible differences, I cleaned them up by smudging.

Smudge

Occasionally, you may want to even out the result in a small area.



Do this using the Smudge tool. Its icon looks exactly like its name, and it does exactly what you would expect: smudges. Again, experiment.

When you have the image you want, export it as a .jpg. Note that when you go to close the file, it will warn you that you have unsaved changes. These are the unsaved changes in the original file and all the accompanying data. Once you have exported your finished work, you have no need to save the original. Click Discard to finish.

Intrusion removal

After cropping the dog picture, I was left with a bit of the machine still hanging over the dog's head.

First I extended the road verge through the top part of the machine. Then I picked matching patches of bushy grass and dealt with the rest.

That's it. You can now retouch photos like a pro – and all for free.

Advanced photo manipulation

I have deliberately kept this as simple as possible, but in truth, the sky is the limit.

GIMP is a very powerful application, and the game really gets going when you start lifting stuff from one image and putting it in another. Dress your beloved in Versace with the Queen's tiara on her head. Turn the pic of you holding that three-pound snapper into one with a seventy-pound kingfish. For that, you need to delve into the world of Layers, but it is not hard once you are comfortable GIMPing your way around images.

Have fun!



Road verge extension



Resene Paint Expert Jay Sharples shares his advice for painting in hot weather

Keeping you and your paint cool is important, so try to avoid painting in direct sunlight. Overcast conditions are best, but if a cloudless day stretches out ahead of you, a good plan of attack is to start early, ahead of the sun, and work your way around the building, keeping ahead of the sun as you go. Take a break during the hottest part of the day, for the sake of your finish as well as your health, or use that period to prep, for example sanding or priming surfaces.

Tip Use shade protection where you can. A gazebo or large sun umbrella will help keep you and your Resene products cool, while allowing you to continue painting even in the heat of the day. Keep in mind that if the surface you're working on is dark, it will get hotter in the sun than light coloured areas. With this in mind, it is a good idea to try to do your darker areas when they are in the shade and are cooler. And if you do have to paint in direct sun, try to paint the darker areas first before they heat up. If darker areas are already very warm to touch, give them time to cool down and work on lighter coloured areas first.



Tip Resene Hot Weather Additive will help combat the effects of scorching temperatures on your finish – add it to your Resene waterborne paint to slow down the drying process and give a longer wet edge. "Resene Hot Weather Additive really helps with the flow of the paint for a great, professional finish," says Jay. Avoid over working or overspreading the paint as this will make it dry faster and is more likely to lead to a streaky or patchy finish. Paintbrushes need to be considered when it comes to painting in hot weather. Wrap your brushes in a reusable plastic bag to keep them fresh during breaks. You can do the same with your roller and roller tray too. If you find your paint is drying too fast, which can be a common problem during hot weather, Jay suggests lightly pre-dampening your surface with water.





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LEARNING HOW TO VENEER

Master craftsman Edward Prince joins *The Shed* team to share his woodworking skills and vast knowledge. In this first article, he shows how a piece of furniture can be transformed by using veneers. The skilful use of veneers can transform a dull but sound carcass into a dramatic display of craftsmanship

By Edward Prince | Photographs: Edward Prince and Jason Burgess

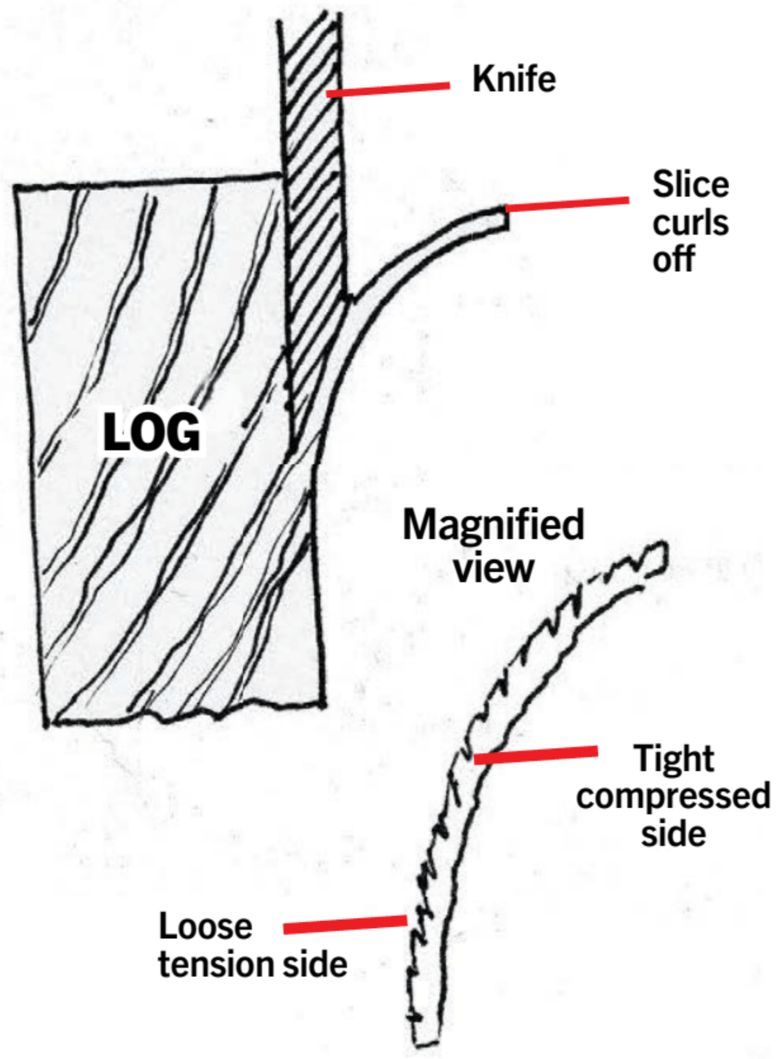
In my first term at art college, we had a set project to make a chess table, which involved wood turning, carving, some basic jointing processes, and veneering.

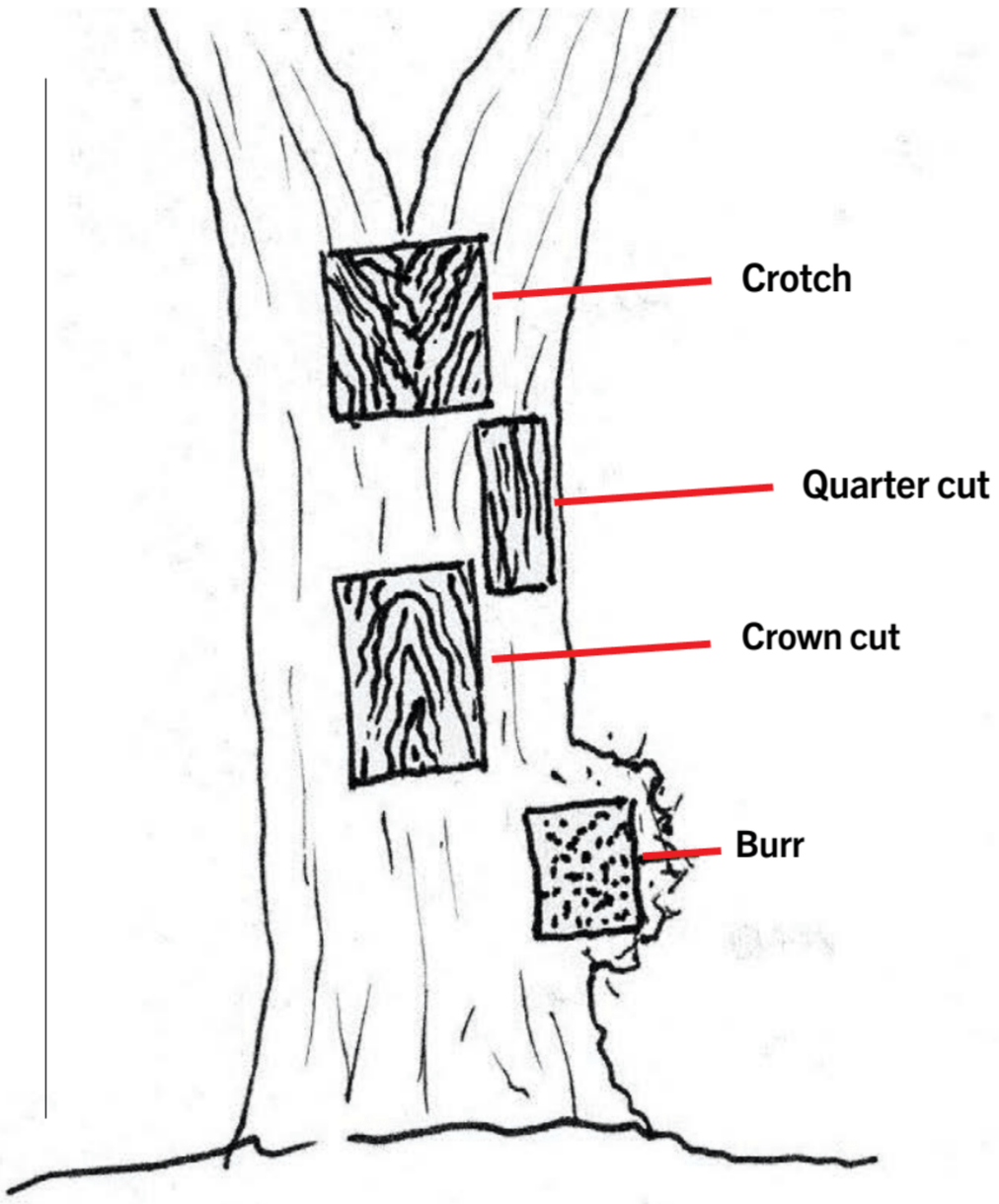
Messing about with beautiful pieces of thin wood appealed to me the second that I found out it was a thing. Over the years, I have continued to incorporate veneering techniques in my work. Last year, my wife and I enjoyed a 60th birthday in Sorrento, Italy, which coincidentally turned out to be the home of decorative marquetry in Italy.

All through the town centre are small workshops with craftsmen selling wooden things covered with veneered marquetry patterns and pictures to tourists, some quite exquisite and unique. We visited the museum of inlaid wood (Museo Bottega della Tarsia Lignea), seeing an incredible collection of ways to use thin layers of wood to decorate furniture and objects from 1400 to 1800. There is also a gallery of modern techniques and workshops for students.

We saw a range of pictures and patterns, including:

- parquetry: geometric patterns glued onto a surface
- intarsia: setting wood into a surface
- boulle: inlay of brass and pewter into tortoiseshell
- Tunbridge ware: fine sticks glued to form pictures and then recut into thin slices. ▶





Veneering

This article arose from a project modifying the top of a college project. The bare bones were fine but tired and dated. The result shows how a piece of furniture can be transformed by using veneers. The skilful use of veneers can transform a dull but sound carcass into a dramatic display of craftsmanship, with beautiful woods and artistic expression using images or patterns.

The dictionary defines a ‘veneer’ as a way to cover up shoddy work. Yet nothing can be further from the truth. Using thin slices of wood enables highly decorative, rare, or expensive timbers and timber that has no inherent strength, is too fragile and delicate for structural work, and is too hard to work in its solid form, with deeply interlocking grain, to be used in a non-structural way to cover a suitable substrate that enhances an object with stunning impact.

History

The practice of using thin decorative slices of precious and rare timber to embellish objects has been undertaken since the ancient Egyptians, who also used rare metals, shell, stone, and ivory.

Veneering reached a high mark during the Georgian period and has recently developed into an art form with exponents like Silas Kopf. In modern times, with synthetic adhesives, the use of veneer is a way of making a valuable resource last much longer than using solid timber.

Types of veneer

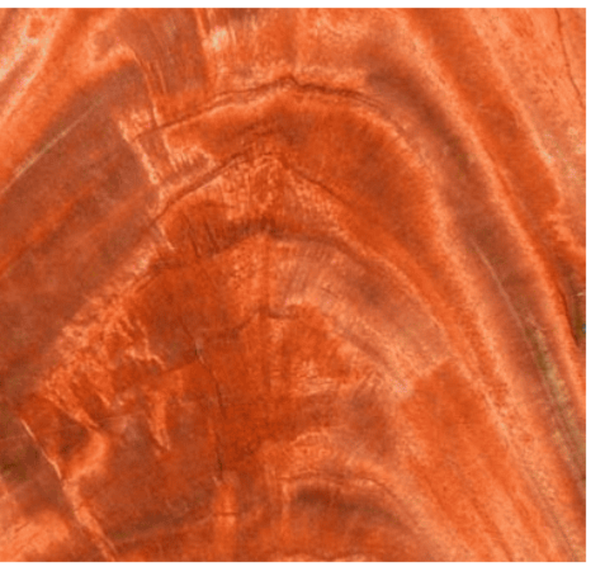
Veneers are sliced from specially selected logs, which have been prepared by boiling them in water to soften the wood’s lignin to make slicing easier.

The most common way that veneers are sliced is ‘rotary peeling’. This process is commonly used to make plywood and some decorative veneers like bird’s eye maple. The slices of veneer are called ‘leaves’ and are bought in bundles called ‘flitches’.

The common decorative veneers are ‘crown cut’, with an arched pattern, and ‘quarter sawn’, with straight stripey grain.

There are many types of decorative veneers that are cut from parts of specific trees:

- burrs, which are bulbous-looking tree warts, reveal magnificent patterns and textures
- crotch cuts – from the fork of a tree’s main trunk and branches
- a multitude of grain patterns and colours caused by disease, insects, growth defects, decay and fibre orientation, such as mazur birch, which is caused by insects
- quilted mahogany



Crotch mahogany



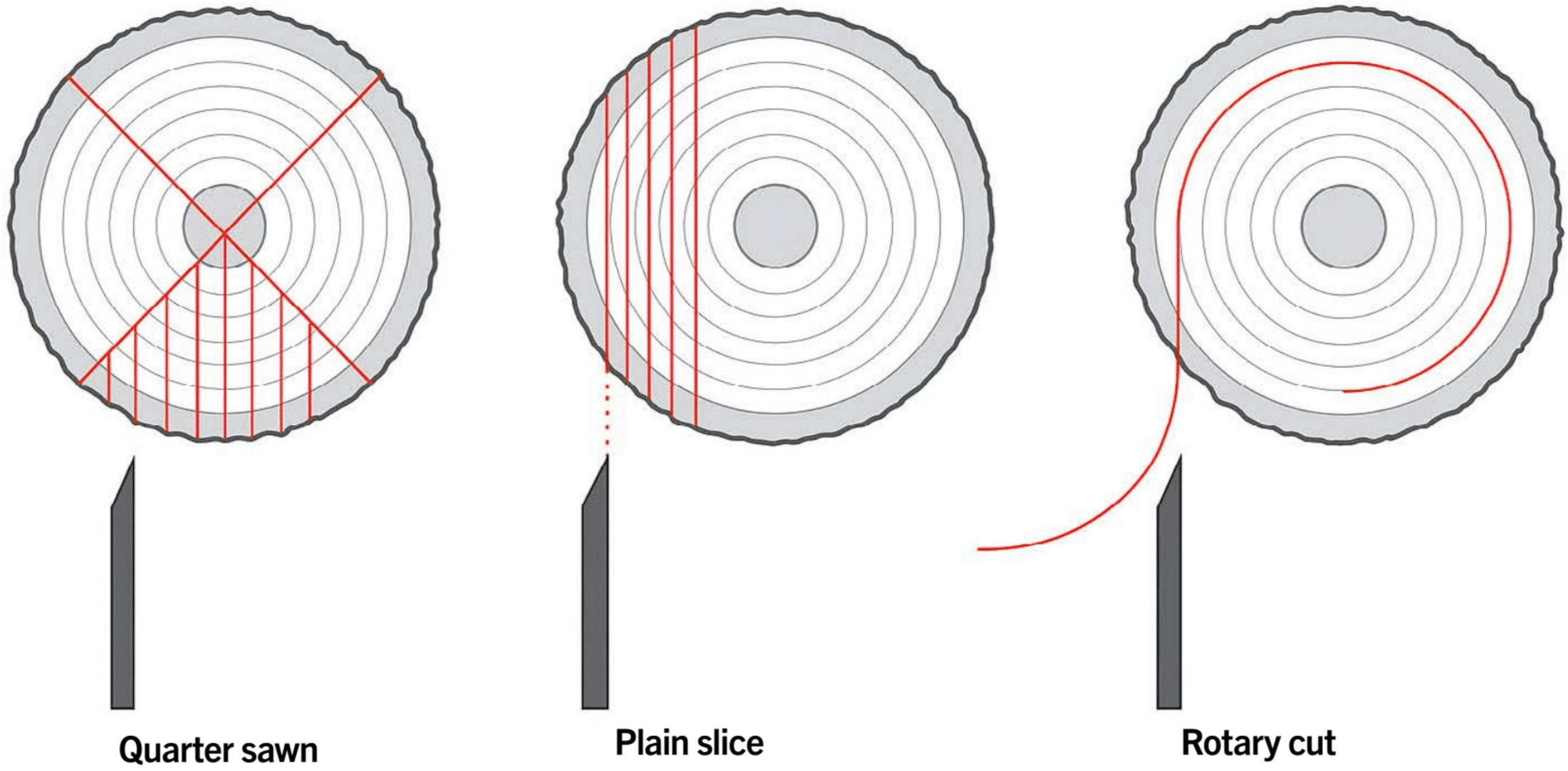
Crown-cut elm



Mazur birch



Quarter-cut zebrano



- satinwood – interlocking grain gives a three-dimensional satin effect.

Finally, there are manmade veneers, which can be very colourful and distinctive. Dramatic colours are achieved with dyes. A ‘reconstituted’ veneer is made by laminating and re-slicing coloured timbers with little character or value, producing a decorative veneer that can be patterned or look like a common timber.

Band-sawing veneers

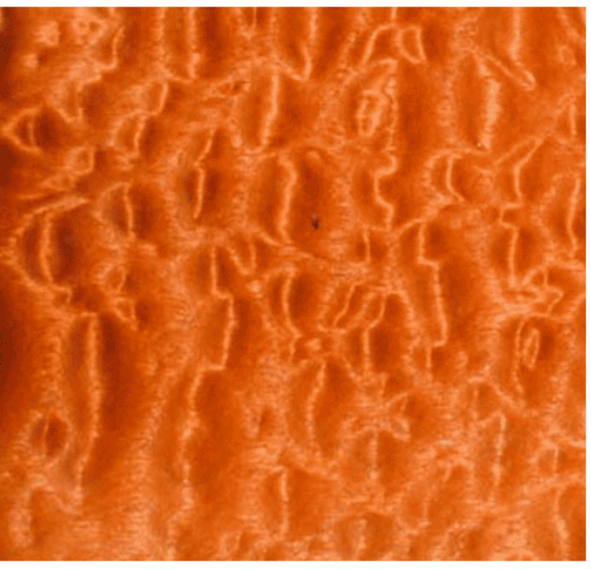
This is a good way of getting a nice book match from solid timbers that you can’t bear to throw away, with wild grain or attractive patterns.

If possible, mark a triangle on the end grain. This will help remind you of the sequence of cutting when you put the stack back together.

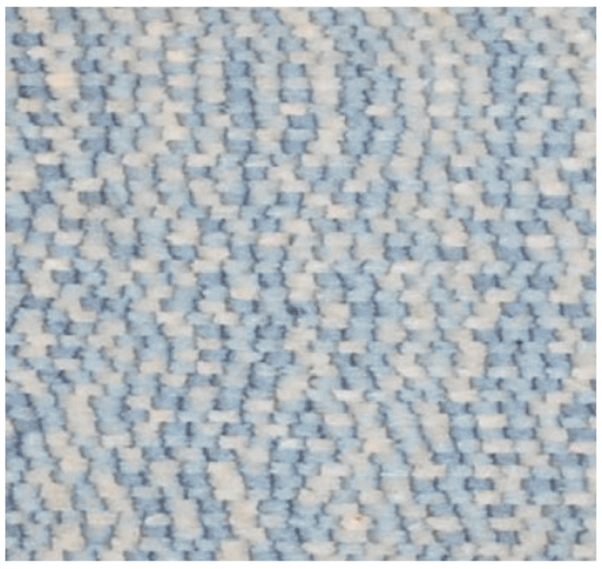
Make sure the bandsaw blade is sharp, the guide roller is just behind



Bandsaw veneer



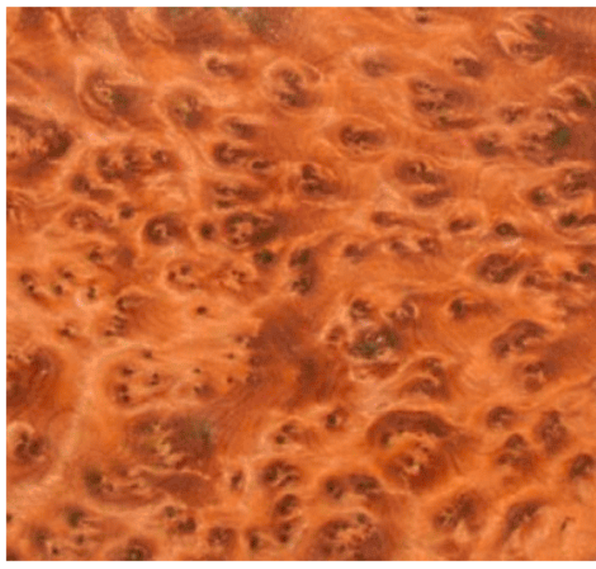
Quilted sapele



Reconstituted veneer



Satinwood



Thuya burr



Veneer tools

the blade, and the bushes just kiss the blade. Set up the table of the bandsaw with a fence onto which is attached a block with a rounded edge that is perfectly aligned to the vertical axis of the bandsaw blade set 4mm in front of the blade. Set this jig to 2mm or whatever thickness you want. Because blades invariably cut just off parallel, the jig enables you to cut thin slices and adjust the cut as you proceed. Cut your veneers, remembering to number them as they come off the saw.

Tools for parquetry veneering

Cutting mat: A self-healing A3-size mat is perfect. MDF is OK, but you will soon chew through bits of MDF as the surface gets cut up. A flat surface is essential for accurate work.

Sharp craft knife: A simple craft knife with snap-off blades is perfectly adequate for most tasks. Fine work is best done with a Swann-Morton knife and a 10A blade.

Straight edge: A simple metal ruler is fine; a thicker straight edge is better, as it is less likely that the blade can ride up the edge into your thumb if you angle the cut inwards.

Veneer tape: If you can't find specialist veneer tape, masking tape is OK, but it must have no stretch and maximum tack if you have the choice.

Veneer tape is thin with a water-soluble gum-based side. Pre-glued paper tape is also fine, but it tends to be thick and creates issues when you are cleaning it off at the final stages.

Veneer saw: These are very handy for all sorts of cutting. The saw is drawn towards the user and quickly cuts through packs of veneers without the blade following the grain, to achieve a straight edge. A fine-toothed pad saw is perfect for parquetry; it will leave a clean edge to be used in conjunction with a mitre box.

Fret saw: One of these is essential if you want to attempt marquetry.

They are used in conjunction with a vice-mounted cutting board to cut vertically through three layers or more of veneer.

There are many thicknesses of blades available from jewellery suppliers; you want a 2/0 size. Wood-cutting blades are far too coarse.

Cutting gauge: Used like a marking gauge, only with a blade rather than a point. Typically used for edging cross-banding when a veneer has been laid.

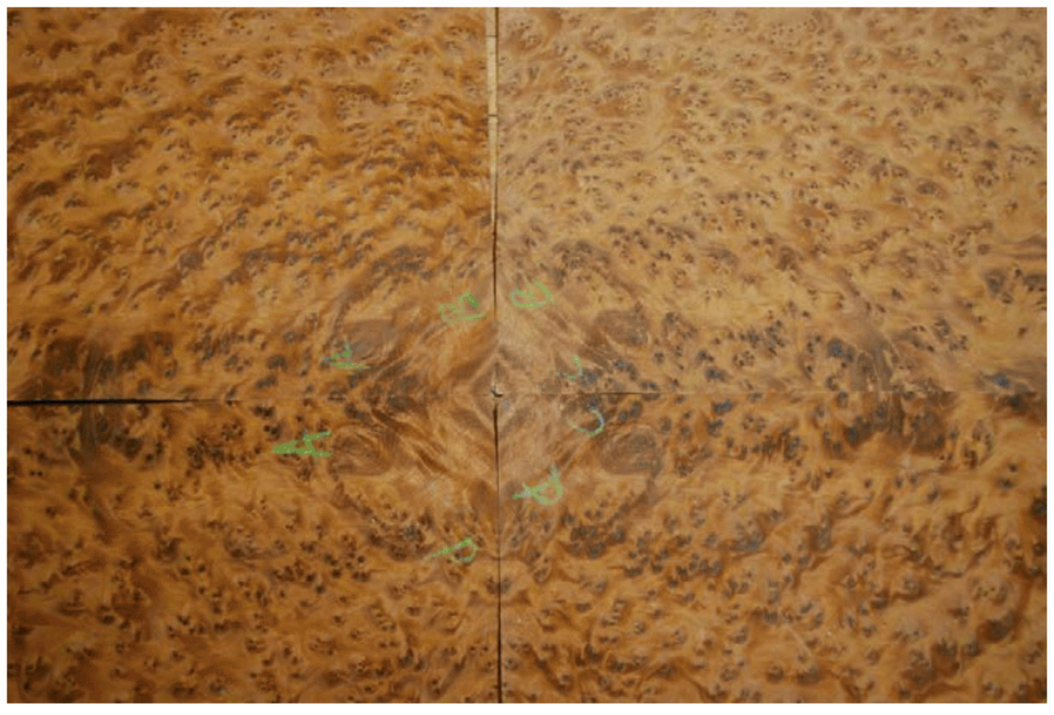
Jack plane: A Jack plane or larger is needed for shooting edges of long pieces of veneer when they are going to be joined to cover a big panel.

