

SPECIAL TOOLMAKING ISSUE

September/October 2021 QM08
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Quercus

WORKING WOOD BY HAND

Rex Krueger

The YouTube
Maestro on
Making Your
Own Tools



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PLUS Jeff Lefkowitz • John Lloyd • Michelle Mateo
Claire Minihan • Low Fat Roubo • The Tool Engraver



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Quercus

You'll find a new section in *Quercus* now. Appropriately introduced in a special toolmaking issue, *The Edge* aims to focus on tools and news, and reviews of online content and old-school books and magazines. It speaks for what we've always wanted to achieve, as a hub of information and conversation across woodworking's media and platforms, dedicated to working wood by hand. Our short profile of Rex Krueger, and a review of his and Paul Sellers' YouTube channels, and of Sean Hellman's book *Sharp*, typify what we have aimed to fulfill from the start.

With video in mind, I confess to watching one film, in a perpetual loop, for the week we're going to press. Twice it has been *Out of Africa*, the tale of Meryl Streep's Karen Blixen and her elusive lover Denys Finch Hatton (Robert Redford). Then it was *Apollo 13*, Nasa's successful failure, their 'finest hour'. This issue has Gary Oldman to thank for his *Darkest Hour* portrayal of Winston Churchill. Publishing a paper magazine with no advertising and few online skills, may seem foolhardy, with a touch of 1940's 'Little Ships' of Dunkirk, but we owe much to our supporters and contributors, and for you all, we will not be defeated.

Nick Gibbs, Editor

Credits & Production

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A selection of shop-made mallets. These can be turned, cleaved, or sawn to shape. Natural wood heads are easy on tool-handles and cheap to replace

Tools From Your Hands

Confirming plagiarism is the finest form of flattery, *Rex Krueger* suggests making tools as copies

It has never been my experience to meet a toolmaker, but I believe that all joiners must feel how very much their craft depends on the perfection of his skill." So wrote Walter Rose in his seminal work, *The Village Carpenter*.

Sometimes, we all feel like Mr Rose. Our tools are shaped by hands and machines we will never see. Their making is mysterious and even their function can be uncertain, but we take these lumps of iron and steel and we set them to work at the bench, tentatively at first and then with greater vigour as we learn which knob to twist and which cutter to tap. If you don't have the tool you need – the sash fillister, the astragal moulding plane – you work around the hole in your kit or you just set that project aside until a bonus or a birthday brings the missing tool home.

But all of us have stopped to wonder if we really need to wait on that missing tool. We've all rattled the pages of the tool catalogue, squinted at a picture, and thought to ourselves, "For goodness sake, it's just a blade in a block of wood with a hole for the shavings to come out of. How hard could it be to make that?"

As it turns out, not that hard. We can make many essential tools ourselves if we only try.

The Ghost of the Iron-Monger

Had we been joiners in the 17th or 18th Centuries, we would have made every tool in the chest, excepting the saws and the blacksmith-made cutting irons. It might have been written into our apprenticeship agreement that our master was to help us make all the wooden parts of our kit and maybe even furnish the metal bits when our term was up.

A competent tradesman could make almost any tool, especially if something broke on the job. The famous Dominy family of Long Island, USA made most of



their own planes, even from such unlikely timbers as oak and dogwood if nothing else was to hand. For these craftsmen, making tools was just part of the job.

Beginning in the 19th Century, the Industrial Revolution flooded the market with affordable mass-produced tools, and everyone got used to buying what they once would have made. Today, many hand-tools for woodworking are specialty items; rare and expensive. But the skills to make tools are mostly the same skills we use to make furniture. If you can saw, chisel, and plane, you can make an astonishing number of real tools. The materials you need might already be sitting in your shop.

Many of the apprentice's first tools were literally made from scrap. Reach into your burn-pile and you might pull out the stock for winding sticks, straight edges, squares, and a mallet. Squares in particular offer us a chance to practise precision while making a valuable tool. Many of us rely on a prized metal combination square, but that tool won't handle everything. Larger layout squares made from wood are a delight. They're nearly weightless, won't dent the work, and a worn square can be brought back to truth with only a

few strokes of the plane. The stock and beam of a try square can be joined in any number of ways, but the beginner might choose a simple bridle joint pinned with dowels or scraps of brass. Make a few of these and you'll never be caught short. If the job at hand requires an extra-large square, you can knock one up out of offcuts.

It's the same story with the mallet. Just a decade ago, you couldn't buy a decent joiner's mallet at any price. Now, we have our pick of pricey resin-infused models. I'm sure they're all lovely, but a mallet is just a block of wood with a handle and I think I'll roll my own. I've cleaved mallet heads from firewood, turned them on the lathe, and sawn them from ancient beams. They're all wonderful; each of them shaped to my hand and heavy

enough to whack with authority. You can buy that fancy mallet you have your eye on, but not until you've at least tried to make your own. I like having a handful of mallets for different tasks and experimenting with size and weight is easy when you make them yourself.