The plane must be well tuned to take off fine shavings; this means the frog is moved forward so that the gap in the mouth is very small. The blade is honed so it is sharper than a razor. Set the blade so it just takes off a fine shaving. Do not think you are going to save time trying to take off big, deep cuts; you will only end up smashing the veneer.

Veneer hammer: Traditional animal glues were applied to the veneer and substrate and then pressed flat with a veneer hammer. A messy and yet a strangely satisfying process as you rattle



Book match



Book match

your fingernails over the surface and don't get a hollow sound, detecting if the veneer has not stuck.

Types of patterns

Book matching: Make sure the grain matches when they are taped together; number each leaf before you start, then arrange them one over, one under, one over, etc., just like opening the pages of a book.

There can be problems with even coloured–looking wide panels due to the way the veneer is sliced. Light catches the ends of the fibres (like velvet), which reflect, forming a lot of light- and dark-looking panels like a mown lawn.

Herringbone: Cut at the desired angle through several leaves rather than in sequence on one sheet, as the change in grain direction will change and look twisted.

Quarter match: Shown are ABCD variations of edges from the top leaf of a pack of Thuya burr veneers.

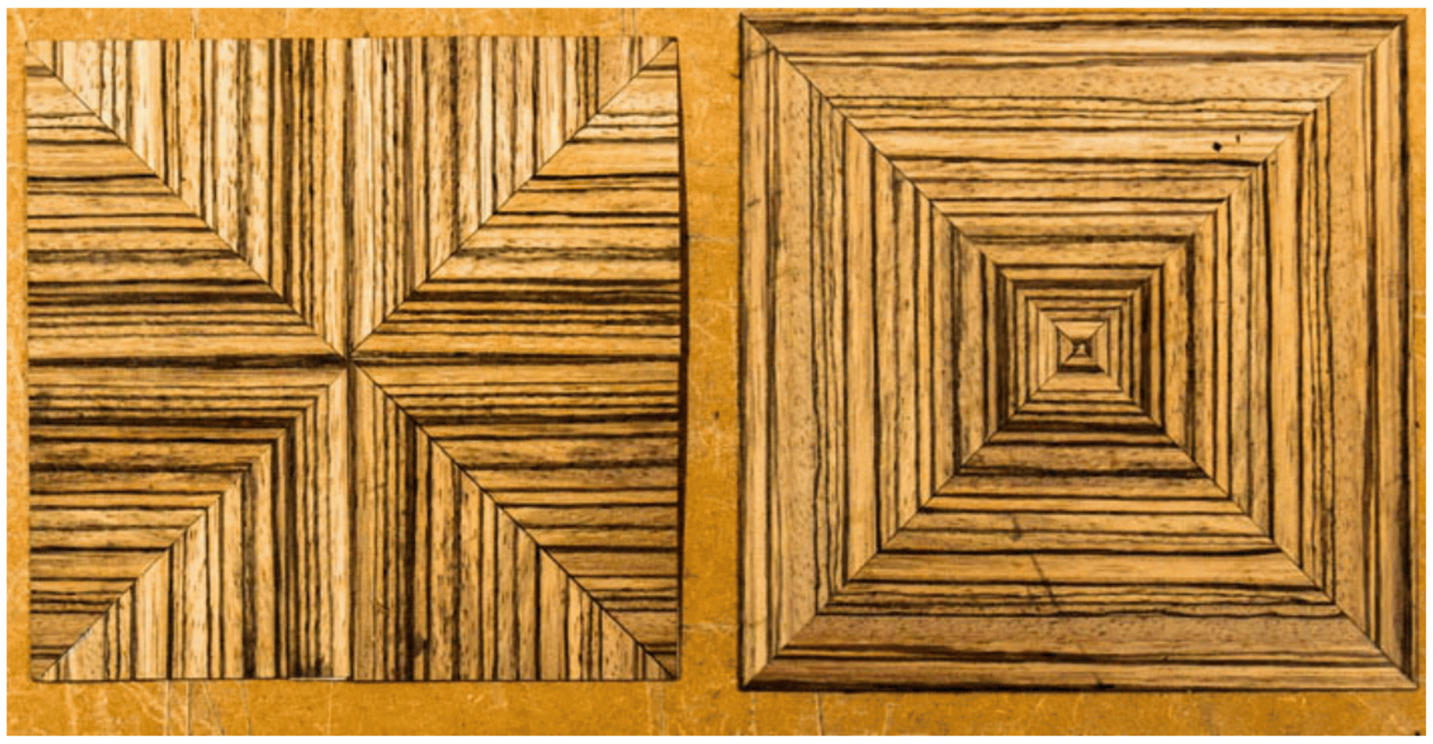
Diamond matching: For this to work effectively, you need four consecutive leaves. From the marked centreline, square the ends, measure 45 degrees from each side, tape all together aligning centrelines, tape corners, carefully cut through both layers of veneers from corner to corner, remove the offcuts from both sides, and tape the mitre joint.

Slip matching: Simple, no matching involved other than repetition of the veneer's grain patterns.

Random matching: Just like solid boards would look glued together. ▶



Herringbone



Quarter match (left) and diamond match



Slip match

Book match



CHESSBOARD PROJECT

Process for making a chessboard

The standard size for a chessboard is 500–550mm long with eight 50/55x50/55mm squares and a 25mm border.

Start by preparing a substrate, which should be a piece of clean, flat, defect-free plywood or MDF. It is important to make sure that you add a backing veneer for thicknesses less than 12mm; if you don't, the board will cup as the top shrinks and the bottom swells with changes in temperature and humidity. Edge the substrate with solid clashing mitred at the corners.

Select enough veneer to cut four dark strips and five light strips of wood. Note which is the face side and therefore needs to show uppermost – you do this by flexing the veneer along the grain; the side with the most curve is the back. This is a result of the way veneer is produced. If faces are mixed, this can result in a patchy look, as light is refracted differently, just like the nap on velvet.

If the veneers are buckled and far from flat, dampen each one, leave it for a while to absorb the moisture, and put it between two boards and clamp it flat overnight.



Step 1 – the strips

Mark out strips to be cut 51mm wide – the extra 1mm is for planning to 50mm, so you get a straight edge and a tight join when taping the veneer. Number the strips 1 to 8 to keep the grain consistent throughout the board.

Place a heavy straight edge over the veneers and, with a sharp knife, gently, with virtually no weight, cut through the veneers. Draw the knife at least five to six times. Do not force the knife; let it cut on its own, or it will just follow the grain, and you'll end up with a gappy join later. More light cuts are far better than a few impatient forced cuts.



Step 2

Stack all the strips together and plane the edges so they are perfectly straight. The stack of veneers is held between two boards and clamped in a vice. Or you can also make a shooting board, which works in the same way but is easier to control. Set the veneer to just protrude no more than 1mm. If it protrudes too much, it will collapse when you try to plan it. Set a sharp plane to a fine cut, and lightly and gently shoot the edges. Turn the stack over and plane the opposite edge.



Step 3 – joining

Align one end, pull edges together, and tape together at both ends plus a strip in the middle, then a long strip the length of the join holding both sides together.

Masking tape is OK; paper gum tape is brilliant. Slightly pull the masking tape, and check that the edges are not overlapping.

Step 4

Make sure that each strip is taped throughout its length. Number each strip in sequence, then draw a triangle over the entire width of the strips. This will ensure the strips remain in order when you reassemble.

Use a roofing square to mark a square end and trim the ends of the taped strips flush.

Measure eight 50mm spaces on both edges of the square, then cut eight strips. Keep these in order, then offset the colours and tape the strips together, making sure the corners match up and there is no step showing.

Step 5 – border strips

Make up four border strips that are at least 100mm longer than the chessboard.

Here you can be as elaborate as you want, creating your own marquetry or parquetry patterns, exploiting the decorative qualities of many different woods, natural colour, grain, and pattern.

Step 6

Tape the border strips in place, overlapping the corners completely. Put a straight edge on a point at the inside and outside corners where the border strip crosses. Gently, using many light cuts, work your way through the two borders. Use more light cuts, especially if you have a mixture of soft, easy-to-cut woods and very hard, dense woods (e.g., ebony, rosewood) that cut differently. Remove the scrap part of the border and tape the mitre joint together.

Step 7 – ready to glue

The veneer is ready to be glued to the substrate.

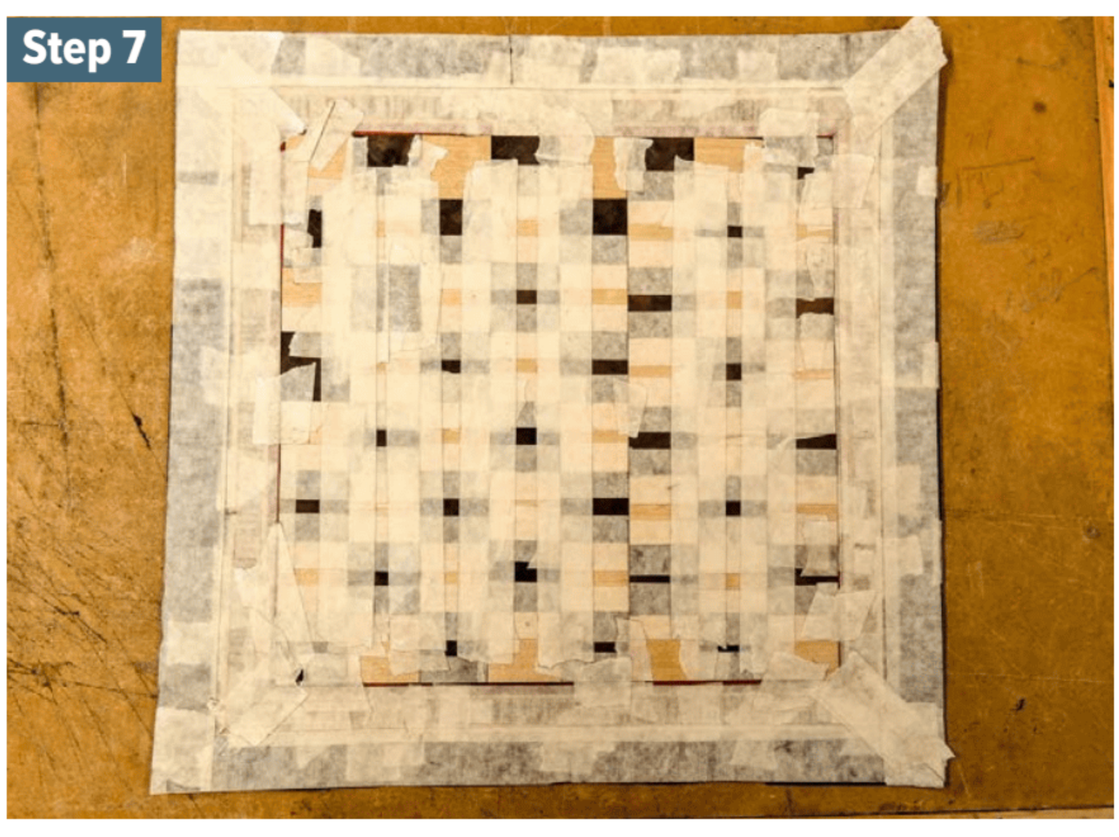
There are three types of adhesive you can use for veneer work. For most work, PVA/aliphatic resin is the best choice. Urea formaldehyde is used commercially for glueing veneer to MDF and plywood. It does not have the problem of making the veneer swell due to water content, and has a longer working time. Finally, contact adhesive can be used but is not recommended, as it has a thick glue line, stays soft, and moves with temperature variations that will crack polish and lift at glue lines, plus it is very hard to reposition prior to pressing if not placed perfectly.

Get the baseboard and spread a thin layer of PVA/aliphatic resin on the surface. I have a small paint roller that I use to spread the glue evenly. Do not use too much glue because the veneer will absorb the water in the adhesive, causing it to expand, and you will have ripples in your work when taken out of the press. Obviously, too little glue and the veneer will not bond sufficiently. Make sure the edges are not starved of glue, and wait a couple of minutes for the adhesive to be absorbed into the substrate. ▶











Step 8 – clamping

Put the veneers with the tape facing up and check that they are aligned with the edges correctly.

Gently tape the veneer into place on the edges to stop them slipping, and then put it between two thick boards (preferably with stretcher battens) and clamp from the middle outwards. Don't try to squash it to death; you will squeeze all the glue out. Apply just enough pressure to keep it flat. Leave aliphatic for 24 hours or more. Take it out of the clamps and gently remove the tape. If you use paper tape, use a damp cloth, wait for a minute or two, then peel the tape off and use a cabinet scraper to get the surface clean. Take care not to get the surface wet to dissolve the adhesive holding the veneer.

If you are using masking tape, take care to pull masking tape off across the grain at 45 degrees. If you see it pulling up the wood fibres, stop and pull from the opposite direction, pulling the tape low and slow. Stubborn bits that refuse to cooperate can be removed with thinners and then sanded. Leave the panel to dry.

Checking the completed surface

You can check that the whole surface is pressed down properly by tapping your fingernails over the surface, listening for a hollow sound.

If you have used PVA/aliphatic, you can slit the bubble easily in the glue with a thin knife blade and then use a hot iron, which softens the glue again, and press down bubbles with a veneer hammer or cross-pein hammer.

It can be faster to remove residual glue with a cabinet scraper if the grain is not too gnarly before sanding.

You have to remember the veneer is only 0.6mm thick and is very easy to sand through in no time.

Avoid using coarse grit, start with 120-grit abrasives, keeping vigorous sanding to a minimum, and take care at the edges.

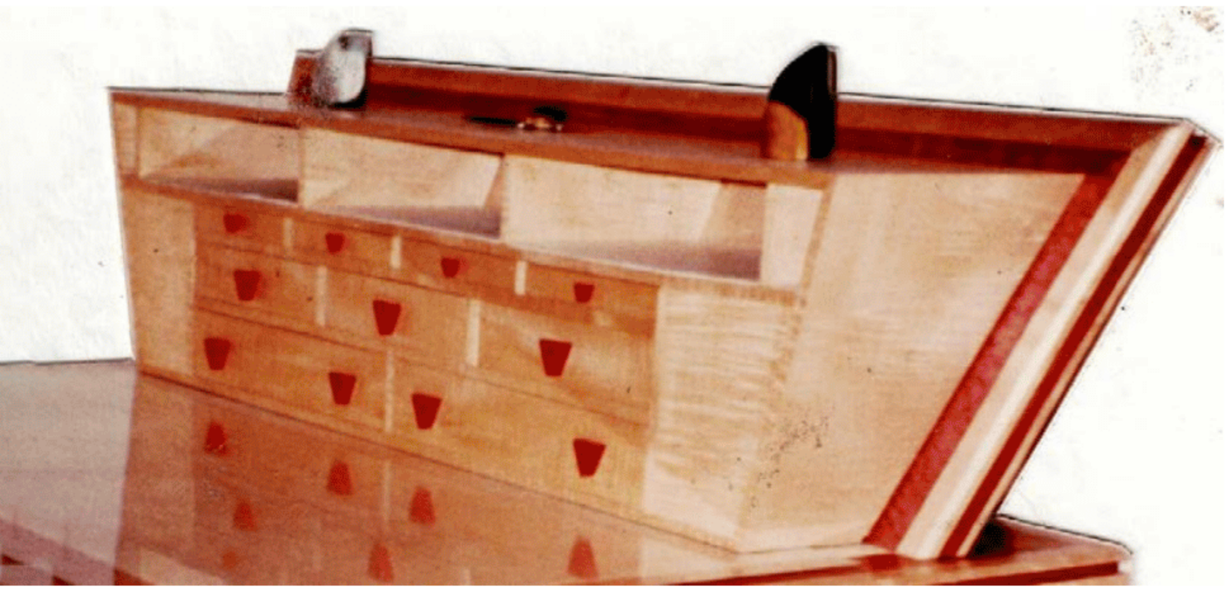
Seal the sanded board with whatever polyurethane, lacquer, shellac, or oil you like. Then enjoy a game of chess with a friend, while you work out how to make a backgammon board.



Tāniko wine cabinet



Henry decanter box



Desk top before



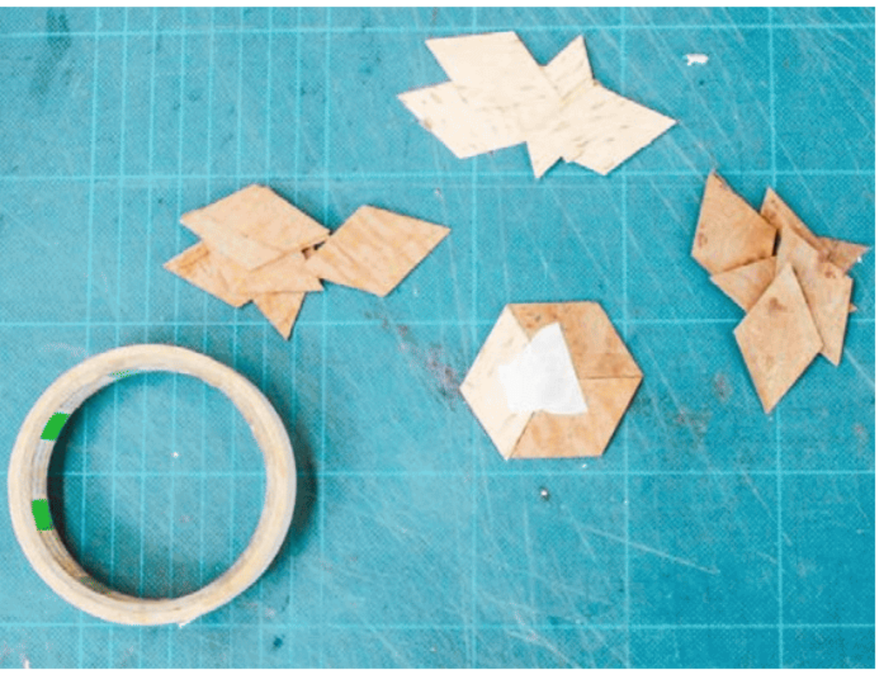
Desk top after



Marking out cube pieces



Cutting



Louis cube bits



LOUIS CUBE PROJECT

Simple to do and produces a striking result. Many people have taken this idea to a highly creative degree if the internet is anything to go by. The entire design is made from a simple 60-degree diamond shape.

Choose three wide sheets of veneer: a light, a medium, and a dark tone. I have used walnut, silky oak, and mazur birch with a sapele backing. It is worth noting that smaller hexagons look more effective, as bigger ones lose the three-dimensional effect.

Accuracy marking and cutting are essential; every single diamond must be precisely the same. Any discrepancy will compound as you assemble the Louis squares and end up looking terrible. Start by drawing a straight line on the veneer with the grain. Mark a point and, using a protractor, mark 60 degrees. Scribe a line to get your 60-degree line. Then measure increments of 10, 20, 30mm spaces, depending on how large you want the final cubes.

I cut all the horizontals with the grain first, almost all the way across the sheet, so it remained intact. I then taped the strips together, which makes it easier to cut the diamond shapes. Cut along the 60-degree lines to separate each of the pieces.

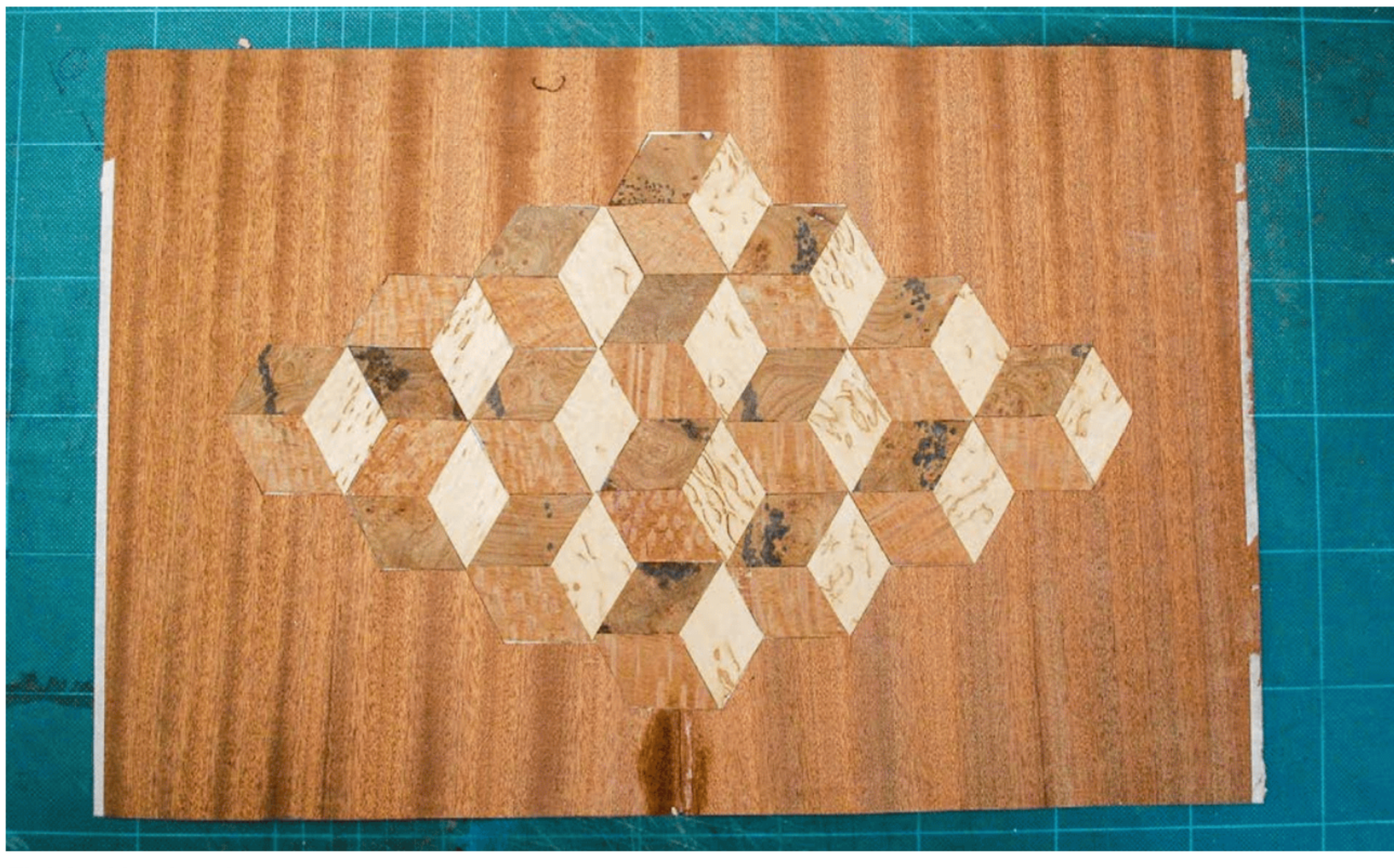
Another way to cut the diamond shapes is to use a mitre box with a slot for the fine-toothed saw. Mine is 26 tips per inch (tpi).

Once I had three piles of diamond shapes in light, medium, and dark tones, I taped the three woods together, making sure all corners aligned perfectly and the shadow (walnut) was consistently on the same side. Then each hexagon was joined together to form the Louis pattern.

Once the pattern was assembled, I located the Louis cubes on a sheet of veneer in the position I wanted and taped them in place on every edge. I used my nail to press the tape into the corner and carefully cut to the edge, keeping the knife vertical and parallel to the edge.

When I had cut around the entire pattern, the waste backing was removed, and the Louis cubes taped around the edges. This is now ready to be glued to a substrate and used in a box lid, door panel, serving tray, or whatever you want to make.

To contact Edward, email **BespokeFurniture@proton.me**
To see his work, visit **https://edwardprince.co.nz/** or scan the QR code



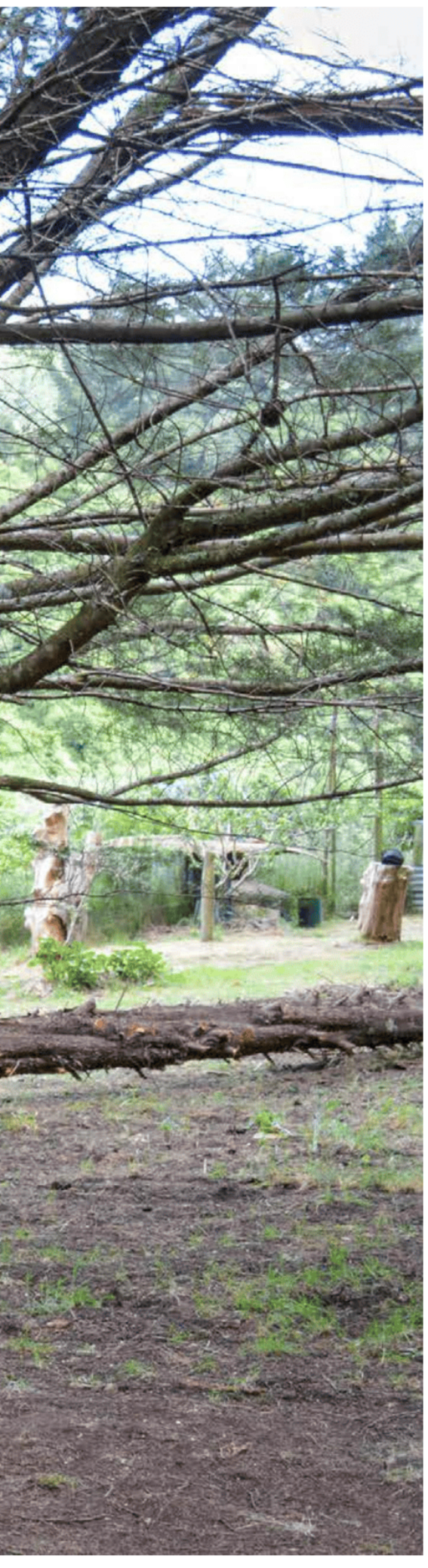
Finished Louis cube pattern



CASTLES IN THE AIR

By Murray Grimwood | Photographs: Murray Grimwood

Tree huts are a lot of fun, and children love them. With Christmas approaching and his grandchildren set to visit, Murray sees the perfect opportunity to build a tree hut in a tree that he has been eyeing for a couple of years. And boy, didn't he enjoy this project!





Day one – who says you need a 4WD? The Corolla delivers deep in the forest

> "I did some surgery with future hut-building in mind"

Like many of my generation, I grew up building huts at all altitudes – underground, overground, and aerial. The best were aerial.

Although we were urban, there was a stand of big old macrocarpas behind the house, topped in the distant past and interestingly shaped as a result. Before I reached double figures, I could traverse the row without descending and knew many branches well. As we siblings grew, aerial huts developed from a few randomly nailed sticks to more formal structures. Those early joys never leave – it's probably why I still enjoy freehand chainsaw joinery. This story is about a grandfatherly dream, an interestingly formed macrocarpa, and a reversion to said childhood.

That's a good hut spot

I spotted the hut-carrying potential of this particular macro a couple of years ago, but the grandkids were too young.

It was one of 1400 we'd planted back in '94, one of those ones on the edge of a forest which do something other than broomstick their way to the sky. For some reason, it had formed a low bowl with a central trunk, and back then, I did some surgery with future hut-building in mind. Recently, No. 1 son announced that he would be bringing his Canadian-domiciled family to stay over Christmas. With two weeks to go, I thought it would be a pity to miss this chance; who knows when they might come again, or how long I'll be around? Nothing like adding pressure to an already overloaded schedule …

A rough plan

That surgery had included drilling a galvanised eyebolt high into the central trunk, with the idea of using some 10mm cable I'd found somewhere, sometime, to hang a couple of pipe gate-frames one above the other, one carrying the floor, the other the roof.

The frames have lain alongside the tree for those two years – but in the meantime, I'd gone off the idea, thinking that wood might be easier to work with. Off to town, back with a trailer-load of H3 100x50, some decking, and some bulldog clips. The rest, I figured, I had. The rough plan went: build a floor on temporary props, add some formal uprights and top plates, hang that lot on cables, take away the props, add some gingerbread (all houses are plain boxes with gingerbread added) – job done.

It sounded so simple. I had a vision of pulling it all off in one day. It wasn't, and I didn't.

A start

Having delivered the trailer load down into the trees on a perfect summer's day (alone, the Corolla will get out in any conditions, in reverse if necessary – but with a trailer behind, it definitely prefers the dry), I used the Corolla again to drop the drop-saw and generator off, then loaded up a barrow with likely tools and



Floor framed, planking begun



Flooring nearly done; temporary chocks hold trunk



Chainsaw joinery — there's nothing like it.

fixings – taking care to have everything. At least a dozen subsequent trudgings back up to the workshop told me that perhaps I hadn't cast that net quite wide enough … I even came up needing three things and went back down with two – it's a beggar getting old.

As worksites go, though, it wasn't half bad. Tui, grey warblers, and bellbirds provided muzak; the resident hawks were hooking into the resident thermal, me shattering the whole with Alan Parsons and Sheryl Crow, overridden by bursts of industrial noise. The downside was two serious nor'-westers coming through, woodchips flying everywhere, tarpaulins scurrying off into middle-distance, things swaying …

An early vow

The bowl space seemed to suit a trapezoidal floor of two by two by two by one-point-something metres.

It would be higher than I had envisioned; bowls are like that. An early vow was made – and kept – to not puncture the tree apart from that long-ago eyebolt. The nor'-westers made me think about how to locate what was essentially a suspended witch's hat; we

were indeed moving around … As well as stopping – or at least damping – the motion, I wanted to allow the trunk to expand, while not creating the situation where little fingers got crushed between it and a moving floor.

The first day, the floor frame evolved, got levelled on props at each corner, decked, and I had time to production-line the uprights (do I call them studs?), attach them, and add the top plates.

A few things became obvious. If the cables weren't to intrude, there would have to be spreader bars at the top-plate level (10mm steel cable is perhaps a tad inappropriate intruding through such a small space; people trip over guy ropes even outside tents …) and probably a substantial bearer doing the same job underneath the floor.

Day two – cabling

Visitors and a trip to town shortened day two to half a day.

I think of it as the 'cabling day' – two wire ropes, four eyebolts, eight bulldog-clips; how hard can it be? First, I had opted not to bother with thimbles (the metal bit you often see inside a rope eye, and almost always when it is wire rope), figuring the eyebolts had enough radius for our purposes.

Trying to judge the tension and position the lower clip, though, so that the eyebolt thread traversed the needed range, took some doing. Eventually, I found a sequence which worked: pull the tail through as hard as you can and vice-grip it to the standing part (of the cable). Put on the top clip and tighten. Put the lower one on loosely, below it. Reposition the vice-grips below that; the clamp will slide down to them. Repeat – until the vice-grips will go no lower. Tighten the lower clip.

Given that there were two up-and-over cables (not four separate ones), the 50mm thread on the eyebolts gave 100mm range of tension – quite enough. And I had just enough forethought to slip some plastic tubing over the cables first, for anti-chafe, as they came off the upper eyebolt.

The floor-moving-versus-the-trunk problem I solved with three locating chocks made from offcuts of decking, and I've allowed for a few centimetres of



Formal uprights (studs?) checked for top plate



Bearer clamped to floor, awaiting cable



Top plates and upper spreader bars in place; cables attached

trunk-expansion – I'll just take the sabre saw to the flooring, enlarging the circle. More than that will need a framing rethink.

Day three – fiddling on the roof

Visions of elaborate dormers and pointy eaves faded in the grim light of a shortening calendar. Plus which, four cables tapering through the space somewhat compromised matters …

Looking through my piles of corry, I spotted the remnants of what had once been a complete silo – and therein lies a family-legend backstory. I'd been to a farm auction – well before we owned the forest, well before internet auctions and all the rest. I arrived home and announced that I'd bought a silo.

Stunned silence, then: "But we don't have a farm, Muggins."

"But it was cheap," I replied, "and there's a thousand galvoed eight-mill. bolts; worth it alone."

Well, one way or another, we'd used nearly all of it – a verandah on our previous house, the roof of our gypsy-wagon, the cap kept our pizza-oven dry for years; those bolts all long ago used up.

Anyway, there were two sheets and a bit of another left. Just enough, if I forced a bit of flat corry (now there's a contradiction!) to fill the remaining space. Initially, I left them overhanging the trapezoid square-ended, but the jagged look annoyed me and a few dead cutoff discs later, the roof had edges parallel to the top plates.

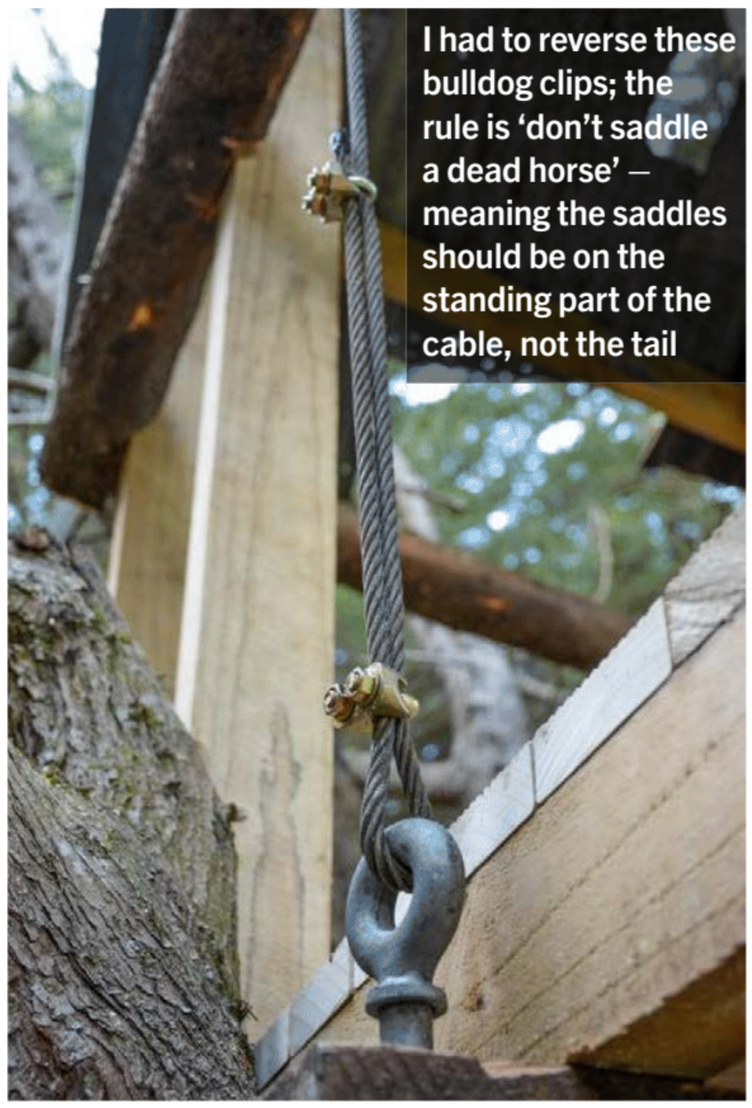
Day four – railings

I was always going to go with natural-wood rails from the forest; it's what I'd done (a little more formally) in our house.

I went with a 900mm rail height and 100mm spacings, but whereas the house balusters were pegged with 20mm dowels top and bottom, well, this is a tree-house. So I went with 100mm lengths of fencing wire (essentially a headless four-inch nail) in interference-fit holes up the baluster and in the rail. Then I drilled through them adjacent to the bottom plate, and hammered home a 100mm galvanised nail. The reverse happened with the internal rail (to stop little people falling down the hatchway). There, I used the wire to pin the baluster to the floor, then drilled down and nailed the top through the rail.

This became a production-line process, there being more than 50 uprights. Walking with the wee chainey through the edge-trees of the forest, looking for the right thickness and a straight(ish) length; gang-cutting them; drilling them; even cutting the wire lengths was easier with a jig. But satisfying. Applying the branchery was the move that changed formal to informal, organised to organic. There's a satisfaction in seeing something you envisaged in your head coming together. All the more when it involves random fittings of not-normally-associated materials.





I had to reverse these bulldog clips; the rule is 'don't saddle a dead horse' – meaning the saddles should be on the standing part of the cable, not the tail

Bush panel beating – straightening a silo panel





Fencing-wire pegs



The sturdy handrail in place



Ramp and ladder access – cosy, safe, and the only way that I could think of to fit the tree …



Pop's major blunder: no steering wheel. Luckily we had a spare one …

> "There's a satisfaction in seeing something you envisaged in your head coming together"

Ramping up

All that remained was to solve a headache I'd parked for two years: how to get up there?

From the ground, I plumped for an external ramp – maximum height-gain for minimum verticality. Then I needed steps or a ladder, slightly offset, to fit between branches. I'm sure the youngsters will work it out; if not, we'll think up a plan B.

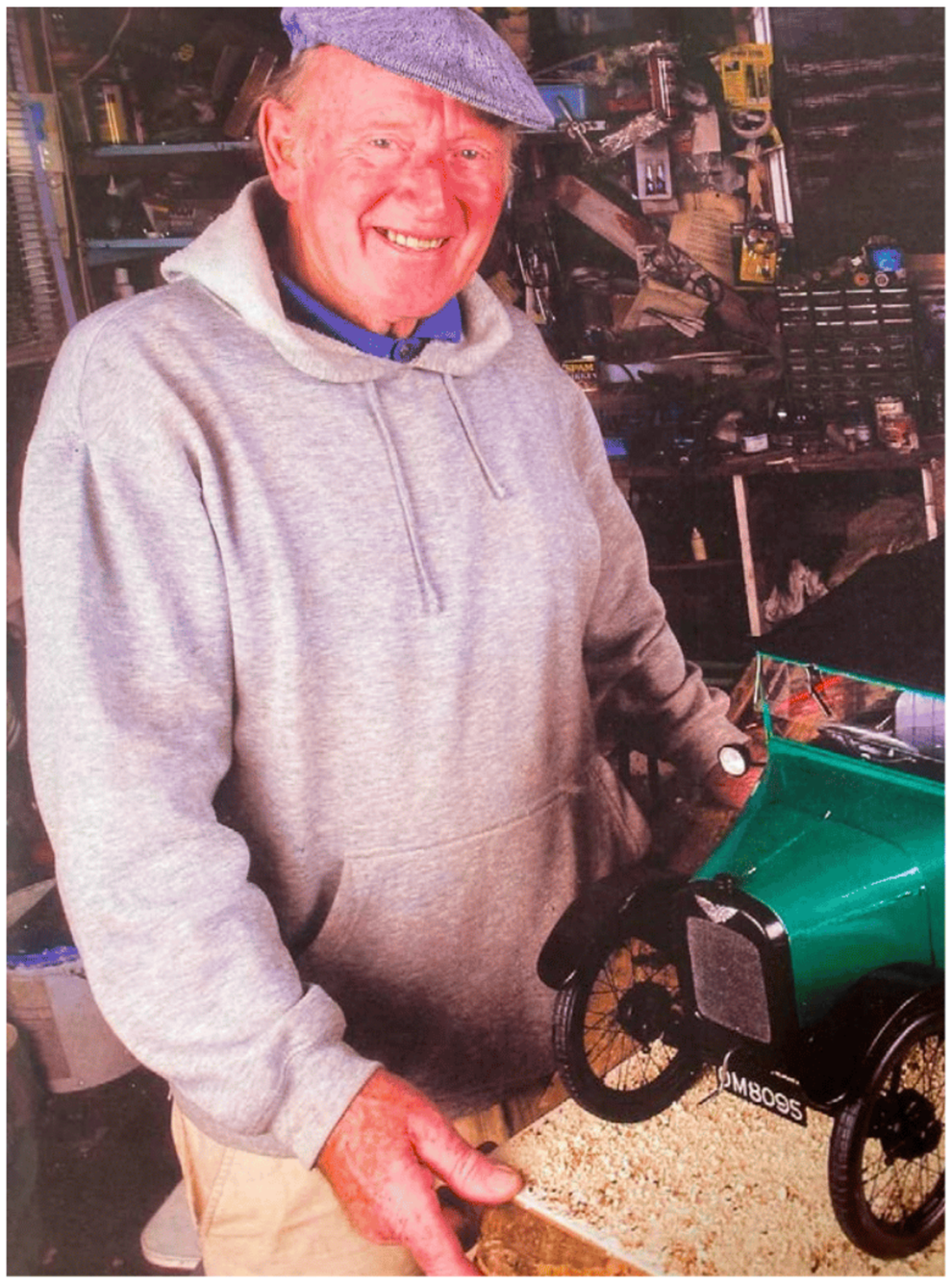
There was a Day Five. I painted the roof. Red. Because.

Fin(i)al thought

In hindsight, I'm well pleased with the result.

What the intended clients think is yet to be known, but I won't be miffed if it's not their thing. Much. What I found (and I'll be 71 by the time you read this) is that I'm still entirely happy up a tree, stepping from plate to branch to branch to ladder; I even noticed I was remembering the branches, as of old. Long may it continue …

The curved roof didn't lend itself to finials, though, so we'll have to keep an eye out for witches (or does the tree-trunk qualify as a finial?). Anyway, this is more like Binklebonk's home, and if I recall correctly, he outlived Badjelly. Oh, to be young again …



Royston Lake pic Adam Croy *Classic Car 107*



Phil Walters - Keeping a Big Promise

IT'S A SMALL, SMALL WORLD

A deathbed promise to brilliant modeller Royston Lake and his father Bob Walters by Phil Walters has meant some rare, stunning and valuable models have been preserved for us all to enjoy. But what will happen to this jaw-dropping collection in the coming years? Chris Hegan is fascinated with this extraordinary collection of models, the likes of which will never be repeated

By Chris Hegan | Photographs: Chris Hegan

It makes sense that Phil Walters' model museum is in the Kaukapakapa backwoods, not far from the Old North Rd, which used to be the main highway to the north before the Auckland harbour bridge came along.

No one goes that way anymore, and it is just as likely that no one will make the things that fill his cave of wonders in future, or at least not in the way these incredible objects were created. In the days of CAD design and 3D printing, why would anyone wanting a perfect scale model of, say, a 1927 Austin 7, pick up a block of wood and a set of chisels? Talk about doing things the hard way.

But wandering from model to model, jaw hanging open, I see no comparison between a perfect plastic scale replica and these extraordinary works of art embodying thousands of hours of devotion, ingenuity and craft.



Jam-packed - less than half of the collection.



The SS Royston Lake - A Perfect Memorial

A promise to preserve

The star of the show is Royston Lake, modeller of genius, but Rex Rouse and Phil's dad Bob were no slouches either, all three now passed away.

Phil is fulfilling deathbed promises to Roy and his dad to preserve and display their life's work, and full credit to him. What might otherwise have happened to this treasure trove scarcely bears contemplating. It has been an expensive commitment.

"That promise meant I had to move house from Torbay. I had a lock-up there, but it would have cost too much to keep that going, so we moved here and got the barn built. Thanks to another promise, I got the barn, and my wife Sandra got the pool. They worked out almost to within a dollar of each other."

A showplace

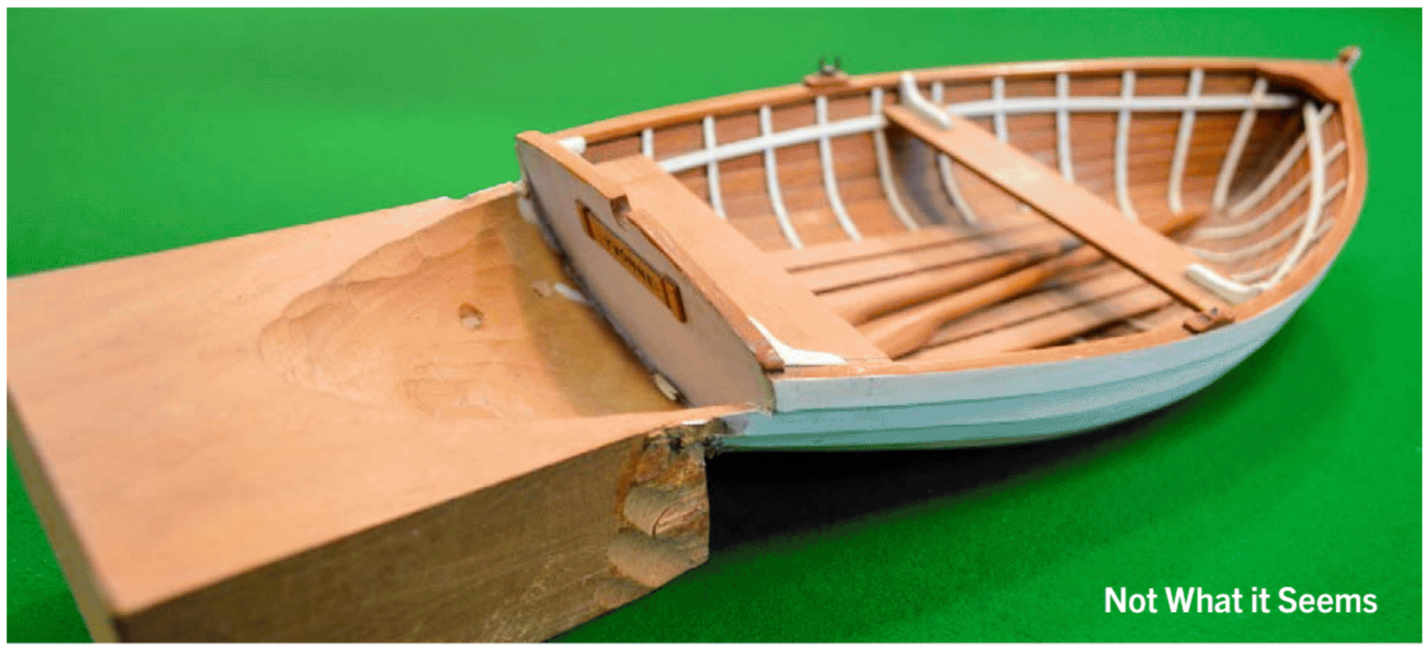
From his main income as a draughtsman and additional resources from his



Swiss Paddle Steamer - Even the Clothing is Authentic



To the Tiniest Detail



Not What it Seems



Just Like the Real Thing



A Working Ship's Dinghy



Anchor



Das Boot

business providing planning and security for big events, Phil has turned the barn into a showplace for his treasures, with the models displayed in custom-built cabinets and large-scale remote-controlled aircraft hanging from the ceilings in a second space.

Phil's connection to the models goes back to his boyhood.

"Dad was into model trains and planes, the line-controlled ones from before radio came along. He was quite a good modeller but not a great flier, so



Repository of Secrets

> “there’s a pocket of air that gave it extra buoyancy, and a secret central rudder”



Sailing Dinghy

they always ended up crashing. In his later years, he went into boats and got hooked up with a bunch of older guys. He got very friendly with a couple of other modellers, among them Roy Lake. He was a terrific modeller. An excellent carpenter and cabinet maker, he had no family, and I guess became Dad’s best friend. Both of them got cancer, and on their deathbeds, I promised to store and show their models.

“Preceding that, the broadcaster Merv Smith had Modelworld at Monterey Park at Hobsonville, and a lot of Dad and Roy’s models were on display there, including a number of their radio-controlled model boats. Roy would go up there and play on the pond with schoolkids and paying customers, so most of his models were there. When it closed down, the owner, no longer Merv Smith, needed the models sorted, so I ended up storing them on Roy’s behalf. There was a whole heap of them, all scratch-built, some off plans, because back then, you could buy a set of plans for lots of models. But no kits. All radio-controlled working models which they sailed.”

No motors, just sail-powered

I stopped him, puzzled. I’m looking at the Pride of Monterey, a large and highly intricate four-masted sailing vessel. “But that has a motor, surely?”

“Some of them do, but they sailed. “There’s a lot of ingenuity you don’t see. There are servo motors out of sight that control the rudder and sails, and quite



More of the Collection



The Rainbow Warrior - A Piece of New Zealand History



Titanic

a few tricks that are really ingenious. "They used to race their models, and they were very competitive, these guys. Now, on a boat of that size, the turning circle would be huge. I didn't discover this for ages, but under the middle of the hull there's a pocket of air that gives it extra buoyancy, and a secret central rudder that allows it to turn on its axis."

"Not only were they great modellers but great amateur engineers."

Unfortunately, Phil has no idea how the models worked.