Not Out of Reach

As beginners, most of us find a couple of planes and saws without much trouble. The US and UK are awash in common carpenters' tools, and you can find them moldering in any secondhand shop. It's only after we buy these basics that we run into trouble. The hunt for the moving fillister, the router plane, and the rebate plane can be long and painful. These specialised tools have always been rare. Fewer of them survived and fewer modern companies make them. These tools might be hard to find, but they're surprisingly easy to make. Our forefathers in the craft could only make specialised tools once they'd mastered tricky, angled mortises, but we have the advantage of modern adhesives and where our ancestors struggled, we will simply laminate.

My favourite moving fillister plane was

made by laminating the pieces together. I sawed a block of cherry at 45°, trued the angle with a smoothing plane, and then glued both pieces onto a chunk of maple. I made a wedge, used a chisel for the cutter, and screwed a fence to the sole. The tool cuts as sweetly as many commercial models I've used and it spits the shavings neatly out the side. If my stories of tools made from scraps seem too good to be true, I don't blame you. I struggled in the beginning, too. But there's a simple secret to making really useful tools.

Copy, Copy, Copy. Don't innovate. Find a proven design and copy it. You might need to simplify a shape or tweak a design to suit the cutter you have. Copy a time-tested design and you're likely to make a good tool.

Anyone can find a picture of the tool they want to make, and I've built plenty of tools from grainy old pictures. But if that's not enough, you can buy a tool to copy. Old, worn-out, and even broken tools can still tell you everything about the tool's design. eBay is filled with old tools being sold as 'primitives' or decor and they sell for pocket-change.

When I built my wooden router-plane, I bought an old 'granny's tooth' router off ebay.uk for about \$10. From this tool, I copied the bed angle, throat, and size of the tool. I could have also salvaged the cutter, which was in perfect condition. Instead, I used another spare chisel and again, I laminated. I sawed my stock in half on the diagonal, sawed and chiselled the mortise and then glued the stock back together to seal it up. The original tool had a comfy but complicated shape. It might have been made from a scrap of fancy handrail and those curves would be difficult to copy. Luckily, a simpler shape was within reach and didn't change the tool's function one bit.

Old, user-made tools also come with layout lines and tool-marks that can tell you everything about how to make your own. A late night scouring eBay brought me a tiny Japanese cutting gauge. It had shrunk and split and some previous user had nailed the tool back together. By the time I got it, the gauge was frozen and useless, but traces left by the maker told the whole story. Crisp lines revealed saw cuts, while torn fibres showed the spots where waste had been quickly split off the main body. The fine, knife-edge cutter was set into the beam with almost magical precision that baffled me until, squinting at the underside, I found the tiny half-circle where a drilled hole had let a coping saw blade slide in and sliced the cutter's narrow slot. A few minutes after making this discovery, I had my own cutter installed and my copy of the gauge was slicing cross-grain with surgical



Four excellent try-squares made from wood (above). I made three of them myself and I use them in my work. The square on the left is in the French pattern and is still true, despite being over a century old. Two Japanese cutting gauges (right). Left: The original was unusable but it demonstrated an excellent design. Right: My version is a faithful copy. Both of these low-angle Jack planes (below) were made in my shop. I poured days of work and gallons of sweat into these tools and neither of them works worth a damn. Don't waste time like I did.





Homemade cutters are straightforward to make. This extra-thick plane iron (below) was made from inexpensive 1095 steel. I hardened it in my backyard and tempered it in my kitchen oven. It cuts, sharpens, and holds an edge just as well as most commercial blades. My shop-made router plane (above and right) pictured next to the antique example that inspired it. Mine may lack the grace of the original, but it was fast to build and it works great



precision. When I make my own tools, I usually leave as many of the layout lines and gauge marks as I can. Years from now, some craftsman will find my tool in a junk shop and want to copy it. They should have an easy time because I've left all the instructions.

On Steel

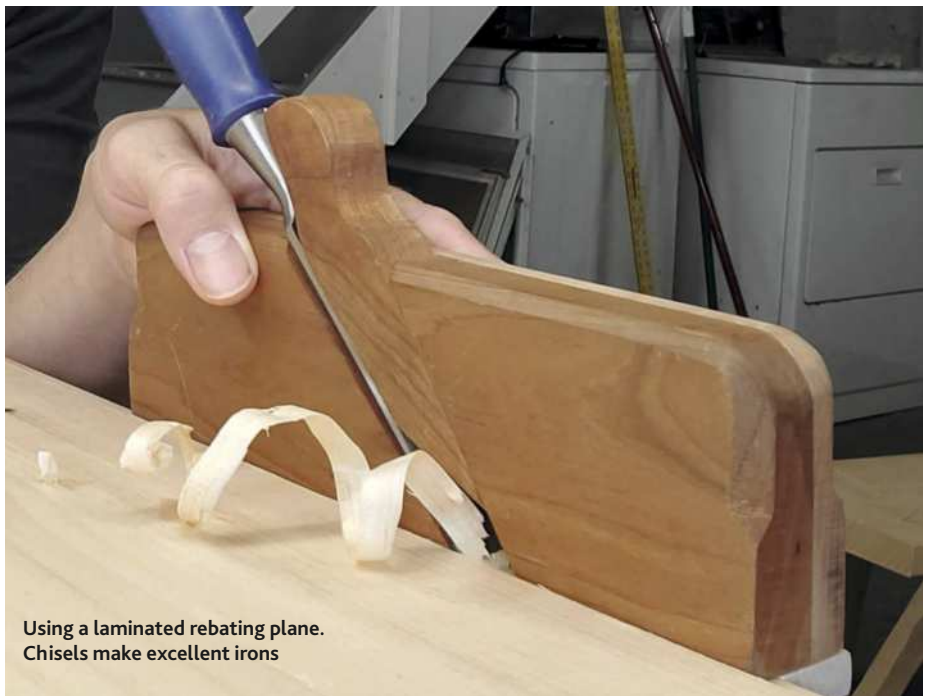
At the heart of any tool is the steel cutter. Our ancestors had the advantage of the village blacksmith and could simply walk into the shop and order a chisel or plane iron in whatever size they needed. The modern woodworker is confined to whatever he or she can buy off the shelf, but we also have access to cheap steel that's flatter and more accurate than anything our ancestors had. Even inexpensive modern cutters are precision ground, easy to sharpen, and hold an edge well. The trick is adapting off-the-shelf blades to our specialised needs.