"I've got a whole lot of radio controllers, but I don't know which one is which and if I tried to get them going,



One of Auckland's pre-Harbour Bridge Vehicular Ferries



Makora Passenger Ferry



Flying Days are Done

I'd just break them. Most are thirty or more years old, and I just keep them static for people to admire.

"There was one other modeller in the group, so there was my Dad, Bob Walters, Royston Lake and Rex Rouse. Of these models, Dad made six or seven, Rex about the same, but most of them are Roy's work.

"Rex did a lot of the New Zealand boats – the passenger and vehicular ferries, the Rainbow Warrior – as well as the Titanic and the U-boat. Roy made a lot of the overseas ones because he had been an outstanding cyclist who competed in Europe. So he made the paddle steamer, which he would have seen because he did a lot of cycling in that area around the lake of Lucerne."

Are they damaged?

Looking closely at the boats, a number of them show signs which I take for damage. Not so, corrects Phil.

"Those scratches on the hull, that bent and rusted rail, that's all Roy's attention to detail. He went to great lengths to make his boats look exactly like working examples of the real thing."

Roy's modelling career switched focus the day a group of modellers were competing on Onepoto Lake, and someone challenged him to build a wooden car. A friend in the UK owned a 1928 Bugatti Type 35 he had always admired, so he started researching them, drew up a set of plans based on what he could find in the library and made his first car, a 1:9 scale model of the Bugatti Type 35.

"He never made another boat. He got the bug on cars, buses, and trucks. Even carts. And the amazing thing is that everything is made from bits he found around his house. That roof on the Austin Chummy came from an umbrella. He would just look around and find some bit of wood or occasionally metal and make everything by hand, carving from wood."

Carving? But surely, I suggest, the wheels were made on a lathe.

"No. He didn't own a lathe. His skill at carving was unbelievable. Look at this."

Phil produces a scale model of a wooden clinker-built dinghy, perfect in every detail, with the illusion destroyed by the fact that the uncarved section of the single piece of wood it is carved from is still protruding from the stern.

"He showed me that, and he was really peeved. 'It's not right,' he said, but he wouldn't say why. It was years before he finally told me. If you count the number of planks on the outside, it doesn't match the number on the inside. And he left the bit on the end just to prove that he didn't make it out of layered planks but carved it from a single piece. That was the level of Roy's skill."

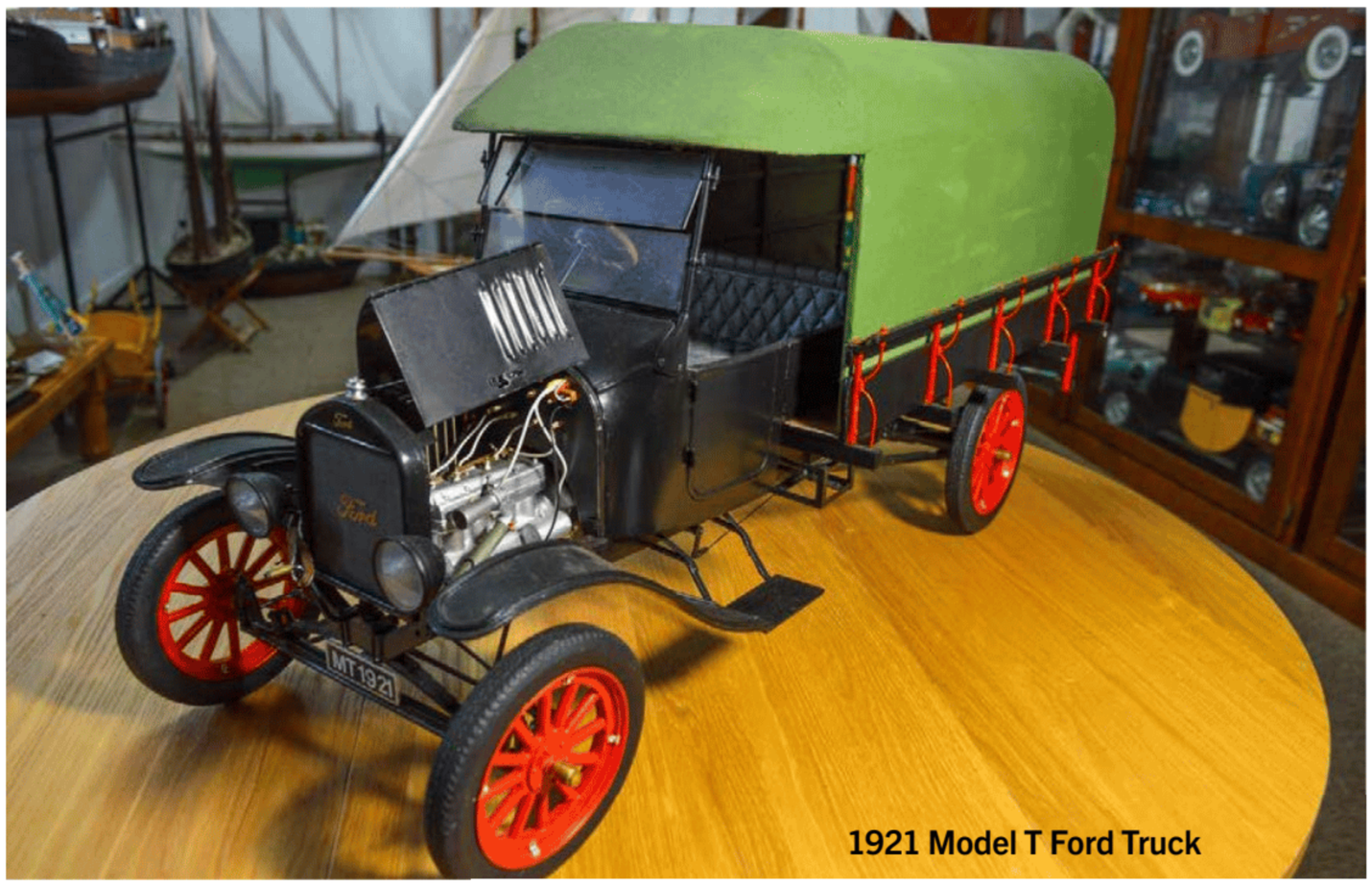
His home was a great source of material

Many of the cars have removable bonnets with a piano hinge down the centre, which look like metal but are in fact also wood.

"He carved a form and laid thin strips of veneer over them, then made the piano hinge himself. He made the vents from thin copper strips, bending them into shape and setting them into slits in the wood. Many of the materials came from his house – he didn't have a wife to account to. I was visiting once and asked what had happened to his net curtains. They were full of holes. 'Oh,' he said, 'they make perfect radiator grills.' One of the metal strips at the edge of a carpet was missing; he had used it to make mudguards."

The detail at every turn is what marks Roy Lake as the true obsessive of the group. Open the door of the 1930 Type





1921 Model T Ford Truck



Small, But No Model

44 Bugatti Fiacre, for instance, and you will find a tiny Ford Times guidebook to New England tucked into the door pocket. On a dinghy barely longer than your hand, one of the rowlocks is bent, and another is missing. These are not accidents; with the marks on the hull, they faithfully replicate the working dinghy of the ship whose deck it sits on. Of course, the car colours are all true to the original manufacturer's specs.

The cars took over

The obsession was with the making, not collecting or even keeping.

"Once he got interested in making cars, he lost interest in the boats. I once asked him what would happen to them. 'Just burn them,' was his answer."

Nor could he be bothered with their monetary value, once turning down flat an offer for $17,000 for the Flamingo model yacht. Later, however, he came to recognise their inherent value and became interested in their storage and preservation. This may have had something to do with the time Phil persuaded him to display some of his model cars at the CRC Speed Show. The promoter was enthusiastic, providing space and display cabinets.

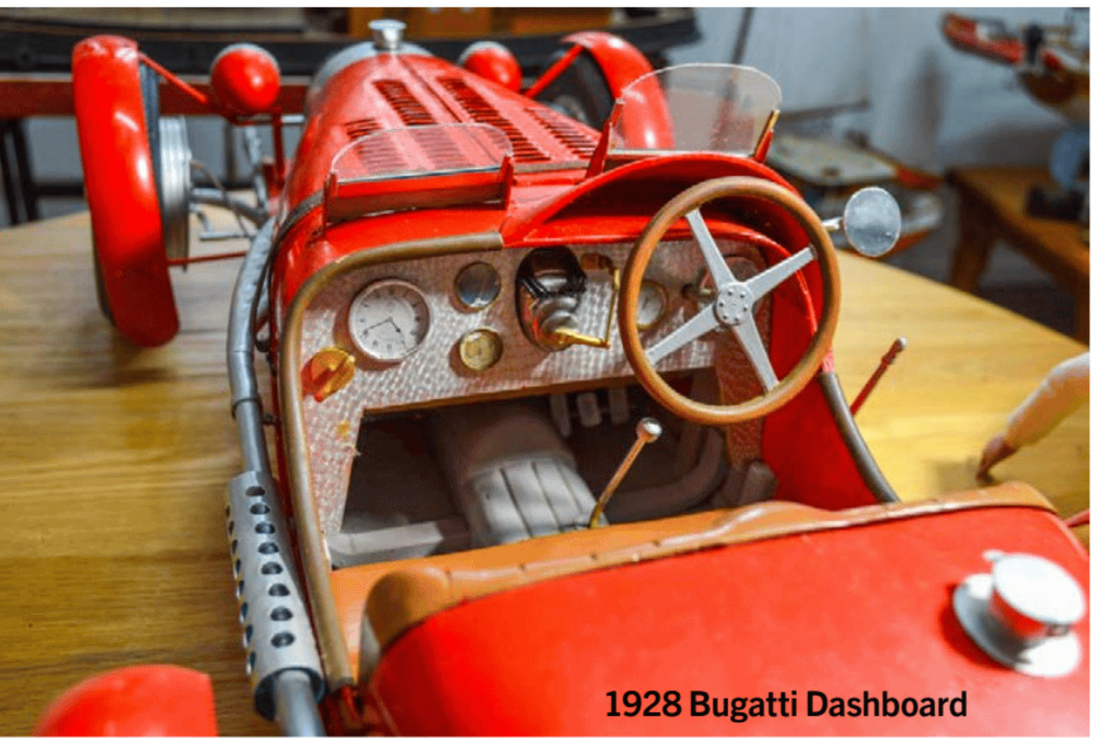
"Roy was pretty sick by then, but I encouraged him to come along for just an hour or so. He was surprised at the interest people showed, and not only spent the whole day answering questions, but he also came back and spent all the next day at it too."

No better home

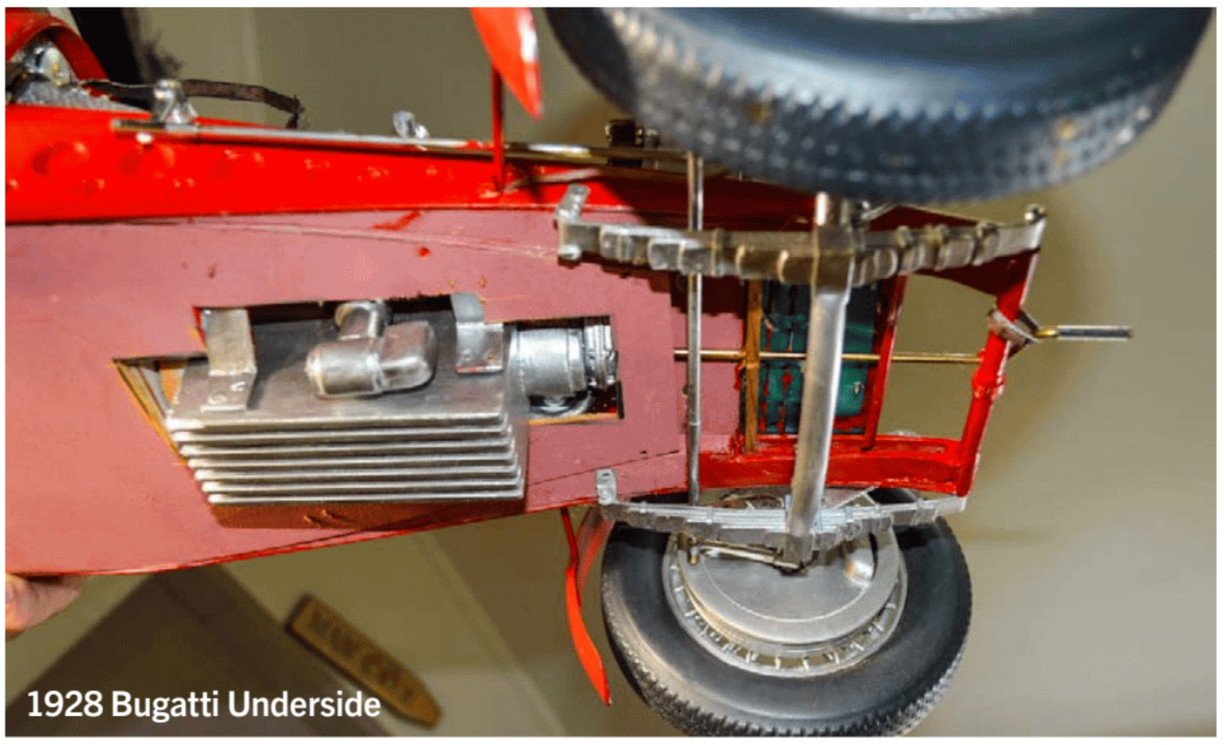
Phil is no modeller, but the treasures that have passed into his hands could not have found a better home.

He is a master of display whose barn bursts with treasures shown off to their best advantage. Pride of place belongs to his Mini Cooper, pimped to the max with every extra imaginable, highlights and engine compartment picked out with coloured LEDs and a dedicated trailer that holds a sound system that would not be out of place in a nightclub.

Even so, when it was booked for inclusion in a CRC Speedshow a decade or so ago, word reached him that one of the judges did not believe a Mini could cut it with all the muscle cars and hot



1928 Bugatti Dashboard



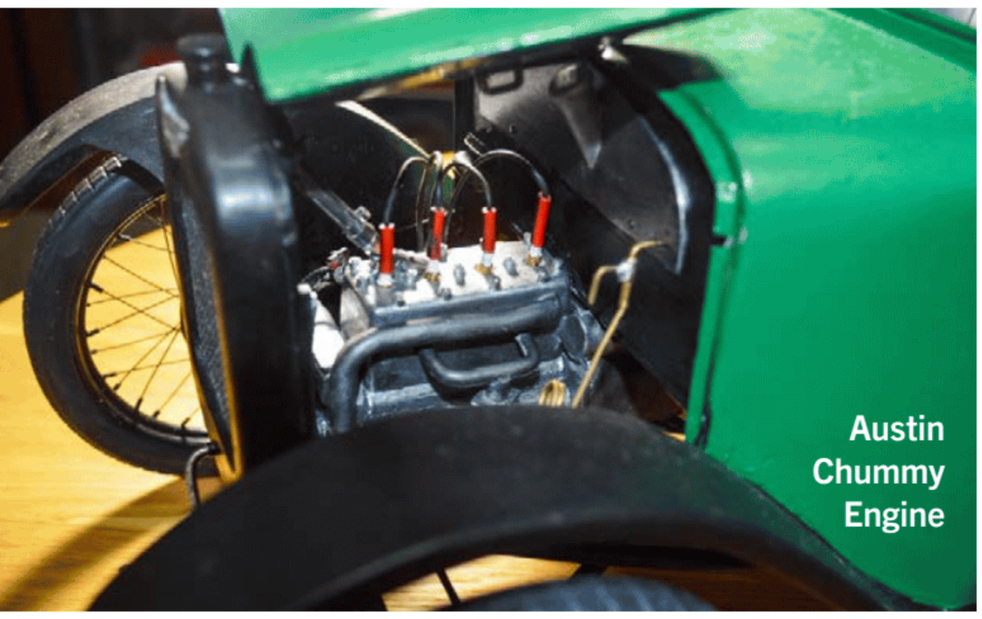
1928 Bugatti Underside



1925 Austin 7 Chummy - Worth the Sacrifice of an Umbrella

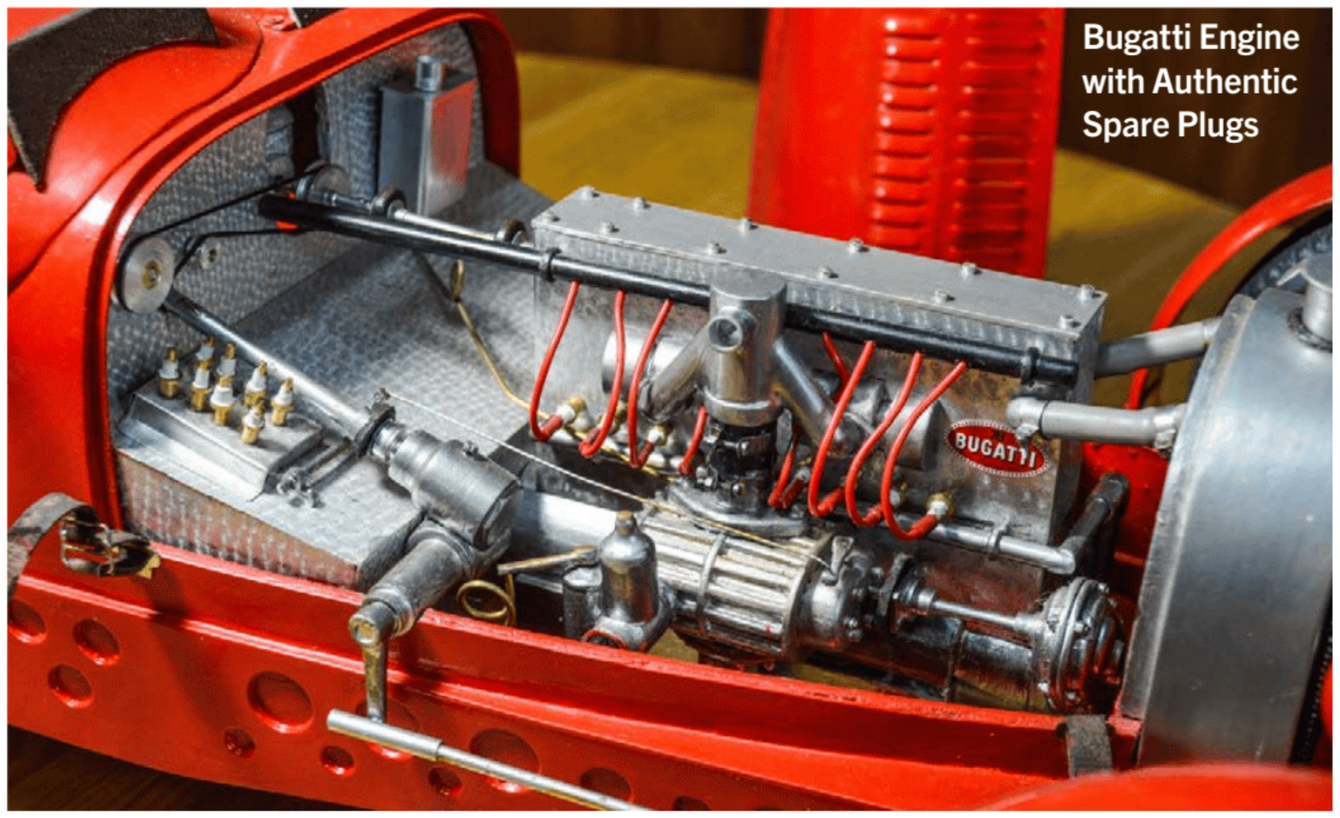


1928 Bugatti - Not Bad for a First Try



Austin Chummy Engine

"And the amazing thing is that everything is made from bits he found around his house"



Bugatti Engine with Authentic Spare Plugs



Ready to Tour

Bugatti Fiacre



Yellow Hay Cart



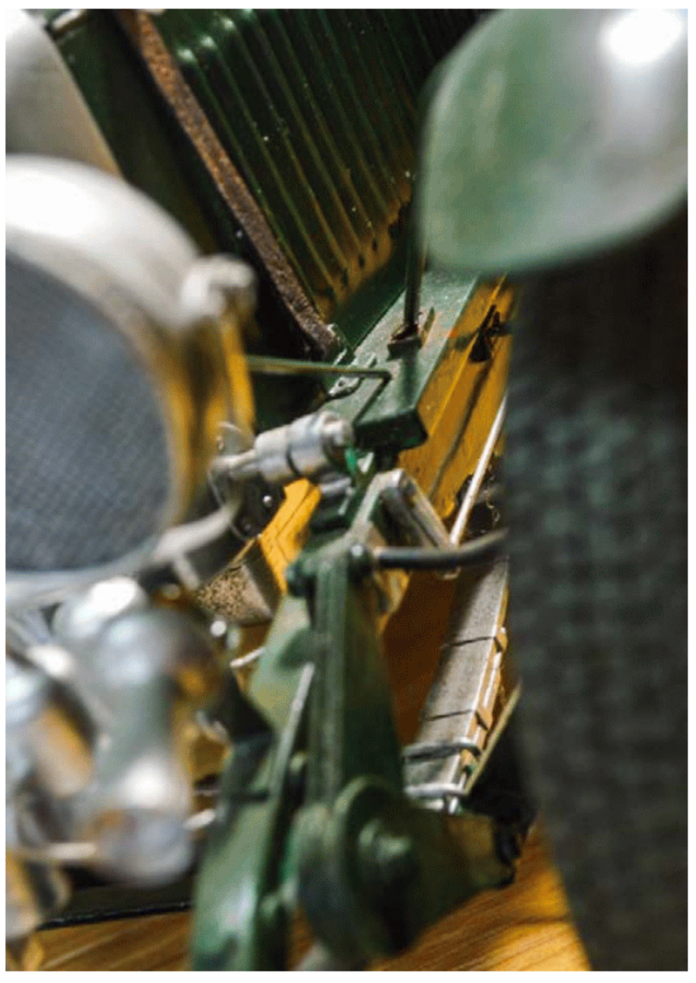
Monmouthshire Hay Cart



Mini in a Box - The Winner!



1928 Bentley Blower



Bentley Blower Detail

rods, so Phil set to work proving them wrong. Calling on friends in the display trade, he turned up with his Mini Cooper S packaged as a Corgi toy in its presentation box, which won both the Best Display and Best in Class awards. The judge later published an apology in his Petrolhead magazine, eating a large serving of humble pie.

But what happens next?

Although his promise is fulfilled for the time being, the future of his collection is a prospect that ticks away in the back of his mind.

Sold individually, many of the models would fetch high prices on the international market. Some wealthy owner of a Bentley Blower or any of the Bugattis, for instance, might be willing to pay handsomely for their model, but that is something Phil would rather not contemplate.

"Some of the boats might fit in the Maritime Museum, but most of them have no relevance to New Zealand's maritime history. Maybe the Devonport ferries, the Rainbow Warrior."

He hopes that one day, that right person with deep enough pockets and an appreciation for high craftsmanship might come along with an idea, and with that partly in mind, and just for the satisfaction of showing all his love and care for his collection.

Phil is always happy to welcome visitors, individually or as a group. Drop him a line at p.n.walters60@gmail.com or message him on 022 473 6947.

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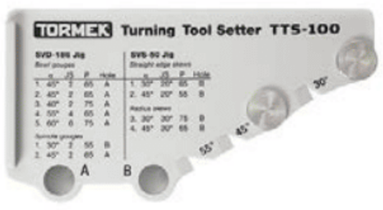

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CONFESSIONS OF A BOXAHOLIC

By Coen Smit | Photographs: Coen Smit

Coen comes clean and discloses his total obsession with making boxes. In his final article, Coen reveals that he was a sheddie through and through. His passion and projects will be sorely missed



Arranging the sides to get an idea of what it will look like

As a sheddie, I am often called upon to undertake a range of small activities hardly worthy of the name 'projects'.

Dismantling a defunct microwave to rescue the two large magnets it contains, upgrading the security of the external rooms in our boarding cattery, or making a picture frame to hold a photo of our dog (who has recently returned to the eternal darkness) – none of these really deserves to be written about in any detail, and I am sure readers of *The Shed* can also recount countless similar activities they have undertaken as part of their sheddie lives.

New adventures every time

However, when it comes to something worth writing about in depth, I confess that I like making boxes.

I have written about boxes in a previous article, yet every time I make another one, it becomes a whole new adventure, simply because each one is unique and requires considerable thought and precision to achieve an acceptable result. Each new box spurs me on to improve on the last one and continues to test my ingenuity during its construction.

Although boxes are utilitarian objects, they can also rise above their utilitarianism simply by their design and the features chosen to incorporate in them. As a regular viewer of the *Antiques Roadshow*, I am always interested in the design and craftsmanship of box and furniture builders of bygone eras. It is quite a powerful statement to see these things still functional and loved, even though the person who made them is long gone. Who knows, perhaps, in years to come, one of my descendants, or an appreciative stranger, will enjoy the use of some that I have made?

My obsession is being questioned

Of course, it is not all beer and skittles!

My better half is beginning to question my obsession with them, not to mention the *Antiques Roadshow*. And then there is the problem of what to do with them all.

Here is where the 'boxaholic' comes into it. I just love making them for the challenge involved in the construction process. I have never been good at designing the completed article on paper prior to building, so all my efforts consist of visualising the result and then massaging the materials to achieve the result I am aiming for, constantly compromising, and adjusting as I build it.

Added to that is my fondness for repurposing the timber from old shelving I liberated from the local high school.

It is still the best quality hardwood for the job and adds another dimension to the challenge, unlike the blandness of custom wood and chipboard. I will confess, however, that I have bought a length of merbau to decorate both boxes, because I like the contrast in colour this timber makes with the recycled Tasmanian oak.

My latest creations

For this article, I am focusing on my latest two creations.

The first is a rectangular box that has a false floor to provide a hidden compartment. The second is a small, six-sided, three-legged box to hold trinkets or other small items.

Whilst the construction of the rectangular box itself was fairly straightforward, I had to make a lifting mechanism to be able to raise the false floor, something that needed a bit of trial and error. Once the above floor



The starting planks for the six-sided box



Temporary clamp to glue two sides together

"I just love making them for the challenge involved in the construction process"



Clamping the sides whilst glueing



Another makeshift clamp to hold the six sides together while the glue sets



The box prior to treatment with bench oil



Deciding whether to place the little brass seal on the lid



Trying the three legs on for size

contents have been removed from the box, a hidden lifting arm is activated by pushing a small T-shaped handle up through the actual floor. I know it is not an ideal way to access the hidden compartment, but it does make it more secure from casual investigators.

On the other hand, the six-sided box has been anything but straightforward. Much cutting on 30-degree angles was involved, and I now suspect that the drop saw's blade might not be as sharp as it used to be. Small variations in the angles, unfortunately, showed up in the assembly process, and I have had to resort to devious means to address them, as you can see by the use of copper strips on the corners of the finished box. Having said that, I have previously made other boxes that incorporated copper and brass and always liked the result.



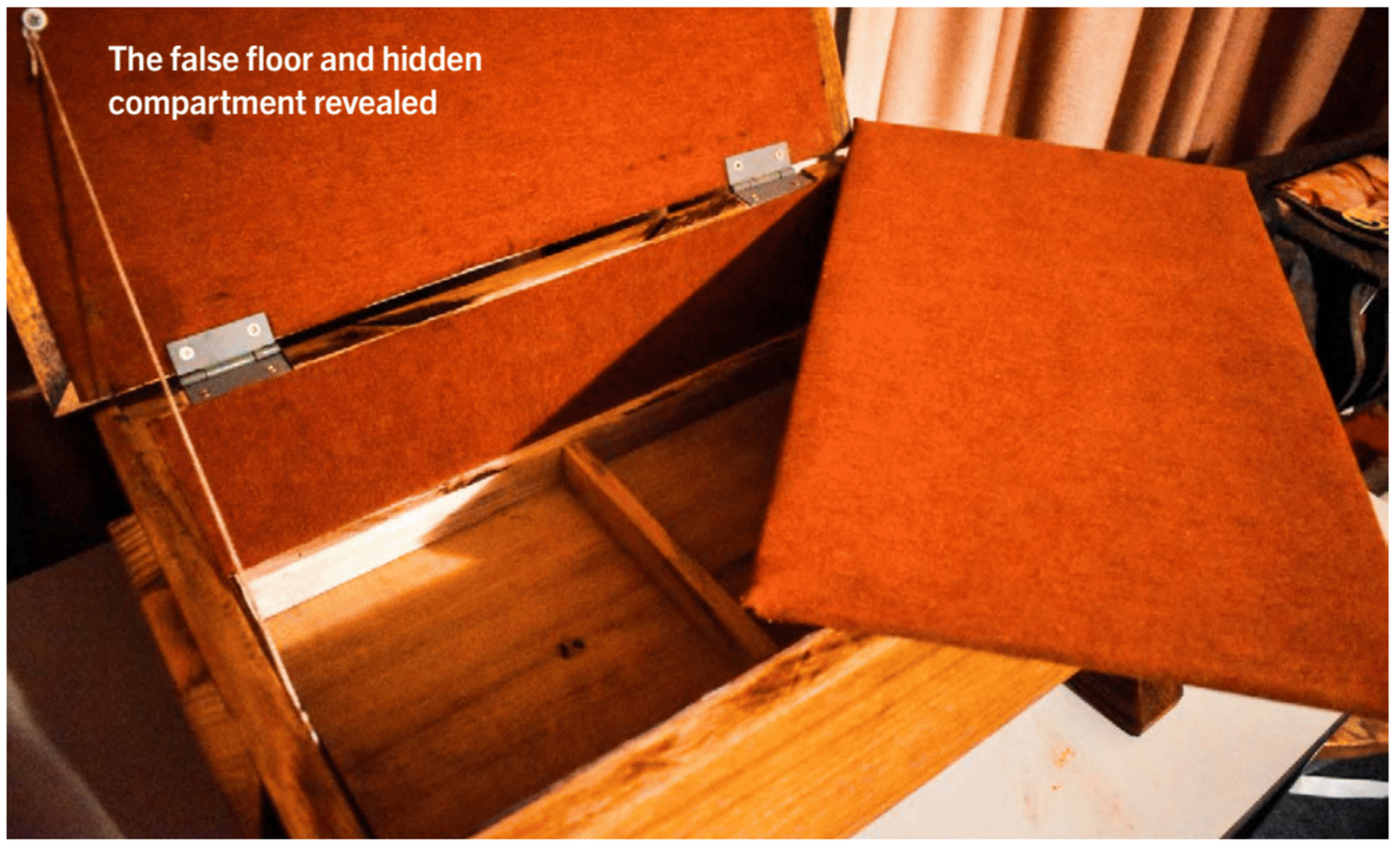
The rectangular box in art deco style

A nostalgic look

Anyway, I make no claim to be a qualified professional craftsman.

I am more of a DIY arts and crafts kind of guy. The copper strips allow me to hark back to the old steamship trunks with their metal-reinforced corners, which conjured up durability and strength. Their present purpose, blurred by nostalgia.

The Makita drop saw was central to all the angle cuts, aided and abetted by judicious use of my sanders and other small tools. Having cut the three main sides and carefully halved them to make



The false floor and hidden compartment revealed

the six required, I set up a temporary jig. Glueing and clamping two sides at a time, I assembled the six sides after three drying days. Of course, I could have predicted that they would not align perfectly, due to the small imperfections that accumulated in the 30-degree angles! (Next time, a bit less haste, a new blade, and greater attention to detail as I proceed, should pay better dividends.)

Once the sides were joined, I cut a six-sided base out of a single board to fit inside the verticals. Again, not a perfect result; however, the discarded strips from the original 30-degree cuts came in handy to cut and glue inside the base, thereby adding more support to the verticals.

Darn, I ran out of oak

Unfortunately, I did not have a single piece of Tasmanian oak to make the box lid, only enough to cut another internal hexagon.

The solution I settled upon was to cut more 30-degree angles on that hexagon so that it would centre the lid when closed. To achieve the desired size for the lid, I constructed yet another hexagon of merbau sections glued to the top of the angled hexagon.

The word 'utilitarian' has slipped somewhat from this particular box, although it obviously will still function as one. At the same time, the mantle of 'decorative' is slowly being drawn over it. However, you can be a better judge of that.

For me, it was the fun in making it and overcoming all the small but vexing obstacles along the way. Some of us find peace in magnificent scenery or entertainment. I find it in the joy of solving the various problems and compromises I make when I build things – especially boxes!

Note: Sadly, Coen passed away suddenly on 2 October 2025, aged 75 years old. As our only regular Australian contributor, he added some unique touches to the magazine and will be sorely missed by the whole team here at *The Shed*.

Our condolences go out to Pam and the family.



A side view of the rectangular box – continuing the art deco style



Coen, enjoying the outdoors



A Smit family lunch

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MORRIS'S GROUND-BREAKING MINOR

It was Britain's biggest small car, and it got Britain mobile again

Morris Motors celebrated its millionth Minor in December 1960, a car that defined the British motor industry and was in production for 10 years alongside the iconic Mini of 1959.

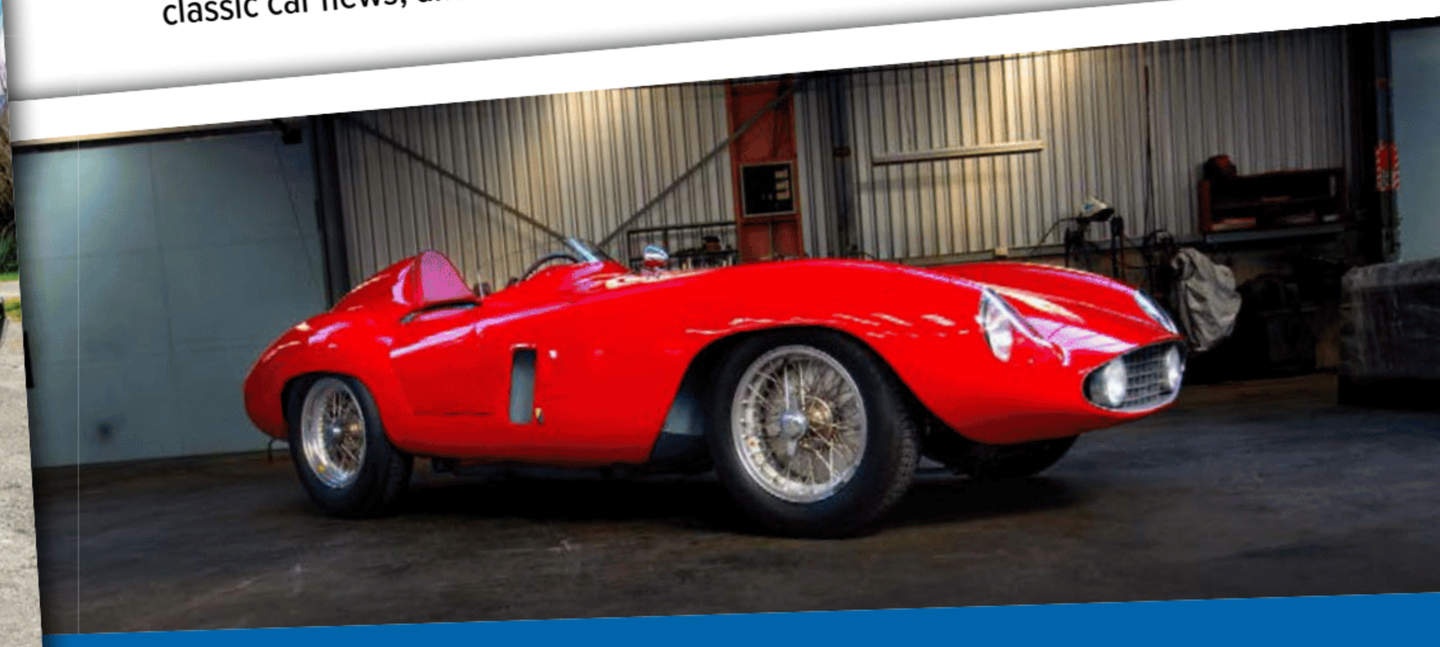
Whakatāne dentist John Twaddle has a passion for Morris Minors going back to 1982, and he still has his first example. There are now three 'Morries' in his garage. One, however, is quite special, a rare 'Minor-Million'.

One of just 350 made commemorating the millionth Morris Minor produced, the first British car to hit a million units, the well-rounded little Brit would end production in 1971 with a tally of over 1.6 million units.

John finished his Minor Million six years ago, resplendent in lilac, its official factory colour. He calls it his 'Minor Resurrection', and it has won numerous awards.

Also in this issue:

Ferrari Monza 750, 1962 Jaguar Mark II 3.4 Litre, 2021 Shelby GT500 KR1000, Mustang, 1990 Ferrari Testarossa, 1965 Austin Mini, PDL Replica, 1966 Oldsmobile Toronado, Ultima, 1972 Toyota Corona, BMW M3 E36 Cabriolet, 1959 Chevrolet Parkwood Station Wagon, classic racing reports, book reviews, classic car news, and so much more ...



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THE HARDWARE STORE OF YOUR DREAMS

Remember those cool old hardware and motor parts stores? The good news is they are still around, and we found one just north of Auckland that has the kind of products you thought you couldn't find anymore

By Chris Hegan | Photographs: Chris Hegan

Helensville is in the sweet spot – close enough to Auckland to make the big city accessible but still a proper rural town.

As such, it draws people working on odd and fascinating projects, restoring and building every kind of vehicle, inventing the next big mechanical wonder, but still with a full complement of farmers. They all, sooner or later, turn up at the hardware shop of their dreams, and once found, they keep returning to it: Thrifty Auto Supplies, a local legend for near on half a century and now also selling online for the benefit of mechanical tinkerers nationwide (thriftyautosupplies.co.nz).

Having emerged early this year from premises hidden off the main road, Thrifty is finally on show in an industrial warehouse large enough to display its mind-boggling variety of mechanical and engineering parts, old and new.

His favourite shop

For many years, the 'shop' was no more than a big shed behind the Parakai home of Lindsay Raine.

People would pull up at the shed looking for a hard-to-find item, Lindsay would disappear out the back, and return in no time, having committed the entire shed to memory. He seemed to be someone who had kept everything he had ever acquired, becoming widely known as 'Mr Thrifty'.

When Lindsay retired, he kept the business in the family, with son Les and daughter-in-law Maree taking the helm for a few years, before finally selling to local customer Roger Pimblott in 2023, who was pretty stoked with the opportunity to lay down his tools and "buy his favourite shop".

With an electrical trade under his belt, professional experience in machinery maintenance, and a personal passion for tinkering with motorbikes, Roger is now quite at home in the Thrifty aisles, supporting customers with his insight and advice.

Whatever ya want

Thrifty started out as a straight automotive parts supplier – window wipers, oil filters, and the like – but grew into a place where you could get whatever you needed for a wide range of engineering tasks, and if they didn't have it, they would get it for you.

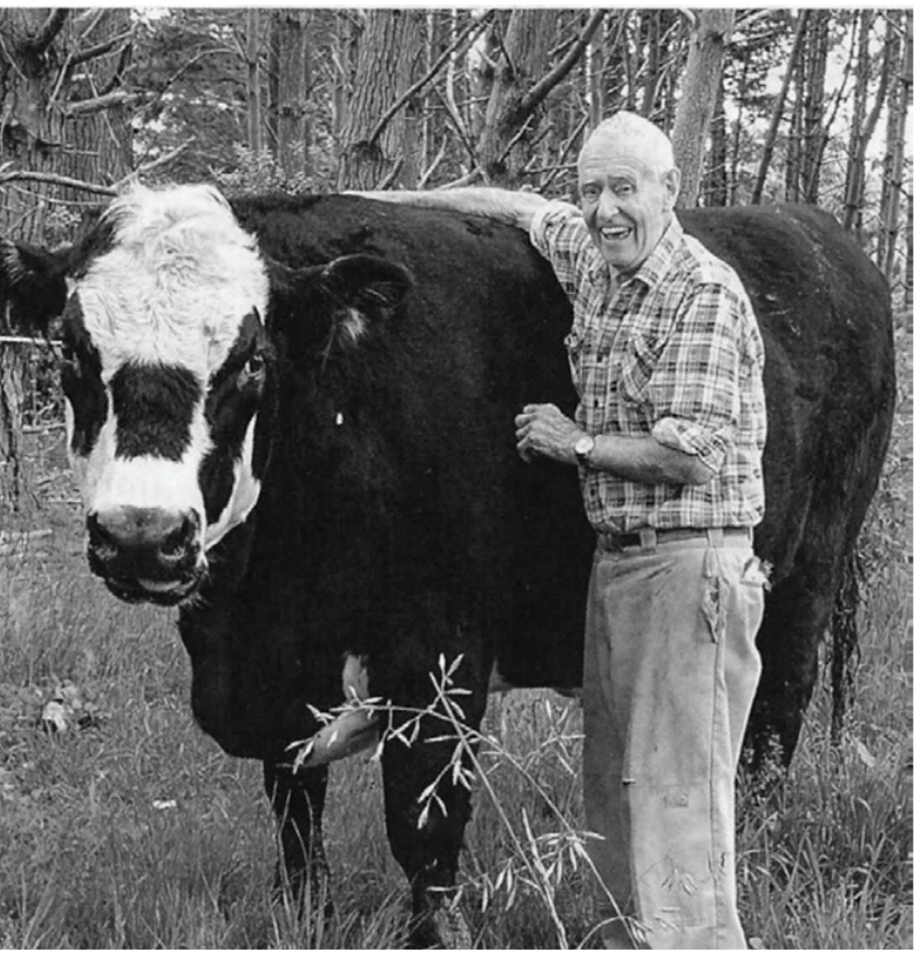
"Now we have the space," says Roger, "we're keeping more and more of what the locals want in store. We have parts for tractors and trailers, certified rigging gear for our logging industry, fasteners and consumables for anyone maintaining or restoring anything mechanical … Obviously, we don't have accounts with every supplier, but we'll do our best to find whatever someone needs, or we'll happily tell them where they can find it. It's all about service."

He shows me a collection of stainless-steel fittings. "Five years ago, there was no stainless, but boaties use it all the time. So do farmers for spray gear, that sort of thing. So it was added to the range, and now we're building up stainless in the American threads too, for the hot rod guys. Brass, too, for people restoring old homes and villas.

Des recalls, "The old owners used to go to auctions. When the Mazda Ford plant at Wiri closed down, I think Lindsay had a piece of string holding his arm up. Two truckloads of stuff turned up. Nuts, bolts, window wipers, the old glass and ceramic fuses, every kind of lightbulb you can imagine. Take those fuses – you can replace a car's fuse-box and fit the new plastic ones. But no one



(From left) Des Ross, Mike Bancroft, Roger Pimblott, Tara-lee Brennan



The original Mr Thrifty and friend (photo: *Helensville News*)



Des (right) has been with Thrifty off and on for 30 years

wants to do that in a beautiful classic car. So when someone wants some of those, they really want them – and we've got them."

Shelf-wear stock

Roger shows me rows of containers out the back full of bits that have what the trade calls 'shelf wear', meaning they are coated with a thin film of dust and rust.

The franchise stores would certainly throw them out, but a lot of these parts you just can't find any more. They, too, are in the process of being catalogued and made available online. I ask the inevitable question, since it's not possible to stock literally everything: where do they draw the line on what to order? Tara laughs.

"For Roger, there is no line," she says. "If a customer needs it, he'll do whatever he can to get it, the result being that a significant part of our business is 'special order' items.

"This special service, as well as low prices, is what customers return for. Over the past few years we have fielded price increases from our suppliers of three per cent, five per cent, in some cases multiple increases from single suppliers, but we haven't increased ours – not yet anyway. We work hard to be the cheapest because consumers are smart and know how to compare. Our nearest competitor is Mitre 10 across the road, but in actual fact they direct a



The good oil



Shelf worn but too rare to throw out



The nut and bolt made for Thrifty by renowned local artist Jeff Thomson



Just some of Thrifty's many, many auto light bulbs

lot of customers our way who they can't supply. And farmers generally like to support a locally owned business."

Single items

In the tool section, we find a range of Teng tools of high-quality Taiwanese manufacture. "You see them in sets here," says Roger, "but if you just want one, that's fine, we can replace a single one no problem." Pretty much everything can be purchased in single units at Thrifty, right down to a 10c washer, something widely appreciated by cost-conscious locals.

Keeping it Kiwi, they carry the Aegis range of oils and lubricants, including a couple of specialist oils for classic cars. The company was founded by the racing driver Frank Radisich and is still run by his protégé and son, Paul. "It's great – if you've got a technical question, I can ring him up. Try that with Caltex," Roger says.

A collection of curios

Abundant evidence of customers' appreciation adorns the new shop.

A collection of oddities and curios stands above the counter, a custom desk made to fit the bullet-battered enamel-and-tin Goodyear Tyres sign, a treasure that attracts hefty offers, all of which are declined.

A donated hand-made farm bike with a 1930s Villiers motor-mower engine hangs from a chain over an aisle. And outside stands the pièce de resistance atop their roadside sign: a giant nut and bolt made for them by famed Helensville local and corrugated-iron sculptor Jeff Thomson.

Jeff's creative work is a perfect example of the quirky projects that end up featuring Thrifty product – with thousands of Thrifty rivets each year adorning his work.

Thrifty is now a seven-day-a-week business, closing only on weekend afternoons. The business has never changed its ethos, which, as Roger says, is to look after the locals and save them a trip into the big smoke, with the company motto: 'Bits and Bobs to Keep You Going'. And nowadays, with the shop migrating online, all of New Zealand is a local.

THE Shed

TEST YOUR SHEDDIE KNOWLEDGE

QUIZ NO. 6

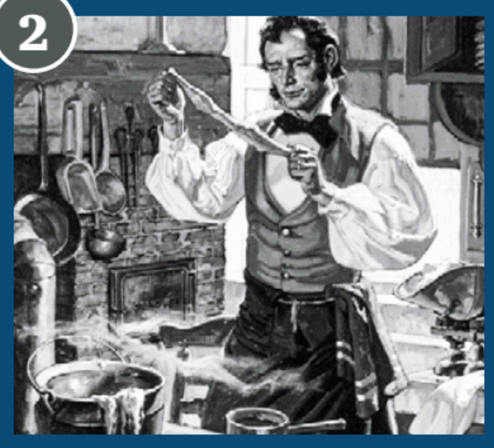
1



Is acetylene gas heavier or lighter than air?

a) Heavier
b) Lighter
c) The same

2



What element is mixed with natural rubber before it is heated in the vulcanising process?

a) Silicon
b) Krypton
c) Manganese
d) Sulphur

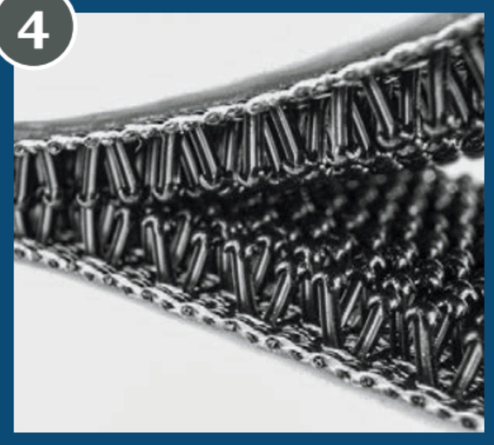
3



Why are car tyres black?

a) So that skids show up on concrete
b) It is the natural colour of rubber
c) To increase the life of the tyre
d) To improve grip on wet roads

4



Who invented Velcro?

a) James Dyson
b) Andrew Windsor
c) Georges de Mestral
d) Robert Hulme

5



Can ants hear sounds?

a) Yes
b) No

6



Buzz Aldrin and Neil Armstrong ate the first fruit ever eaten on the moon. What was it?

a) Tinned peaches
b) Dried bananas
c) Oranges
d) Dried apricots

7



What cell phone model was launched in 2007?

a) Samsung Galaxy
b) Apple iPhone
c) Google Pixel

8



Superman is famously allergic to kryptonite. Is krypton actually an element?

a) Yes
b) No

9



Men's Sheds are popping up all over New Zealand and Australia. Approximately when did this start?

a) 1960s
b) 1970s
c) 1980s
d) 1990s

10



How many Men's Sheds are there in New Zealand?

a) 50
b) 75
c) 100
d) Over 130

Answers: 1 (b) Lighter; 2 (d) Sulphur; 3 (c) The carbon black increases UV resistance, which extends the life of the tyre; 4 (c) Georges de Mestral. The name 'Velcro' comes from a combination of the French words *velours* (meaning the soft loop side) and *crochet* (referring to a crochet hook); 5 (b) No. But they can sense vibrations; 6 (a) Tinned peaches; 7 (b) Apple iPhone; 8 (a) Krypton is an inert gas. Its symbol is 'Kr'. There is a mineral called 'jadarite', also known as 'kryptonite', but its chemical formula contains lithium, sodium, silicon, boron, hydrogen, and oxygen, but not krypton; 9 (c) It is generally thought to have begun in Australia in the 1980s; 10 (d) Over 130. The number is continuing to grow as local councils see the value to communities and the mental health benefits for men.

MONOZUKURI
MADE WITH PURPOSE

Our *Shed* shrink discovers that it's not delivering a product or service that counts the most – it's the attitude and care with which they are delivered

I came across this expression – *monozukuri* – and, as with all things Japanese, there can often be layers of meaning to it (more than meets the eye), and no, it's not a new model of motorcycle from Suzuki either.