For joinery planes, common chisels make excellent cutters. You could use your day-to-day chisels, but I recommend buying an extra set so you can leave each cutter installed in its tool. The standard sizes are all you need. A 3/4in (19mm) chisel makes a good rebate plane, a 1/2in (13mm) is perfect for a router-plane, and 1/4in (6mm) chisel will make a simple grooving plane that will get you by until a proper plough plane can be purchased. Old, unhandled chisels can be another good source of cutters, especially since the handle of a complete chisel can be a bit ungainly sticking out of the top of your tool. Regardless, you want straight, flat profiles and I find tang-chisels generally work better than socket-chisels for these specialty uses.

As your toolmaking expands, you might buy high-carbon steel and do your own hardening and tempering. Heat-treating steel seems intimidating, but I've done it with little more than a propane torch and a can of vegetable oil for quenching. Other toolmakers I know have had success hardening steel with heat sources as basic as a charcoal grill and a hairdryer. Anything that will heat steel to non-magnetic temperatures will get the job done. Once hardened, high-carbon steel can be tempered in a standard kitchen oven.

Although heat-treating isn't complicated, there are a few critical points that you absolutely must get right. Luckily, there are many good resources that offer clear instructions. I can recommend Andrew Weygers' *The Complete Modern Blacksmith*, which explains many heat-treating and toolmaking operations in plain English. Weygers recommends scavenging scrap steel for your projects, but messing around with unknown alloys is often a

This exploded view shows how I build up my laminated planes for easy construction and dependable results. Many specialty tools can be built with this technique



Using a laminated rebating plane. Chisels make excellent irons



A pair of speciality planes (above) made by laminating. Bottom: A simple moving fillister plane. Top: A narrow grooving plane with built-in depth stops. Both planes use inexpensive chisels for the cutters.

Each of these tools (left) is craftsman-made. They all worked for decades and some of them still function beautifully. The tradesmen who built these tools could have made nearly any tool



waste of time. Simple, high-carbon steels like 1095 and O1 can be purchased in any width or thickness at a reasonable price. These steels arrive annealed (unhardened) and can be easily ground or filed to any shape before they are hardened and tempered. While heat-treating is within reach of even the home craftsman, you can make dozens of useful woodworking tools without ever lighting a fire. Chisels, plane irons, and spokeshave blades are more affordable than ever, and once you have the right cutter, it's a short path to a functioning tool.

Don't Chase the White Whales

As you become more confident in your toolmaking, your ambitions will naturally grow. If you can make a rebate plane, why not a plough-plane? Is any tool out of reach? Unfortunately, yes.

I strongly recommend that you avoid making some tools. Don't make the basics, just buy them. Purchase a single, high-quality plane, a set of chisels, and one or two quality backsaws. While these tools can all be made in the home shop, the returns are not worth the investment in time and effort. Personally, I often make bench-planes, but I only started building them after I had restored and tuned many vintage planes in wood and metal. Not only did I understand exactly how the tools functioned, I also used the planes I

already owned to make new ones. You probably don't want to try and build your first plane. Buy one and then use it to make the others.

Similarly, backsaws require too much specialised metalworking to be realistic. Of course, some home-craftspeople have successfully built dovetail and tenons saws, but these people were on a mission to conquer a technically demanding project. They weren't practical woodworkers on a budget. Several companies now sell kits for making your own backsaws, but the parts aren't cheap and I'm sceptical that the necessary time and effort are worth the result. I recently purchased a dovetail saw by Florip Toolworks. For \$130, this saw offers astonishing quality and it put to rest any dreams I had of building my own.

In my shop, I've wasted a lot of time trying to build a practical low-angle, bevel-up Jack plane. These tools require a rigid construction and an ultra-low bed-angle that make them unrealistic for the amateur toolmaker. Just as with backsaws, these tools have been executed by a handful of dedicated craftspeople, but the technical challenges will take you far away from your furniture building.