The term combines *mono* (meaning 'things') and *zukuri* (meaning 'to make' or 'to produce'). While often translated as 'manufacturing', its true essence goes far beyond that simple definition. Its core principles are:

- craftsmanship and skill: a focus on mastering techniques and developing deep expertise
- innovation and perfection: a continuous search for improvement and an ambition to achieve excellence
- pride and respect: a sense of pride in one's work and a reverence for materials and the creative process
- application: the concept is historically rooted in the creation of traditional items like samurai swords. It is a guiding principle in many Japanese industries today, from automotive manufacturing to traditional crafts. It has also been applied to service industries and even everyday life to encourage a mindset of meticulousness and care in all tasks.

In search of *monozukuri*

Once I knew what the word meant and the philosophy of *monozukuri*, I decided to go in search of a practitioner of this way of doing things, which led me to Mr Imazaki. Let's look into his world, but first, we need to have a comparison here in New Zealand.



I want you to go back in time to everyone's favourite burger bar – not the American fast food chain; no, just your regular Kiwi burger place – or go back even further and think of the mighty pie carts.

Well there's a bloke in Japan who has been running a hot dog stand for more than 50 years. On a quiet morning in Nishi Park, Fukuoka, the stillness is broken by a familiar rhythm. An elderly man, in a crisp white apron, unlocks an old, retrofitted Toyota bus. Inside, there is no chaos, just calm. The sizzle of sausages and hamburgers, the rustle of fresh buns, and the focused grace of someone who has done this for decades. The-Art-of-Doing-One-Thing-Exceptionally-Well = *monozukuri*.

Personal service

There are no apps, no digital screens, no flashy branding. Just a wooden menu, a perfectly grilled hot dog, and a warm *arigato gozaimasu* ('thank you so much') as he hands it over with both hands. His service is personal, and his attention to detail unwavering.

He's been doing this for nearly 50 years. And though he's gone viral in recent years thanks to videos showing his charm, discipline, and sense of humour, nothing has changed. It appears that he doesn't do it for likes or fame. He does it because this is his way of life – *monozukuri* – not out of obligation but out of devotion.

There is a sacred rhythm to his craft, a grace rare in today's rushed world. Mr Imazaki reminds us that age is not a barrier when your life is anchored in purpose. He moves slowly but intentionally. He smiles often but listens more. And he leaves his customers not only full but somehow a little more at peace. A legacy built on kindness and reciprocal respect. Though he operates alone, he is never lonely. His food truck has become a quiet pilgrimage site; his loyal customers line up patiently, some for hours at a time. They will tell you that, in fast-paced Tokyo, you can still find a symbol of the old values: humility, patience, and care.

Copy cats

Some young chefs have opened businesses across the city in respect for the old man.

He is not just serving food. He's serving wisdom. And the queue outside his bus is full of people not just hungry for a hot dog but for the warmth of human connection. I do not think I will ever look at a burger-flipping job the same again. This guy makes







Mr Imazaki, his food truck has become a quiet pilgrimage site

it look honourable and, dare I say, almost spiritual. I guess it's all about his attitude. Now, if the pie cart of the day had the same *monozukuri*, we'd still have them in most Kiwi towns? It's never too late; I guess our food trucks today can put out a mean pie, pud, and pea cuisine – perhaps they have some *monozukuri* going on? Recently, I was admiring the work of a friend of mine who's a woodworking guy and has a YouTube channel where he motivates his viewers with step-by-step processes on building a variety of modest projects. We discussed a project, a rocker bike.

Tim would be the guy to build one; it had to be suitable for our little grandson. I gave the plans to Tim, and he created, well, basically, a piece of art that can be used by hopefully generations of Seeks to come.

Tim's *monozukuri*

I ask Tim if he had heard of this Japanese philosophy.

He tells me yes and has applied this way of thinking. "Making things is what I do," he says. "I normally use recycled wood – for instance, I once made a guitar from some recycled rimu and the walnut headboard of a bed my wife used when she was five years old. I try to make beautiful things, no matter how basic they may be.

"My goal is to teach myself all the skills of a craftsman woodworker along the way. This means that I will make mistakes when I make things, but part of the learning journey is learning how to fix those mistakes. On my YouTube channel, I am documenting this learning journey, mistakes included, in the hope that other beginner woodworkers will be encouraged to keep going with this challenging hobby.

"You can watch me make my first mortise and tenon joints on a new workbench or work out how to turn plans from a magazine article into full-size templates, then use those templates to make a rocking bike for a friend. I have also found out that even the most basic things can involve learning new things, such as making a bowl without a lathe. Things like making a jig to cut circles with a router, and which router bits to use when. The biggest thing I have learnt is to be patient, take my time, and the results will follow."

> **"It is a guiding principle in many Japanese industries today"**

Happy New Year

Hopefully this New Year, you have your own plans for those projects hiding under the bench, but if you need some motivation, look up some of this article online. Follow the links, and I hope that, just like Tim, we can all show a little bit of Kiwi *monozukuri* in our shed projects in 2026.

RANGITAKA ISLAND MILITARY DISPLAY

By Ritchie Wilson | Photographs: Brian High

Every Labour weekend, a military museum in Geraldine holds a military revival with impressive and realistic mock battles. *The Shed* was there to capture all the action in the trenches



Two years ago, Don Pelvin set up the Geraldine Military Museum as a retirement project.

He is pretty happy with how things are going, with an average of 1000 visitors a month, especially as his museum is one of six in the small South Canterbury town. He also organises the Rangitata Island Military Revival on the Saturday and Sunday of Labour weekend every year.

This is a combination of a display of military vehicles and gear, and re-enactments of actions from World War I and World War II, and it all takes place at the Rangitata aerodrome, an airfield owned by a local farmer. About 50 re-enactors turned up in their historically correct uniforms with their suitable weapons after word had spread in the tight-knit military history world that the event was happening.

Escape routes for the sheep

The trenches used in the World War I re-enactment this year – modelled on the defensive earthworks in France and Belgium – had been dug for the previous year's re-enactment. They've been slightly modified from the real thing to allow an escape route for sheep who may stumble into them between revivals.

Don Pelvin's part in this was to discharge his 25-pounder British artillery piece, which dates from the Korean War. He uses black powder but no projectiles.

The World War II re-enactors wore New Zealand Army uniforms while their foes were dressed as German soldiers. The skirmish enacted was between soldiers of the 2nd New Zealand Division (the 'Div') and German SS troops.

These crack German soldiers were typically brought into action in Italy in the last two years of the 1939–'45 war, when the New Zealand 28th (Māori) Battalion was in the line of contact. Very grim fighting usually ensued.

Kiwis at war

Uncles on both sides of my family fought in Italy. One throughout the Italian Campaign, from the landing in Taranto in October 1943, to Trieste in May















1945. The other, Ian Thomas Wilson, drove an 18th Armoured Regiment tank through Northern Italy in 1944 and 1945. I've seen a photograph of his tank, probably a M4 Sherman, festooned with 'liberated' truck tyres. I can only remember two things he told me about his wartime experiences: the fine sight of the column of New Zealand tanks descending the hill into Trieste, with the sun reflecting off their turrets, and his not drawing any pay during the entire time he was in Italy. I thought this was pretty strange, but I have recently read *Kiwi Down the Strada* (1963) by Leslie Hobbs, George F. Kaye, and Neville Colman, a compendium of amusing tales featuring soldiers of the Div, where it was stated that New Zealand soldiers not bothering to attend pay parades was very common and a source of concern to the military authorities. Uncle Ian's middle name was after his Uncle Thomas, a Gallipoli veteran, who was killed by shrapnel on the Somme in May 1916. Another uncle, John Wilson, was killed in 1917 in France while serving with the Australian Medical Corps.

My mother refused to sew the ribbon for the Italian Star medal on my father's naval uniform because she thought his service in the Mediterranean was insignificant when compared with her brother's gruelling 20-month-long struggle up the country.

A long history

Re-enactments of battles have a very long history, going back at least to Roman times. The Colosseum in Rome was, so we were taught in school, able to be flooded to re-enact sea battles called 'naumachia'. In 1913, to mark the 50th anniversary of the US Civil War Battle of Gettysburg, a reunion was held, with more than 50,000 veterans from both








htung!
nen!



























> “Many take historical accuracy extremely seriously”

sides attending. The reunion featured re-enactments of notable parts of the battle, such as Pickett’s Charge. The Civil War’s centenary in the 1960s also involved re-enactments, which led to the many staged today. Participants dress in historically accurate uniforms and carry appropriate weapons. Many take historical accuracy extremely seriously.









New Zealand has two military re-enactment societies: the Historical Reenactment Society (established 1995) and the Military Reenactment Society of New Zealand.

Don's collection

There were more than 60 military vehicles at the Rangitata Revival – about a third belonging to Don Pelvin – see *The Shed* Issue No. 105 for an article on Don's extensive collection of wartime machinery and vehicles.

One of the more unusual was his articulated 6x6 amphibious Gamma Goat 1.5-tonne truck. These were made for the American army to use in the Vietnam War. It was able to be dropped by parachute and, because all six wheels were driven, it was an immensely capable vehicle, able to cross the roughest terrain.

His former–New Zealand Army FV101 Scorpion light tank is also noteworthy. Scorpions reportedly featured in the successful Ukrainian offensive of September 2022, which regained significant lost territory in the Kharkiv Oblast. These Scorpions had apparently been bought privately before being sent to Ukraine. Don says the price of a Scorpion has tripled in recent years, perhaps as a result. To make them light





























> “Scorpions reportedly featured in the successful Ukrainian offensive of September 2022”

enough to be air mobile, the armour is 13mm thick aluminium alloy, giving them a weight of eight tonnes. They have a 76mm gun and a top speed of 73kph; it’s easy to imagine them causing real panic when they got into the Russian rear areas.

Military vehicles are built with rugged simplicity

Another light tank at the revival was Brent Jones’s M41 Walker Bulldog, built by Cadillac. Over 5000 were made between 1951 and 1954. It was also equipped with a 76mm gun. They saw service in many civil wars (Guatemala, Ethiopia, Somalia, Lebanon) and insurrections (Brazil, Thailand), as well as the US invasion of Cuba in 1961 and the Vietnam War.

Military vehicles are interesting not just for their history but also because of their rugged simplicity. Soldiers’ lives often depend on the durability and capability of their rides. Two places to see very interesting examples of these are the Rangitata Island Military Revival and the Geraldine Military Museum.

See a video made by Brian High on the 2025 Rangitata Island Military Revival event on *The Shed* website:
https://theshed.nz/video-of-geraldine-military-museum-military-revival/

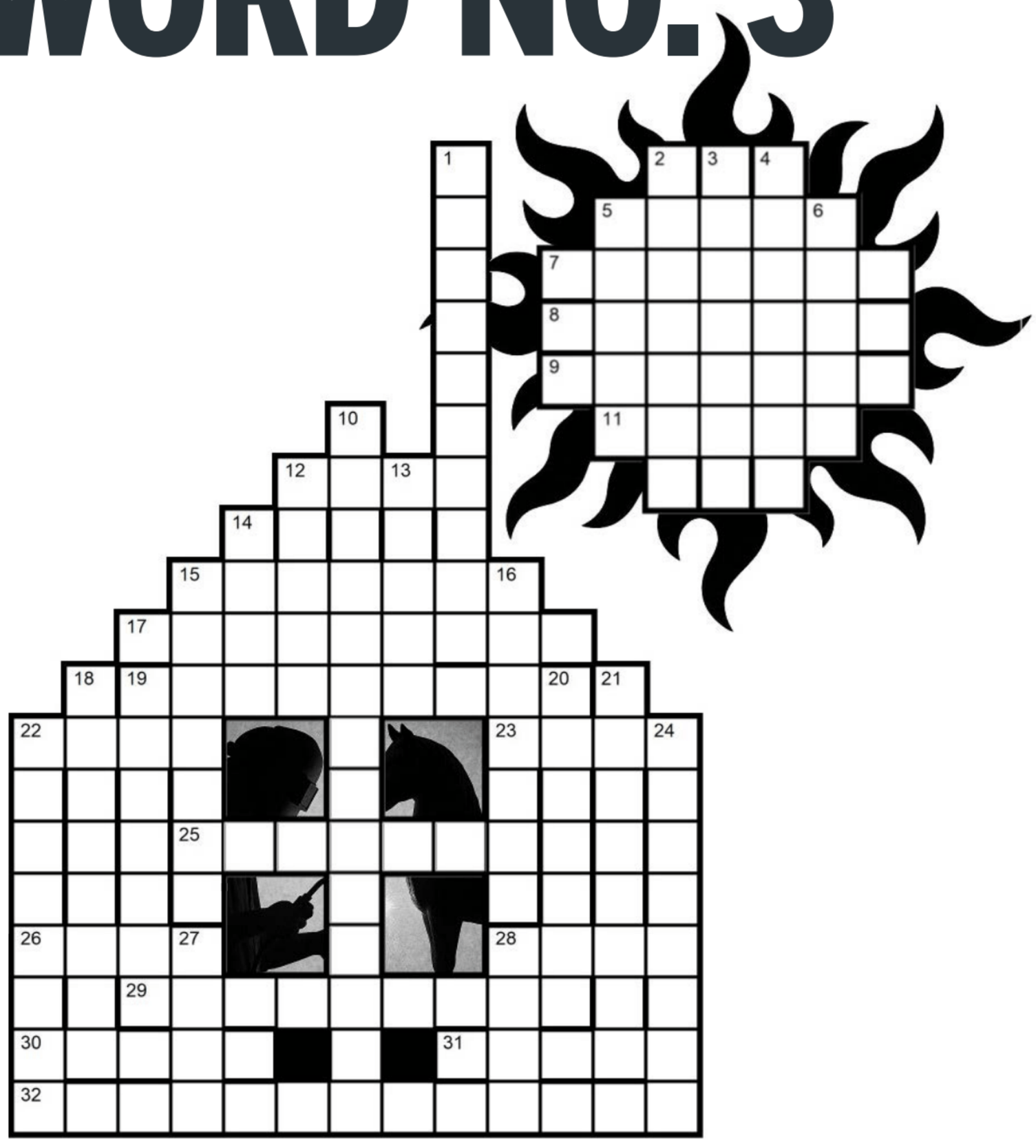
Geraldine Military Museum,
1A Talbot Street, Geraldine
info@geraldinemilitarymuseum.co.nz

Historical Reenactment Society
commander@hrs.org.nz

Military Reenactment Society of New Zealand
ww2reenactors.co.nz

THE SHED CROSSWORD NO. 3

By Māyā



Across

5 Woman with old record may be fleeced (5)

7 Mother's knocked over a flask (7)

8 "Stop at once, Liberal fly-by-night!" (4,3)

9 Trim harlot admitting woman who raised Cain could be anyone (7)

11/6 (5,5) "Green juice" - an album by Lorde?

12 Bravo! You returned the float (4)

15 Marsupial's footwork's almost illustrated by this answer (7)

17 Teller's companion short changed - what can be purchased with old coins? (9)

19 A clue for "goes" by Mr. Hyde and Ziggy Stardust, for example (5,4)

22 Absence of the entire thing after the first (4)

23 Actor John appearing in "Nighthawks" (4)

25 A strong drink, and Nigel's holding nothing back (4,3)

26 Slanted column unlocked after vacation (2-2)

28 Fellas stripped for Ms. Fitzgerald (4)

29 Queen Else contrarily hiding what one might go off in - which could change the cabinet (9)

30 Conductor of a type of rock music? (5)

31 Raspy sounding nag? (5)

32 What happens if I kick the car? Yes, painful slippers and dog tags (8,5)

Down

1 Relaxed hit men copy a smoker illustrated by this answer (7,3)

2 Singer also brought up to smoke (7)

3 Utter cad rings for hearts (7)

4 Band's elliptical expulsion (7)

5 Palindromic kings of Persia (5)

6 See 11 Across

10 Unfashionable for Dracula to be unconscious? (3,3,3,5)

12 Daniel the pioneer, Derek and I (5)

13 Give away secret concerning eccentric (5)

14 Type of backward scripture (4)

15 Rent again let out recent production (7)

16 Travelling light? (7)

18 Support in some part of an oath often said before God (2,4,2)

19 Gore, darling - it's everywhere! (3,4)

20 Secure hut - Glen's content to be left (7)

21 Ancient Greek flatterer got a nasty hangover (8)

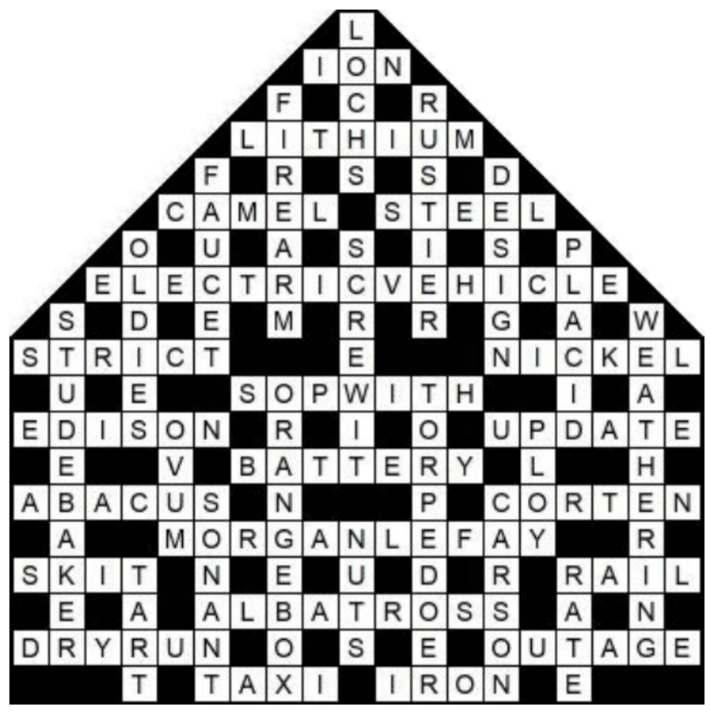
22 Room where French note cheese (8)

24 Bombing Mars, wage military exercises (3,5)

27 Actor James in "A Case of Decisive Action" (4)

28 Future humans are foremost in ennui (lack of interest) (4)

Answers: *The Shed* Crossword No. 2



IMMORTALISED IN STEEL

By Vicki Price | Photographs: Vicki Price

A Jack of all trades has found his forever shed in rural Taranaki, where he lives with some treasured horses and his best mate, Boulder the staffy. He makes metal works of art for fun, not sale, and lives and works in an old hay barn alongside his Harley. Bruce Aldridge is one contented sheddie



A man, his horse and dog, and a shed full of creativity. Bruce builds his sculptures in here, then showcases them outside around his property



Bruce has trained his rescue dog Boulder to sit atop Billy the horse. Boulder is getting bolder about staying there, even when Billy is walking. Spike the Kaimanawa looks on from his stall

The postie must hesitate on dark and stormy mornings to reach into Bruce Aldridge's letterbox. It is guarded by a large and rusty entity called 'Creature' – for the dictionary's definition of a cross between a human and an animal. The imposing sculpture is a hint of what awaits within the gates of this rural Taranaki property.

An enormous pterodactyl with a wing spread of 14m, named 'Big Bird', flies threateningly over the main entrance gate, looking like something out of *Jurassic Park*, and a T. rex (called 'Big T') stands tall amid the tī kōuka (cabbage trees), ready to pounce on a hapless gremlin perched among the branches.

Near the house, there are more benign forms. A larger-than-life kiwi sits in a rock garden, and around the back, a well-endowed metal man named Urenui pees pumped water into a trough. 'Urenui' means 'big penis' in te reo Māori; 'Uruti' means the opposite. Both are settlements north of here.

A horse named Billy, and a dog named Boulder

Dominating the far end of Bruce's country-sized studio is a life-sized sculpture of a rearing stallion with a dog on its back. Bruce has been working on this for some months, and when we visit, it is almost complete and ready for installation. The horse is modelled off his actual horse, a 15-hand-high grey named Billy, and the dog, a Staffordshire bull terrier rescue named Boulder.

"He was supposed to be a little handbag dog," says Bruce, who was hoping to find a smaller dog to take on his horse adventures but found Boulder instead. The nugget-coloured Staffy has taken to his life with Bruce and is even proudly learning to ride the horse by himself.

Getting the proportions of a horse in the rearing position right has come naturally to Bruce, as he has spent much of his life working with them. At one time, he had a horse-trekking business. Nowadays, Bruce just has two horses, Billy and a Kaimanawa named Spike. While the proportions are correct, getting the weight balanced has been a real challenge.

"So, what was going to happen, [there is] some counterweight with the tail, but he's got that heavy now, so I'm going to look for the rear end of a tractor. But in the meantime, in about another month, I should have it all covered in and even finished. The tail here naturally moves, and I would be able to take it off," he says.

An attraction for passers-by

When the sculpture is finished, it will be mounted on the deadman at one end of

Bruce's lifetime with horses made getting the proportions just right in his sculpture modelled after his real-life stallion, Billy



"Has visions of it being able to move like a windcock in a strong wind"

the flying fox that Bruce previously had put in the roadside paddock. He plans to weld another piece of steel to attach the horse to the base, and the bushy tail will cover that. He has the horse standing on a turntable and has visions of it being able to move like a windcock in a strong wind, which there is no shortage of here, up on the ridge.

Aware that this will be quite the attraction for passers-by, and the road is a narrow one, Bruce plans to bring the fence line in to create a safe space for cars to pull over, but with a sign to deter people from climbing in for a closer look. The horse and dog sculpture is made from scrap metal Bruce buys from a business in New Plymouth that manufactures washers. Bruce buys the strips of metal left over after the washers are punched out, for the scrap metal price.

He welds the strips together, but to make other metal pieces, Bruce needed a forge. This he built using a 1920s

Once positioned out in the roadside paddock, the Billy and Boulder sculpture is stunning passers-by

water-press from an engineering shop – something he spotted on a visit.

"I salvaged that, and I put the legs on it. It makes the hair on my back stand up. It's a 1920s air vessel. Before the welders, it was riveted. So, I've just made [it into] a big brazier," he says. Another creation was made from an old gear-box by Bruce's dad: "My dad built the wood lathe using a car gear-box and got many years of enjoyment making bowls, lampshades, ashtrays, etc."

History comes alive here

Outside, we are looking at the humble, historic tōtara fence posts that Bruce saved from going to the rubbish tip.

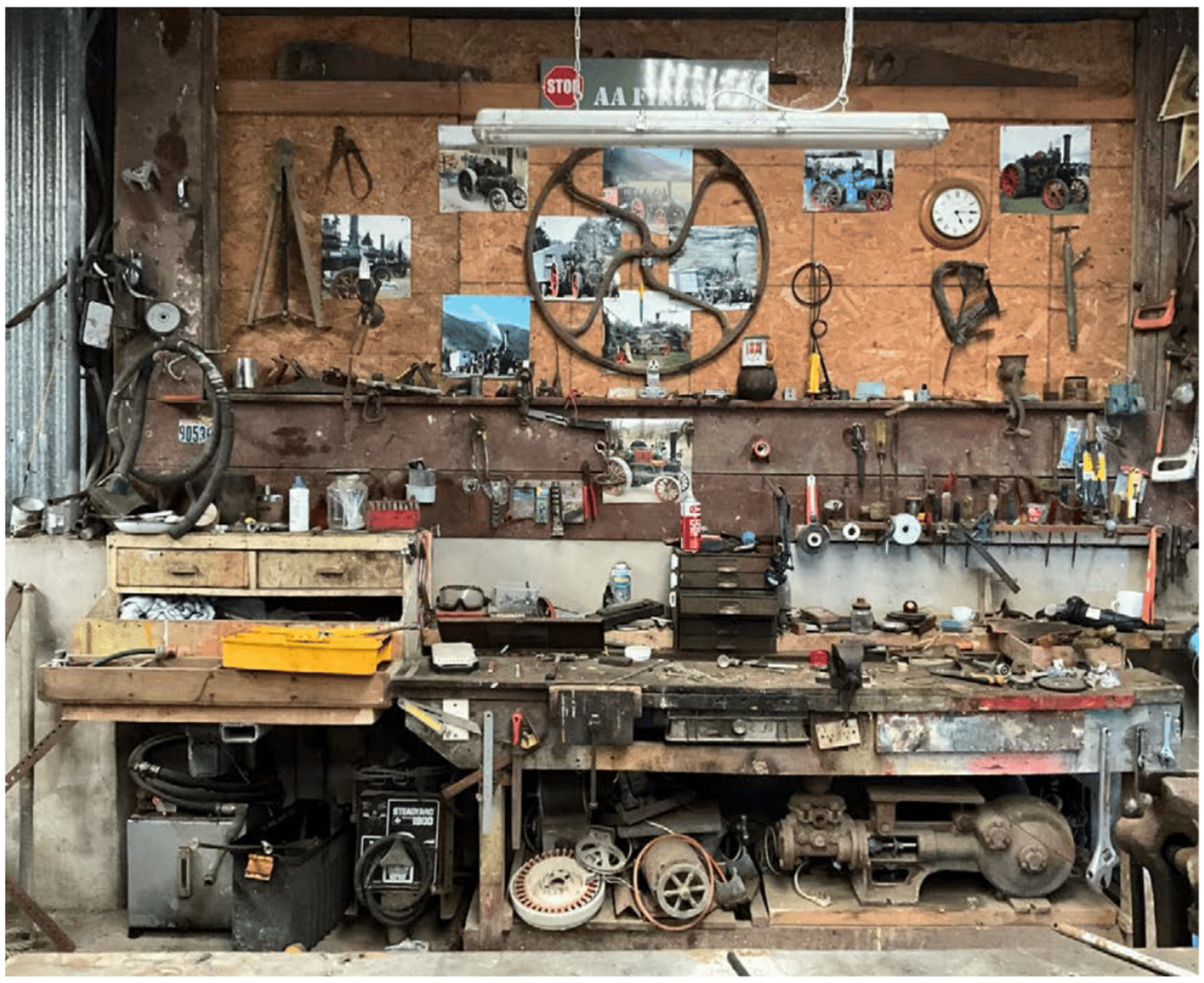
They were made around a century ago, by someone with an axe, a wedge, and most likely a maul. They were from a tree felled; split into logs, which were perhaps buried for future use; and then split into fence posts. These are history. The recent owner of the posts wasn't fussed, but Bruce loved them. ▶



The brazier was made with scrap metal from Bruce's stash and makes a great barbeque



Looking every bit the pioneer, Bruce has converted this shed into his home



A workspace, yes, but even that has been decorated with Bruce flair



The forge was built by Bruce using a 1920s water-press found in an engineering shop. "It makes the hair on my back stand up," he says of the rivets used – before welding became the usual practice



This yard is primarily used for dealing with the horses' needs, such as trimming their hooves

"So, I said, 'They're not going to the dump' – that sort of shit turns me on, mate," he explains. Bruce has an eye for anything with history, particularly with a story.