The one tool I'm still chasing is the home-made plough plane. The tool's body and fence are straightforward enough, but the specially-made irons are a challenge.

To my knowledge, they aren't produced new, and good sets of vintage irons are expensive enough that one might as well just buy the whole plane. The attentive reader is wondering why I don't just use chisels as my irons, and it's a fair question. A set of plough plane irons is all forged to the same width and only the lower part of each cutter tapers to a narrower size. This design enables a plane with a fixed-width throat to accept any iron in the set and cut different width grooves. Chisels, on the other hand have no single, standardised width; each one is just a different size. Using chisels in a plough plane would require some kind of adjustable-width mouth to adapt to each cutter. I've fiddled with the concept on and off for years and I'm beginning to think that even cash-strapped woodworkers should just bite the bullet, purchase a plough plane, and move on to other things. My home-made grooving plane is enough to handle some tasks, but it's no replacement for the real tool.

Know Your Limits and Be Free

If you're confused about which tools you can reasonably build and which ones you should buy, look back at the craftsman of history. The 17th or 18th Century joiner made everything he possibly could: tool handles, plane bodies, marking gauges, mallets and squares were all made from wood by the craftsman himself. Saws, axes, drilling tools and steel cutters were purchased, either from the blacksmith or, later, the iron-monger. Metal work was simply a separate trade and there was no reason for the busy joiner or cabinetmaker to dabble in someone else's line of work.

As for myself, I'm an unforgivable dabbler, and I've let blacksmithing pull me away from my furniture work many times. You can let my experience be your guide. Feel free to chase another craft if you like, but realise that it won't make you any better at woodwork, and the time you spend could probably be converted into money for the tools you need. Many good tools can be effectively made at the woodworking bench and the rewards go far beyond cost savings. Reviving an old design or cutting a joint with a tool you made yourself is remarkably satisfying. On the other hand, wasting days of valuable shop time making a tool that never works is sad and frustrating. If our ancestors bought the tool, you probably should, too. Then you can get back to your real work.

*Rex Krueger is a furniture-maker and writer living in Cleveland, OH. He teaches woodworking on YouTube and at rexkrueger.com. His new book, *Everyday Woodworking (which includes some toolmaking)* is available wherever you buy books.*

Climbing from the Plateau

Having started woodworking with machines, *Brendan Strasburger* recalls becoming a chairmaker

I would consider myself to be a self-taught woodworker, since I have never taken any classes or worked under another carpenter. As far back as I can remember, I've been interested in engineering, mechanics, and building things. I had never attempted a woodworking project until I married my wife, Kristi, we bought our first home, and within that first year, had our first son. Like many newly married couples with a young child, we were broke. Kristi has been my muse. She has always pushed me to pursue anything I want to do. Knowing my interest in woodworking, she asked me to build a few simple pieces of furniture for our new home. My little brother had recently moved out, and had left behind a 10in mitre saw. So, I started out to build a simple 'Five board bench', using only the saw and an old corded drill. The bench is still being used in our kitchen today. I was hooked and started down the path of simple box construction and other pocket-hole joinery furniture. For a year or two I built farmhouse tables, and simple, box-like pieces. But I was always looking for ways to improve my skills and trying new design ideas.

Two years ago, I began feeling I'd hit a plateau. I didn't want to build any more farmhouse tables. I had always admired hand-tool woodworking and traditional chairmakers, but stayed away, afraid of the complexity and skill level required. It's magical to see someone take sticks of wood and transform them into a chair with minimal tools. I soon discovered Paul Sellers and Lost Art Press. Both have changed my life and my capabilities, and my approach to woodworking. After watching Paul's series on milking stools, I set out to make my first version with limited hand-tools; just a pocket knife, spade bit, jigsaw, and an old block plane. It wasn't pretty, but I could stand on it. The wedged mortise-and-tenon joints were all tight and worked, and to me, that was all that mattered. I ordered the *Anarchist Design Book*, some of John Brown's books, and a few others by Lost Art Press, and



Brendan's started making versions of a low back stick chair with few tools and the inspiration of books and YouTube

started building projects, including a Nicholson style joiner's bench, a shaving horse, English-style boarded toolchest, three-legged back stool, Dutch tool chest, and that most challenging stick chair.

My Method and Tools

I do plenty of research before I build a project. I study designs and plans, and I look at other examples and finished products. I build and rebuild the piece in mind, aware that one change can have a domino effect on the rest of the build, having learnt that it is the ability to adapt and handle those changes that matters. I typically don't use a cut list or a lot of plans, because I will already have memorised most of the measurements. I have to force myself to take breaks. Sometimes Kristi knows best when it's that time, so I take a step back and look at the project. Then, I go back the next day and look at it again.

Design-wise, I believe in trusting your eye. Your eye is very good at telling you what isn't square or is unpleasant to view.