When he first saw his new, old shed, it was full of hay bales that were carted out to make room for the two big truck- and trailer loads of engineering gear that he carted in for his new studio. The shed had been a cow-, then a goat-milking shed, before he bought the Taranaki property in 2009. He converted the old hay barn into his home, as he had rented out the existing house on the six-acre property, which had been moved onto the land by a previous owner.

A living and a creative space

Of his converted-shed home, Bruce says, "People call it a 'man-cave'; I hate that word." Whether cave or not, the two sheds seamlessly connect to each other, living quarters in one and a huge creative and tinkering space in the other.

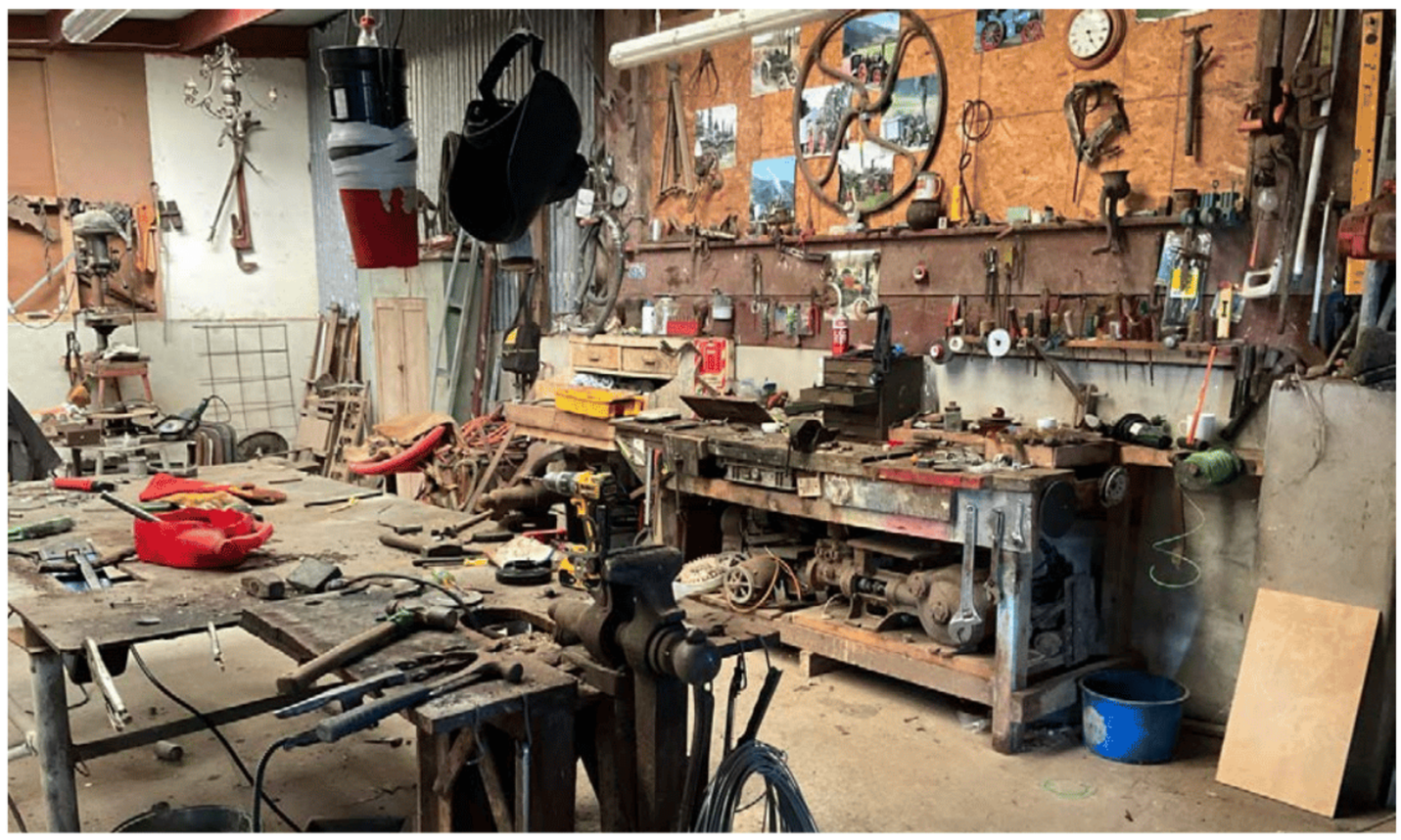
"I'm a farm boy from Stratford. I didn't inherit the farm, but that's another story. I wanted to be a farmer, so I just went and got heaps of jobs, labouring for a builder, in engineering firms and stuff like that. I'm a Jack of all trades," he says.

All this experience has meant Bruce has built up many skills useful in a shed and a hawk-eye for any object that might be useful in his creations.

Horses and Harleys

The old milking part of the cowshed has become Bruce's Harley-Davidson motorcycle 'stable'. He filled the pit in





A true engineer's workshop

with concrete and made a space for the bike that he bought from the US. During the US market crash of 2013, the New Zealand dollar matched the US dollar.

"So, all the boys over there were selling their toys, so there were just steal-deals going down," Bruce explains. He bought the bike sight unseen, so he admits that it was a bit of a lottery, but it turned out to be a great bike.

A cordoned-off space, protected by a wall with Hazchem signs and a door with steel bars, is a storage space for tools and petrol. On the opposite wall hang several saddles and other horse gear. Everywhere are pictures of horses and Harleys.

Outside is a concrete yard where a water tank on a stand is draped with reinforcing mesh, chains, rolls of wire, and a ladder. It is here that Bruce attends to his horses, and the ground is littered with hoof shavings from a recent filing. It is a beaut spot for a sheddie.



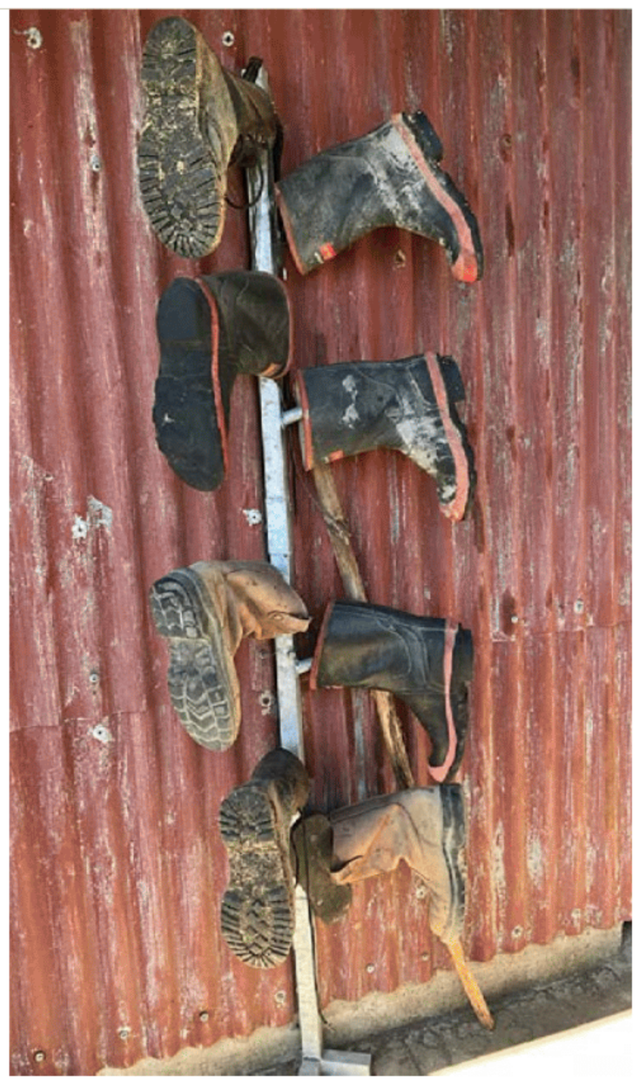
Horse gear hangs in the old cowshed with Bruce's Harley

Bruce's OE

Bruce explains how he came to be here: "About 25 years ago, two of my children were doing their OE in London, and it was at that time that the wife decided to leave home, and the cat ran away, sort of thing. So, I put ten grand in my pocket, rang the kids up and said, 'Right, your old man's coming over, to make sure you're behaving yourselves.' And to cut a long story short, they had done their OE, came home, and I was still over there."

Bruce spent several years travelling and working around the UK and Europe, his sheddie skill set coming in handy. ▶

> "So, I said, 'They're not going to the dump' – that sort of shit turns me on, mate"



Even gumboots have become a sort of sculpture in Bruce's hands



The marlin sculpture above this shed is a memorial to Bruce's dad, who caught one once

He applied for a welding job in London for a company that made movie props, where he felt flung back into medieval days, making cast-iron doors and the like. It was fun, he says, but he wasn't a fan of London. Ireland and the Isle of Man followed, then the Netherlands and America.

While in the US, Bruce made the 29-hour trip to Santa Barbara to meet renowned horse-whisperer Monty Roberts. He spent one month as an intern there, working for three weeks for free so that he could have one week's free tuition.

Monty himself was away on tour, but when Bruce returned to New Zealand, Monty was also here on tour. He finally got to meet him at a book signing.

A return home with truck-loads of gear

Bruce returned to his hometown of Stratford, buying a piece of land that he later sold to the council for a subdivision, which financed him into his current property.

He rented the existing house out and set to converting the cowshed and barn into living and working quarters.

"I bought two big truck- and trailer loads of stuff with me, my engineering gear and tools. So, I had to clear everything out before I could set this up," he says.

There is much to look at, outside and inside. Bruce's dad was a fisherman as well as a farmer, and once caught a marlin. This later inspired Bruce to create a marlin sculpture to hang above a small shed as a memorial to his father. A windcock on top of a shed was given to Bruce by his daughter on his 40th birthday. Now 70, Bruce says of the windcock, 'Harry', "he's totally naked now, and he's losing hair like me."

People have said to Bruce that he could be selling his sculptures, but he isn't interested.

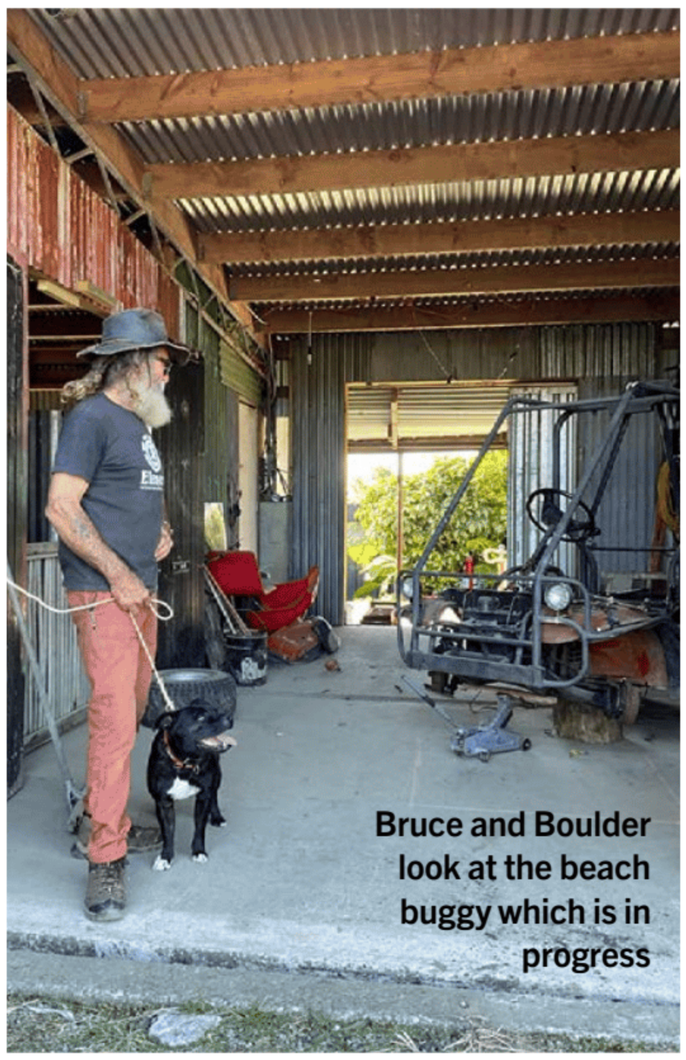
"I just want to do it for myself, right?"

Once the horse and dog sculpture is finished, Bruce is going to concentrate on his real horses.

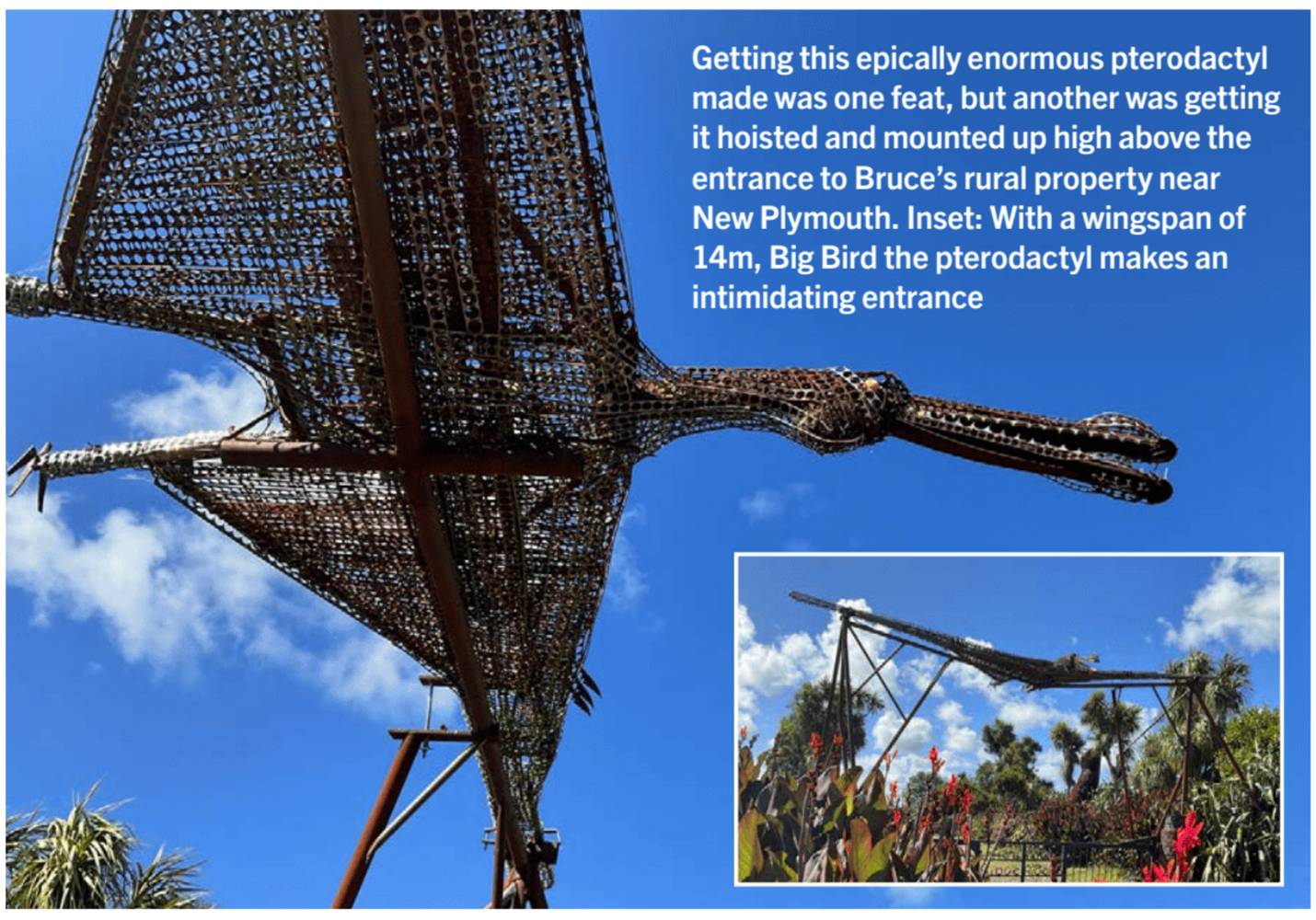
"Because we were supposed to go down to the South Island in 2023. With what's happened with Covid and what's going on in the world, I've sort of flagged



'Creature' stands guard over Bruce's letterbox and that of his tenant



Bruce and Boulder look at the beach buggy which is in progress



Getting this epically enormous pterodactyl made was one feat, but another was getting it hoisted and mounted up high above the entrance to Bruce's rural property near New Plymouth. Inset: With a wingspan of 14m, Big Bird the pterodactyl makes an intimidating entrance

it, but hopefully next year or the year after, we'll get down there.

"I took my motorbike down there 10 years ago, and loved it, but it was a belt-driven bike, and I couldn't get into the backcountry, and that's where I want to get."

Scottish roots and a bridge

In the cottage on the property, which Bruce is renovating, there are numerous old brass fire screens hanging on the walls, some depicting old farming scenes of horses pulling ploughs or carts.

"You've got the 11-foot stud in there, so I've bought a lot of those and put them around the top," he says. "I thought, man, they're going to be quite sought after in a few years' time. They don't make them anymore. That's all copper. And they remind me of my grandfathers, because they were all pioneers and that's how they used to do it."

Walls in his converted shed hold family photos and mementoes, including a tapestry made by his granny, who came out to New Zealand as a six-year-old with her family in 1856. The house she and her family emigrated from in Aberdeen, Scotland, still stands. Bruce has an old photo of a bridge and a creek near the property. Twenty years ago, he visited the area and tried to locate his ancestors.

"Now, this is no word of a lie, mate. I was in the area here, I was looking for this Dun Hill Creek. There's a big bridge here, I drove down; I can't see it … I can't see it," Bruce says.

He asked a neighbour.

"I knocked on the door, and an old Scotsman came to the door. He might as well have been speaking Māori. Next minute, his wife comes out and her broad Scottish … I was trying to get 'Dun. Hill. Creek.' and they just hadn't heard of it.

"So, feeling a bit frustrated, I jumped in the car and drove back out over the bridge, stopped the car, got a pack of fags, got a cigarette, walked down to this bridge; leaning over the bridge having a fag … there it is – they'd built a new bridge over top of it! Mate, I was so excited! I just jumped over the fence, ran out into this farmer's paddock and got a photo."

Bruce found his ancestors' home and knocked on the door. The people living



The T. rex is tall enough to appear to frighten the gremlin hiding in the tī kōuka tree

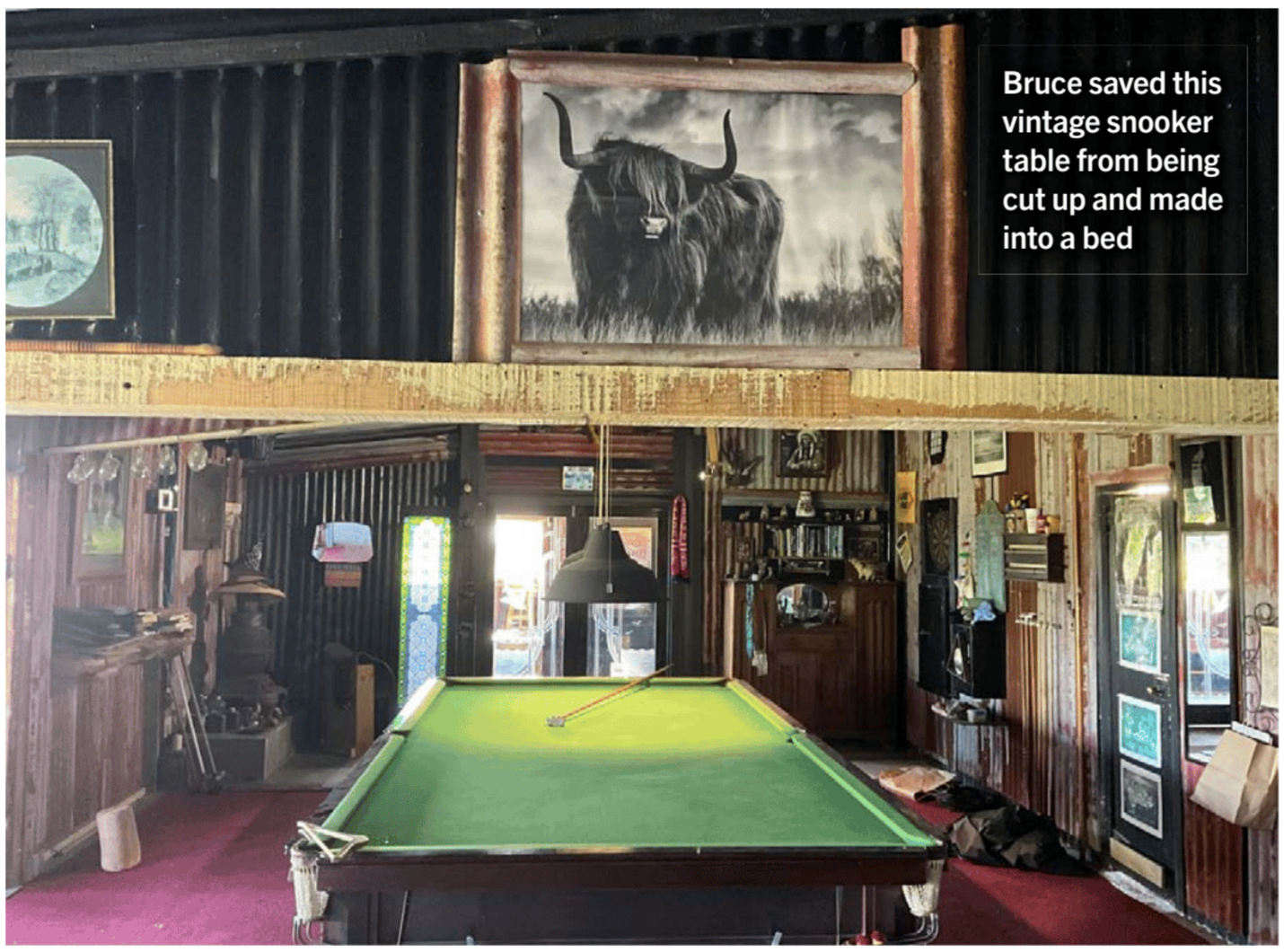


Scroll-work transforms this iron fence into a work of art

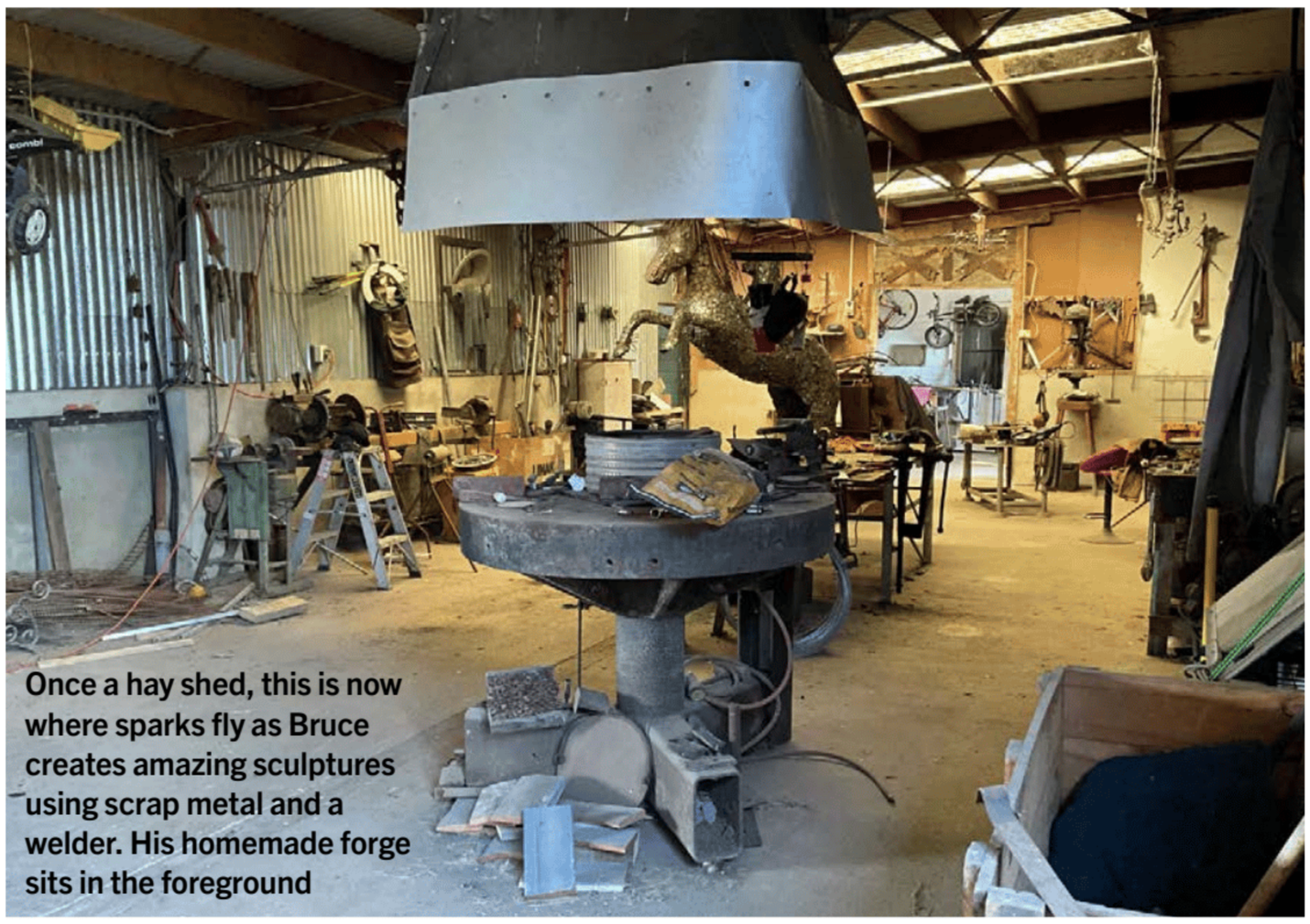
"Bruce made the 29-hour trip to Santa Barbara to meet renowned horse-whisperer Monty Roberts"