I chose to build a Welsh version stick chair partly due to the challenge. I felt Christopher Schwarz was taunting me in *The Anarchist's Design Book*, in his intro to the 'Staked Armed Chair'. I started by

making the necessary jigs for supporting the arms. I followed the textbook for the most part, my back leans about 14°, front legs at 16°, and rear at 22°. The seat is from a single piece of local cottonwood.

I think it's important for people to know, when getting into woodworking and chairmaking, you don't need the most expensive hand planes or brands. You don't need to go broke learning this craft. I built my Welsh stick chair with an inexpensive spokeshave, adze, and hand plane, all from Amazon. I think you can get all three together for about \$100US. I did also purchase a Veritas reamer and tenon cutter. I cut most of the pieces with a jigsaw until I recently bought a bandsaw. I enjoy the control and input woodworking by hand gives me. I love how the finish shows the maker's marks. Today, I have a few Stanley Sweetheart planes, Japanese pullsaws, files, tenon cutters, a Kunz spokeshave, and a Ray Iles drawknife, plus an inexpensive drill press, tablesaw, basic bandsaw, and a mitre saw.

Taking time to make things for myself, building a proper bench and slowly growing a tool collection: these have been game changers for me.

Follow Brendan @cedar23_woodshop.

An Inclusive Working Way

Enthused by co-operative woodworking, *Katie Thompson* finds a welcoming space in Mexico

The demand for inclusive workshop spaces has gone global, creating organisations like Polilla Cooperativa, a workshop in Oaxaca, Mexico that provides a welcoming space for women woodworkers. “It is a space in which we can learn and experiment, not only with different woodworking materials, but also with the different ways we work together as a team, looking to generate a space in which we can feel comfortable working and learning together,” explains Co-Founder Annikki Silva Barajas.

Barajas and her Co-Founder Rosanna ‘Rosi’ Martin met at a party in 2019, and soon Annikki asked Rosi to teach her woodworking classes. They created Polilla Cooperativa in January 2021, named after the woodworm (or moth) in Spanish. They chose the name as a symbol for transformation that occurs in the wood and the maker in each project. They feel the polilla is often misrepresented as a purely destructive being, while they view it as an essential part of the cycle of life, death and rebirth.

“As a kid I’d always dreamed of living wild in the woods and building my own cabin or treehouse,” says Rosi, who spent her childhood in Derbyshire, UK. “Then when I was older I started carving avocado seeds with a knife and making little trinkets as a hobby, then I moved onto sticks and later moved on to slightly larger sticks. As my passion and interest in working with wood grew I took a course in woodworking, and have been slowly building on my skills ever since.”

Annikki spent her teenage years in Morelos, Mexico, and inclusion and participation were what drew her into the craft, and providing opportunities for others has become her own mission as a woodworker. Rosi’s experiences as a woman woodworker are what motivated her to create a more inclusive and welcoming environment in her own shop. Unfortunately Rosi’s experiences are not unique, and soon she connected with other women who were facing societal challenges in their lives.

“It was through meeting other women in Oaxaca who have had similar experiences, across the board (not only when it comes to women’s/LGTPQ+ craftspeople in male-dominated trades), that I understood better that these are shared issues and the solutions to fighting these things can also be built together. Since then the importance of creating and participating in women and LGBTQ+ centred projects has become paramount,” said Rosi.

Annikki shares that it was Rosi’s willingness to connect and build a relationship with her as an instructor and colleague that eventually led to the conversation of creating a women-centered



Rosi and Annikki

workspace. “My experience in other workshops hasn’t been very extensive, but it has been made clear to me from the get-go that it’s a difficult environment to work in. I never felt that I was seen or treated like the male apprentice workers and had to invest a lot of energy finding ways to react to hostile, passive-aggressive behaviors or harassment.

“Many times I was set tasks that had little to do with woodwork (like cleaning, sorting screws, or picking up orders). My male co-workers would assume that I was unable to complete the same tasks as them, or they didn’t want to pressure me. Sexism isn’t always such a blatant or obvious thing, but I was always left feeling that I didn’t belong in these spaces and that carpentry ‘came from the balls’.”

At the same time as working in these spaces I would spend my free time in Rosi’s workshop. She was a much more dedicated teacher and with a disposition to answer questions and explain the reasons behind the ‘hows and whys’ of woodworking. It was during this first year of working together that we built trust, and a dialogue that allowed us to imagine this project.”

Although it’s not without its challenges, Rosi and Annikki are already seeing some benefits in their own work as a result of creating a welcoming space for women woodworkers. Growth isn’t always a linear process, and that is evident in the obstacles that Rosi and Annikki face in getting Polilla Cooperativa off

June 2021

Vol 1 Issue 1

PEN & CHISEL



A New Culture of Craft

Inside the Issue:

THE POLITICS AND POETRY OF WOODWORKING

A thought-provoking essay by groundbreaking maker and educator Laura Mays. p. 09

BUILD YOUR BUSINESS WITH CAMILLE FINAN

Get to know entrepreneur and business coach Camille Finan. p. 04

TEACHING TABLE: SUSTAINABILITY

Watch a discussion on sustainability with designer and maker Nichole Sheaffer, and get her free soap making .pdf! p. 03

WELCOME TO PEN & CHISEL

from Editor and Publisher *Katie Thompson*

Thank you so much for your support of the inaugural issue of Pen & Chisel, a digital journal with a mission to share stories that matter, and create a new, more inclusive culture of craft.