There are several fascinating and historic posters in Bruce's home



Bruce saved this vintage snooker table from being cut up and made into a bed



Once a hay shed, this is now where sparks fly as Bruce creates amazing sculptures using scrap metal and a welder. His homemade forge sits in the foreground



Strips of steel leftover from a washer manufacturer are used in many of the sculptures Bruce creates, in this case, a humble Kiwi

there showed him all around the barns, but not inside the house, which he would have loved.

Back in New Zealand, on the walls of Bruce's house, there are many old, framed pictures and paintings, one of which has a rural scene with a bunch of people posing in it.

"You see, I love this sort of stuff," he says. "I found this the other day in a junk shop. Someone painted it, gave it a bit of colour, which I quite like."

A shed for a home

Bruce is an energetic sort, and as well as training and riding his horses, he has converted what was his son's room into his yoga room.

The benefits of regular practice are evident in his lifestyle and creative output. He put batts in the ceiling of the living space, making last winter much warmer. "What a difference that made," he says.

The place has two bedrooms, making the rest a large open-plan living area, complete with a full-sized snooker table.

"An old Stratford mate knocked on the door one day. I said, 'Where did you come from?' He said, 'I'm your neighbour.'

"He'd bought a shed," Bruce says, "so he wanted to come and have a look at mine."

Bruce offered to go and have a look, to maybe give him some ideas. "And I walked in, and there was all this wood and stuff stacked up against the wall. I said, 'What's that?' He said, 'The dude I bought it off was going to have a helicopter pad, but when the neighbours found out about it, he wasn't allowed to do it.' It's a full-sized snooker table! I said, 'What are you going to do with it?' He said, 'Oh, I'll probably just chop it up and make a bed out of it.' I said, 'You're joking me, aren't ya?' He says, 'No. Why? Do you want it?' I went, 'Mate, not in my wildest dreams!' I never imagined I'd ever have a full-sized snooker table!"

"He'd bought a shed, so he wanted to come and have a look at mine"

Score!

Bruce immediately went home to grab his truck and returned to pick it up.

The metal plaque at the end of the table shows it was made by an Auckland firm, Barton McGill & Co., established in 1893

(the company is still going in Auckland, but its website states it was established in 1892). All the table needed was a slate slab and a sheddie's skill to lay it.

"It's a bit of a long story, but the dude that owned the shed, he's got three of these, and he had an engineering workshop in town, and he had a 40-foot container on there with all the slate in it," Bruce says. "He asked the dude who bought the business, could he leave the container there until he was ready to pick it up, and the guy said, 'yeah, fine'.

"But in the meantime, they had a falling out, so the dude who bought it was not going to give them back. He said, 'If you get yours out, you gotta get mine.'"

Through persistence, Bruce managed to get all the slate out, taking four guys with him to help carry them: each table's worth weighing a tonne.

When Bruce returned from a South Island trip, he got stuck into finishing setting up the table. When he had put the floor down in the shed, he'd never imagined that he'd need it to be completely level for a snooker table to sit on. So, he phoned a company in Hamilton called 'Pot Black NZ' and arranged for it to come down and put the slate on. The guy on the other end of the phone said, "You've got the woodwork up; how did you do your levelling?"

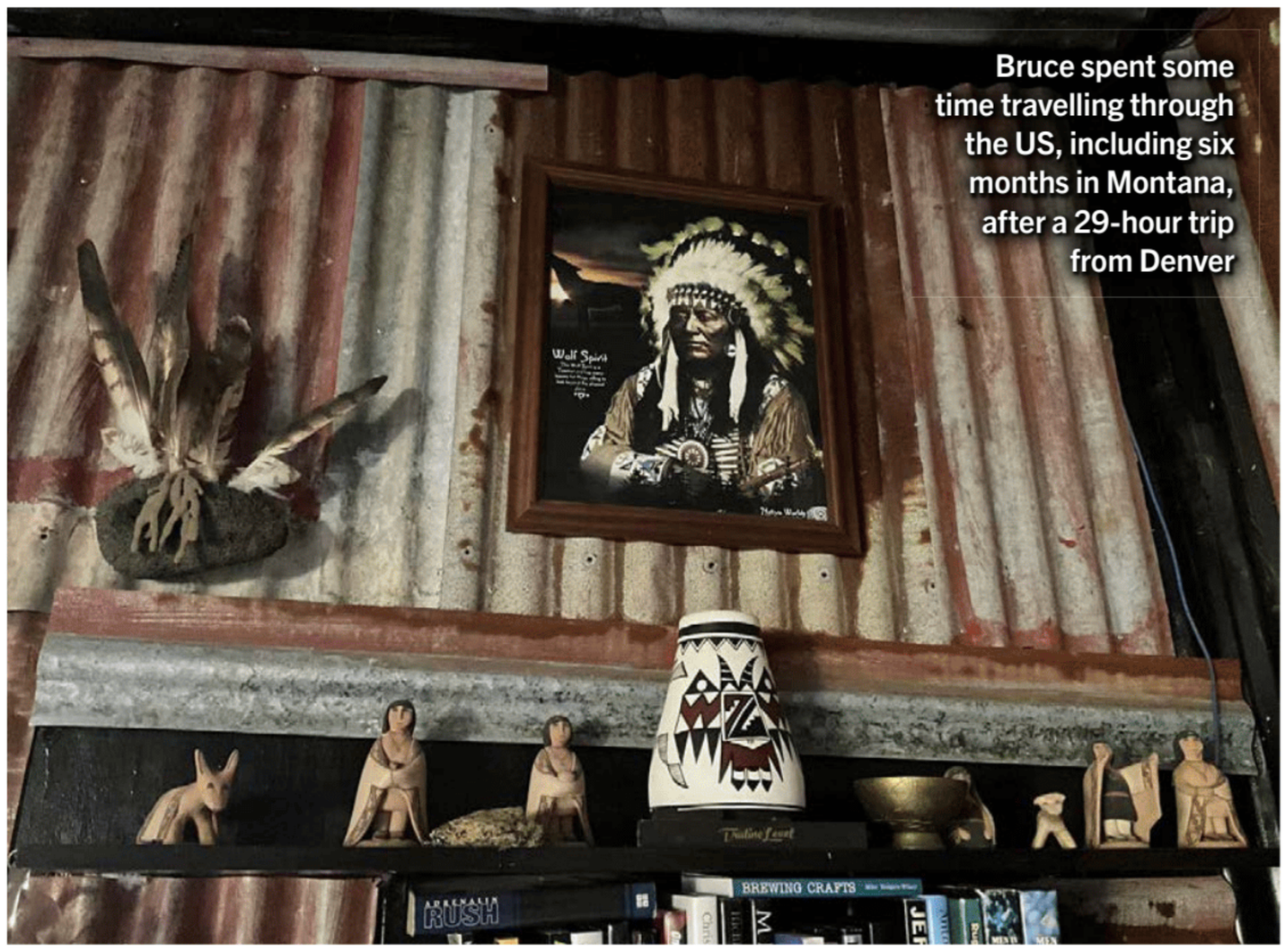
Bruce said, "Oh mate, don't worry about that." The guy replied that "it's really, really important. We can shim it, but if you're way out, it's not going to work."

Taking inspiration from the Egyptians' method when building the pyramids, Bruce had used water as a level. "Water doesn't tell a lie," he says.

He taped a clear plastic hose down each corner of the table and filled each with water. On one side of the table, Bruce had to dig a little in the concrete, and on the other side, he needed to build it up a bit. The guy from Pot Black and his mate (a former snooker champion) brought their own levels and were amazed at how accurate Bruce's water method was; it was dead level.

Hawk-eyed

Everything, seemingly, has a story in Bruce's shed. ▶



Bruce spent some time travelling through the US, including six months in Montana, after a 29-hour trip from Denver



Bruce's home is a shed and his shed is his home

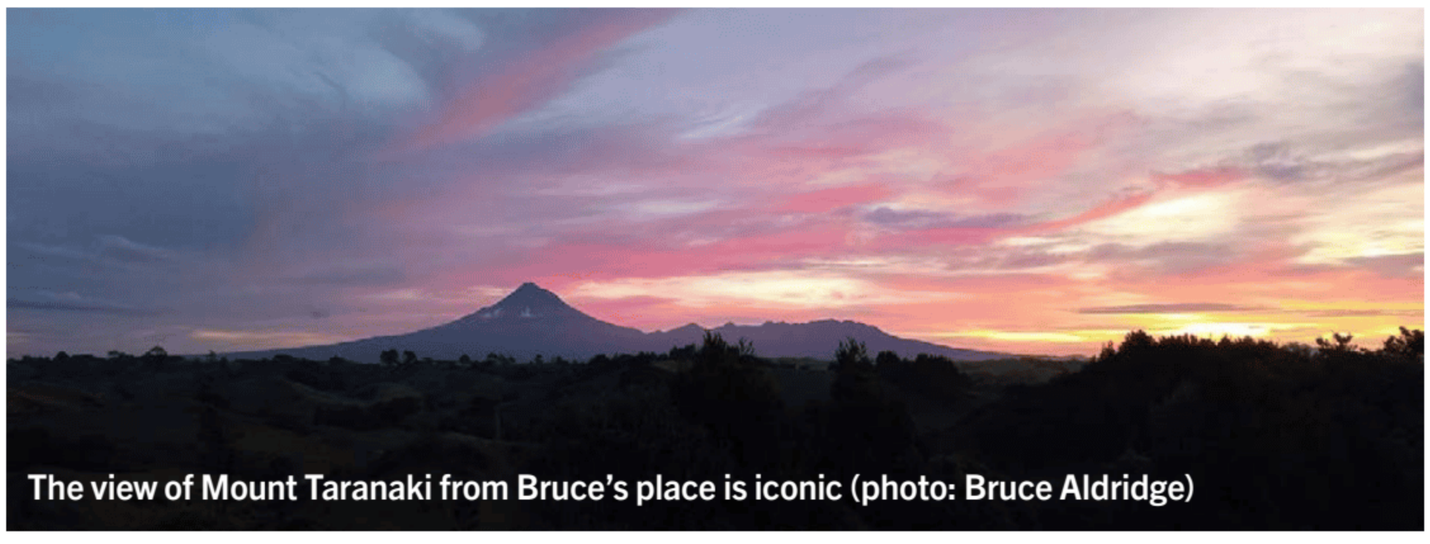


This home had already been shifted onto the property when Bruce bought the place. He rents it out and lives in his shed





Left: Bruce and Billy have a special friendship, one based on the language of horses learned from years of experience and from Monty Roberts the 'horse whisperer' of Montana. Right: Billy and Spike the Kaimanawa await further instruction from Bruce in a yard behind the old sign from Bruce's previous business



The view of Mount Taranaki from Bruce's place is iconic (photo: Bruce Aldridge)

When the shed was finished, Bruce painted the inside cladding of corrugated iron black, but he had always wanted rusty tin. While driving back from town one day, he spotted a pile of iron in a paddock. He pulled over to have a closer look; paid the happy farmer $50, who was going to sell it for scrap; and took it away. Now, his walls have a double-insulating layer of iron, which isn't a bad thing for a home on a ridge that bears the brunt of mountain winds.

Glass doors at one end of the 'snooker room' came from a home built 60 years ago in Waitara. Bruce reckons that the picture on them represents the Waitara River, the land, and seagulls flying over the sea.

It's the stories and the history that Bruce surrounds himself with that make this place very much his home.

A round pen and horse whispering

"These guys just want to eat grass and make babies," explains Bruce of horses. "And you know, with a dog, he wants to fight; like a deer – they're a flight animal, but you corner them, and they'll attack you, alright. That's the idea of the round pen: you send them [the horse] away from you, make them go away until they come to you.

"The first sign is that the ears are locked on you, then they start licking and chewing; they're ready to talk to you. Then, when they drop their head to the ground and do it, they want to come. That's when you just stop, and [make] no eye contact, and just do like a half-moon in front of them and turn your back, and that horse will come. And then you just keep walking, and it will follow you around. And [if] you turn around to touch it and it takes off, you make it do it again, until you can do this." Bruce strokes his horse's face.

Horses are a big part of Bruce's life, and his shed spaces reflect this. They complement the outside yards where he files their hooves; grooms; and in the round pen, trains them. The land sweeping to the mountain behind him is a playground for trail riding across neighbouring farms. It all feels like pioneer living – basic wooden and tin accommodation with sheds and horses. It was perhaps inevitable that a metal horse and dog would emerge from inside his workshop.

Erecting the Billy and Boulder sculpture

When we leave Bruce, he is excited about positioning his sculpture on his land. All his engineering experience would be tested in its construction, as the Taranaki winds hit it with full force. With a bit of luck, he hopes the thing will pivot with the wind direction, like a windcock, its stiff tail streaming behind it.

A couple of months later, as we pull up to Bruce's place, we see the Billy and Boulder sculpture standing proudly in the paddock, a work of incredible engineering skill and sheddie brilliance. Bruce says that he built a trailer especially to move it from the studio to the paddock: "I built the trailer so the horse was low to the ground, so I could move it by hand. So, the trailer only had to back into position." With mates to help him, he used a chain-block from the horse's tail to the deadman, and the whole operation went smoothly. The base is securely concreted into the ground, and the weight of it means that it is simply too heavy to move in the wind. Even so, Taranaki may become famous for its rural horse and dog sculpture as well as its Len Lye *Wind Wand* on New Plymouth's coastal walkway.

Bruce plans to make a bald eagle in a couple of years, which will be like a weather cock, mounted by the gates at the northern entrance to the property.

"I went to a friend's place the other day, and it scared the hell out of me," Bruce says. "He lives back off the road, and you've got to go past these trees, and there's this bloody eagle, man – it's like it's landing above its nest."

No doubt, there will soon be sparks flying in Bruce's studio, followed by new additions from other eras and other worlds to this windswept place on the ridge.

Bookcase

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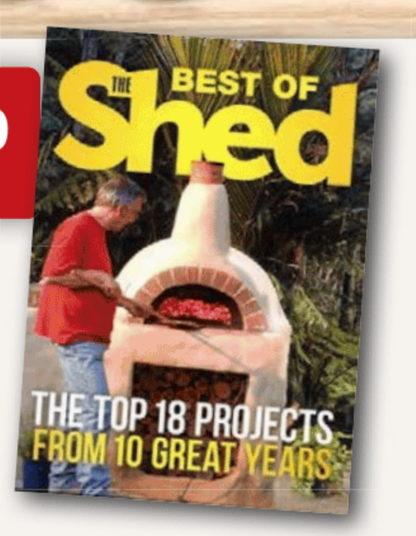

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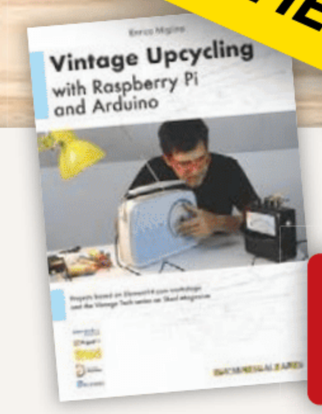

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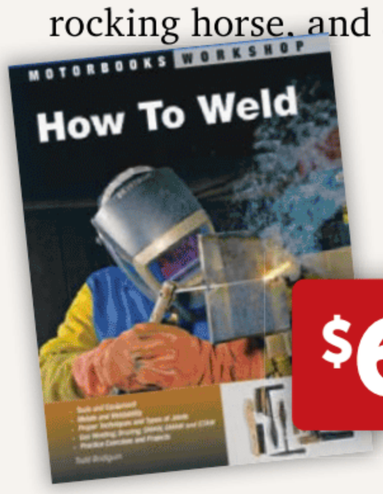

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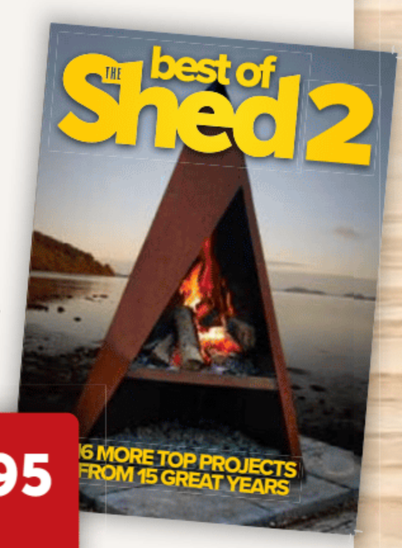

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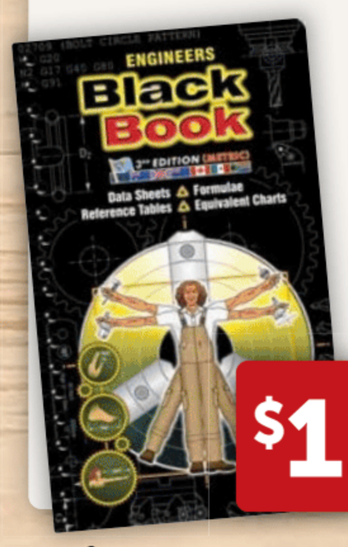

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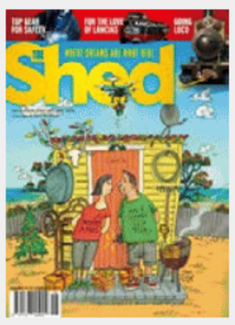

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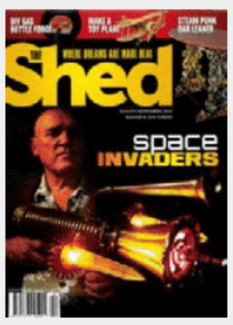

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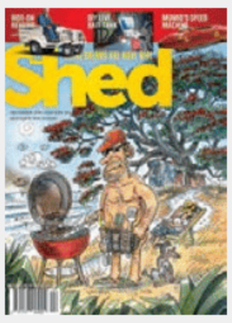

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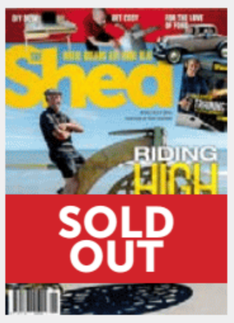

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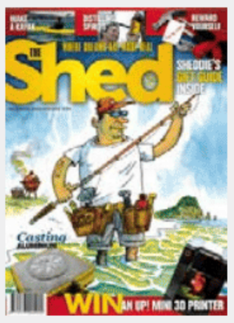

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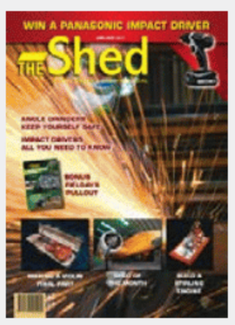

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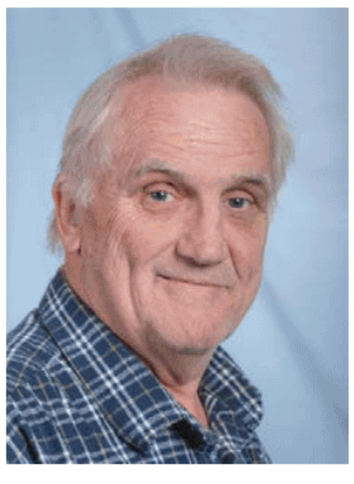
Pretending to be a farmer

THE LITTLE RED TRACTOR



Every summer, a sheddie's thoughts turn to farming. Well, for rural-based Jude they do, and he gets to drive his tractor as well!

By Jude Woodside

On my little piece of land I occasionally get to do farm things.

My place is used as a runoff by my neighbour for his rams. They help me keep control of the grass except in summer. In summer the grass gets very long as it throws up seed heads and sheep don't care for long grass, so the paddocks begin to look like wheat fields. It helps to top the grass, cut the seed heads, to make the grass grow again. After I have topped the paddocks they come away again after the first rain. Farmers do this by grazing cattle on the fields as the grass gets tall and then graze sheep after the cattle.

Nearly as old as me

One of my favourite farm things is topping the paddocks.

I get to start the old Massey Ferguson 35 and roar around the paddocks imagining myself a farmer. My real farming neighbours smile indulgently or just laugh. They don't bother to top their paddocks but then they have cattle and sheep so they don't need to. They also have quite steep hill country that I wouldn't want to drive a tractor on.

The old tractor, nearly as old as me, still starts first pop – at least it does now. Since I replaced the spark plugs and the distributor rotor, it runs like a well-oiled clock. It's great having one motor that I can understand and is simple enough to fix myself. The other remarkable thing about the old Massey Fergusons is that you can still find new replacement parts for every model.

> "And roar around the paddocks imagining myself a farmer"

It doesn't have the horsepower of newer models, it's not flashy, and the air-conditioning leaves something to be desired, but when it's running and purring away and the sun is shining, it's a true joy to be driving.

Cunning plans afoot

Being me, I'm not content at just using the tractor as a glorified ride-on mower – no, I have plans.

I recently bought a plough and a set of disc harrows. I'm not too sure the tractor will be able to lift the harrows. It might be the harrows actually lifting the front wheels on the tractor.

I have in mind planting spelt, an ancient wheat. In the '50s we hybridised wheat into better-performing strains that produced more and stronger gluten. From about that time there has been a rise in the number of people affected by gluten intolerance. It doesn't affect me but it does affect she-who-must-be-obeyed.

So I'm keen to see if I can grow enough to make a few kilos of flour. I can't afford to grow too much because I will have to harvest it by hand, which means getting handy with a scythe, something I've never done before. I also understand the stuff isn't the easiest to thresh either. So I'm looking forward to a whole new raft of learning.

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