Each month we'll deliver tips, in-depth columns by industry experts, exclusive interviews and more. We'll also highlight the many diverse voices of today's global craft and trade industries with a focus on building community, growing educational and professional opportunities, and cultivating creative small businesses and makers.

What I also hope to accomplish with Pen & Chisel is to create a space for the representation we seek in craft. We are fortunate to live in an exciting period of great change and innovation within our ancient industries. I believe it's important to document this time and build as much community as we can to sustain the momentum created by those who came before us. Like them, we know there are some things that just stand the test of time, much like a well-fit dovetail. Our innate drive to create, make and build has carried us and our communities through millennia.

What has also remained is that there are always opportunities to improve, and to see the change we want to see, we must be the words we speak, and put them into real action. Just because something has been done the same way forever doesn't mean there isn't a better way. Why continue to search for a space to fit in, when we can create our own?

I also want to create a space to share the stories in craft that for far too long have been relegated to memory as cultures and their contributors have been erased by time and progress. We need space for larger conversations

continued on next page

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Alongside her contribution to Women of Woodworking, Katie Thompson is now producing a digital magazine with a focus on the philosophy of craft, inviting ground-breaking writers and endeavours

the ground. That said, woodworkers are creative community builders by nature, and they are reaching out to the woodworking community and beyond to help them bring their vision to fruition.

The current goal is to raise sufficient funds to be able to invest in new tools and improve the general infrastructure of our workshop, and to turn this dream into a sustainable project. There is also a vision to open up space to others and offer workshops for those without their own. "We'd like to dedicate more of our time to our own creative and artistic projects including collaborations with other women and queer artists in Oaxaca," Said Rosi.

Until recently, the team were working with a basic set of hand and electrical power-tools such as a circular saw, mitre saw, hand plane and chisels. With the money raised already, they've been able to purchase a router, jointer and planer. They've also been able to expand their work area by installing a laminated roofing structure. Next on their list is a tablesaw, and materials to build workbenches and a space for wood storage. They are also in need of clamps, several sets of hand-tools including saws, chisels and hammers, so they can begin to offer workshops to the LGBTQ+ community in Oaxaca.

To donate to their crowdfunding project, click www.gofundme.com/f/establish-rosie-annikis-woodworking-workshop.

Brown Style

Gerwyn Lewis celebrates Lockdown chairmaking



One of John Brown's original chairs (above) inspired Gerwyn during Lockdown to make a replica (right)



While our way through Newport, the Pembrokeshire one, a few seasons ago, we passed a gallery and there in full view I spotted a chair which looked intriguing to say the least. It had many characteristics that I recognised. Principally the octagonally shaped legs, unmistakably a chair made by the late John Brown. Another surprise was that the gallery curator was none other than a former wife of his.

John Brown started life as a shipwright and graduated to chairmaking when boats became made largely of plastic. Such was the quality of his work that his reputation now is as one of the gurus of chairmaking. Largely made by hand and individually crafted in his highly individual style, he worked then from a small cottage near the Preseli Hills in a district called Mynachlogddu, under the shadow of Carn Ingli.

This is the area of the mysterious Blue Stones found at Stonehenge. I know this district well as I'm descended from several farming families in that area.

Some years ago I was fortunate enough to track him down in his spartan cottage and spent a pleasurable afternoon in his company. His workshop also reflected his lifestyle, being completely devoid of any machinery. This particular chair in the gallery was quite a departure for John with the heavily-splayed octagonal legs and shaped seat, very much in the American Colonial style. And another break with the British tradition, it was painted. I make no pretence that my chairs are up to his standard but I was fascinated enough to try and reproduce a fair copy for my own use. Another heinous crime was to use a flat bit for hole drilling. This was gleaned from Thos. Moser, a highly respected American chairmaker. I took a 13mm flat bit and ground it to a slight taper, to make a 1/2in hole. It worked a treat, especially on the steep angles. For the black finish I raided my painting kit, using black acrylic paint and oil painting varnish.

This is one of several chairs I have made based on John Brown's designs but this has been the most rewarding and a great Lockdown project.

Lockdown's Top Workshop

Forced to work at home by Lockdown, *Giorgio Nicodemo* finds therapy in creating an attic workshop

I am Giorgio, I'll be 50 in November, I've been happily married for over 20 years, I'm the proud father of two teenagers and two cats and I have worked in a bank for more than 25 years, mainly as a data analyst/developer. I've always loved manual work, whether it is cooking or fixing something in the house. Growing up I always had a garden, so I learnt my ways around saws, axes, shovels, lawnmowers or chainsaws. My maternal grandfather could do anything with his hands and was a great teacher and my father, despite being very busy with his work as a senior executive, loved woodworking and would have liked to build furniture, but he never had the occasion.

My evening spare time was mostly around a PC, watching YouTube or movies, playing videogames, and so on. On YouTube I discovered the makers movement, so I started dreaming of having a workshop full of power-tools.

But here's my biggest problem: I live in the centre of Verona, a beautiful city in northern Italy, famous in the world for being the city of Romeo and Juliet and for its Roman Arena, which in summer is used for the opera. I live in an apartment, on the third floor of a five-storey building, I don't have a garage and making loud noises in the cellar in the basement of the building didn't seem appropriate, so I kept watching makers on YouTube and found some using manual tools, making less dust and noise, but still producing beautiful furniture.

Difficult transition

In March 2020 the pandemic arrived and like many others I started working from home five days a week (I already was a smart worker, so the transition wasn't very difficult).



Restaurants were closed so, like many Italians at the time, I started baking bread and pizza, but it was a once-a-week activity and I was realising that 12 hours a day I was on the same chair, in front of the same monitor, every day of the week.

Something had to change, so I decided that I would have to use the room I have in the attic of my building. I would have to share the space with wardrobes, luggage, my wife's books (she's a teacher and has a couple of Ikea Billy full of books in the attic), but I had a window, plenty of light and enough space that I could use and arrange to my needs. As soon as a local Big Box store reopened, I bought a cheap Workmate collapsible bench, a Stanley No.4 on eBay, then a Record No.5 1/2 and restored them to usable condition, following the instructions

There is plenty of knowledge available on YouTube and all you need to learn is the will to do it and get yourself in the position to try.

Using the Workmate was began to be limiting, so I surfed the Web to research the options I had to buy or make a workbench worthy of this name. Nothing on sale in this area was really satisfying: light benches, with light vices, that were more resembling of toys than tools. A Roubo-style bench would have been fantastic, but pricey and over my building skill level. I looked at Paul Sellers' English-style bench, but I didn't have long reach clamps that seemed necessary to build the top.

At the beginning of 2021, Rex Krueger had released a video on the English Joiner's Bench and it was an epiphany. It could be customised for my space, is solid and sturdy, and easy to build with limited tools and woodworking knowledge. I then bought some lumber, a bench vice (I preferred a metal vice like the one Paul Sellers uses, to the leg vice Rex has adopted on his bench) and my journey in the craft properly began.

Building the bench took a matter of a few days and it gave me a real sense of accomplishment, like the first

from Paul Sellers' videos. I learnt how to remove the old mixture of rust and grease from the body, how to make the brass knobs shine again, how to make a new rear tote, to replace the broken one from my No.4 and finally how to sharpen the blades and set up a plane to make it perform at its best.



Beer totes were one of the projects Giorgio began making in his attic for friends in Verona

10k would give satisfaction to a runner.

The first thing I produced using the bench was a dovetailed box for my chisels, built with leftovers from the bench. Pine isn't the easiest material for a box, my dovetails weren't too precise and the lid fitting not spot on, but I loved the process and was hooked even more. I kept buying the tools I needed, some new from Amazon, other 'antiques' from eBay, local flea markets or Facebook Marketplace. Big hardware stores are not well oriented to the manual woodworker, here in Italy, so I preferred other sources.

I started appreciating the quiet of working with a cordless drill as my only power-tool, the sound of a finely tuned smoother on wood and no longer spending my spare time in front of a monitor, but working with my hands.

Despite the difficulties in finding nice hardwoods (there aren't any in the big box stores and local timber merchants don't sell quantities affordable for a hobbyist, around here), I kept working and from the dovetailed box I progressed in the craft on three main courses: tools for the shop, organisation of the shop, and little furniture pieces for family and friends. There's been a step stool for my wife, a guitar stand for a friend, beer totes for my colleagues, and monitor raisers for my children in home schooling, not to mention a mallet and a router from a piece of firewood, a bow saw, axe handles, and a new tote for my Stanley.

I found a hobby for a lifetime and the attic saved me from too much time sitting in front of a PC.

Follow Giorgio Nicodemo on Instagram at [@the_attic_woodworker](#).



Rex Krueger's English Joiner's Bench was an epiphany and perfect for customising

Heat, Beat and Repeat

Making your own tools is so rewarding writes *Barbara Roberts*, who's been making a planing stop

There's something about making your own furniture even though it's easier, faster and often cheaper to buy something in a store. The same goes with tools. Using a tool you made yourself is so much more rewarding than using a soulless tool you bought online. When I saw the planing stop on Chris Schwarz's *Anarchist's Workbench*, I knew I had to make one just like it.

A planing stop is a perfect blacksmithing project for a beginner. I'm a total newbie blacksmith but the idea of this article is to share my experience making my first planing stop and to encourage woodworkers to try shaping some steel.

A planing stop can be made from cheap mild steel that is readily available in most hardware stores. It doesn't need to be all that sharp or hold an edge so using more expensive and difficult steel might not be worth it. What you need for the job is an anvil, a forge, tongs, a hammer and a couple of files. A heavy bench vice helps but it's not absolutely necessary. Any kind of quick and dirty forge is good enough for this project.

I started with tapering the spike slightly. This is called drawing out. The idea is to reduce the cross section of the steel rod while increasing the length. When you beat the metal try to keep in mind that the steel doesn't disappear, it just changes shape. I did most of the tapering on the horn of the anvil. The round shape of the horn helps stretching the metal. I smoothed out the taper on the face of the anvil. Next I forged the flared end. You basically hold the steel rod steady on the edge of the anvil and beat and stretch it until it flares out. Use the peen of the hammer for rough shaping. There is no need to hit the backside of the flared end but you can turn it 90° every once in a while and shape the sides.

At this point you don't have to worry about the appearance. The final shaping is done later with files. Forging ends with bending the flared end. It's easy to do it using a bench vice but a corner of the anvil works too. Bend it so that the side of flared end that you hammered becomes the bottom and the smooth side that was against the anvil becomes the top. The planing stop works better if you don't bend it all the way to 90°. Leave it a couple degrees short. I used a cheap chisel to hit a few teeth on the taper. Use a file or a grinder first to straighten and then to make a bevel on the bottom side the edge. Then use a triangular file to create the teeth.

The planing stop is now functional but you can do some decorative filing if you like. As a final step you can put some oil on the stop and heat it a little. Or first heat it and then wipe it with oil. This way it turns all black and the oil creates a rust preventive layer. Be careful about installing the stop on a block of wood. I split the block on my first try.

Follow @barbiewoodshop to discover more of Barbara Roberts' projects, tools & techniques.



A planing stop (above) is a good introduction to blacksmithing. It can be made from mild steel. Once the end has been flared, the stop can be decorated (left) with files.





All you need to make the flared planing stop is an anvil, forge, tongs, a hammer, old chisel and files. Cheap mild steel from a DIY store will do. It is best not to bend the end a full 90°.



A Joycean Mystery

Writing in a heatwave, Robin Gates attempts a curious backsaw grip

Fifty years ago my secondary school woodwork teacher Mr Ayling was also the music teacher, and you could almost hear the 1-2-3, 1-2-3 of a Strauss waltz playing in his head while he sawed his tenon cheeks to perfection. My efforts to follow in Mr Ayling's kerf dissolved in a pool of sweat during the UK's extraordinary July heatwave. While temperatures rose to 33°C the Met office issued its first ever extreme heat warning and I drooped at the bench like a wilting lettuce, barely able to see the wood for the perspiration dripping from my brow let alone saw tenons to the tune of The Blue Danube.

Still, a sawing mystery drove me into the shed on the hottest day of the year. While flicking through Ernest Joyce's *The Technique of Furniture Making* I'd become fixated on his grip of the backsaw. In Chapter 17 Joyce describes the mortise and tenon joint, and in the images showing him sawing the tenon's cheeks he grips a closed-handle saw with four fingers through the aperture while his thumb rests on top of the upper horn. Using a small open-handle saw to cut a board on the bench hook, he again has his thumb on top of the horn while his pinky curls beneath the lower horn. Was this a better way to hold a backsaw (a trade secret?), which they didn't tell you in 1969 woodwork lessons?

I'm sure Mr Ayling adopted the more popular grip with forefinger pointing along the saw, thumb positioned parallel to it on the opposite side and three fingers through the aperture. But then again, how sure can I be? I'm not the most reliable witness to events which happened only yesterday, let alone half a century ago. It seemed paramount that I go to the shed, extreme heat warning or not, and investigate this curious grip.

Meanwhile I posted an image from Joyce on my Instagram account @made_in_the_marches and was pleasantly surprised by the response. Rich @rich.d.berry Berry in County Kildare proceeded forthwith to his attic workshop and put the grip to the test. "I'm not a fan," he admitted. "It feels strange and lacking control. I suppose it is what one gets used to." That's true. I doubted my own chances of taking to a new grip after 50 years of doing it differently. But then Jack @crownplate Plane reported seeing this grip several times 'in the wild', and Phil @an_irish_woodworkers_diary Gaynor recalled seeing



it in the 1980s. "The chap's hands were so big he could only fit three fingers in the open part of the handle." Phil's explanation gathered momentum with a comment from Canadian sawmakers @dagnonetoolworks. "Most customers have smaller hands than me, and I hold saws that are too small for me this way."

Greenwoodworker and teacher at The Woodwright's School Cara @carabnr O'Connell favoured the more familiar 'index

A saw rack in the shed (left). Following the example of *The Techniques of Furniture Making*, Ernest Joyce's magnum opus (below). The conventional grip with forefinger pointing and thumb to the side (above). The handle is shaped to fit the hand



finger point with three fingers in. Seems like it's all about wrist to elbow alignment' and Jim @jimbennetfurniture Bennett in Suffolk felt likewise, having been taught "the best way to control the cut is to point at your work with your index finger", but was nonetheless willing to give it a try. Thanks also to @oopswoodworker and @the_quiet_workshop for clarifying details in the old image.

Considering my own hands of average



Trying the Ernest Joyce grip

size, and at best of average skill, it was a comment from John @boreal_woodworks Peirce in Alaska which stayed with me as I opened the door of a shed heating up like a baker's oven. "I have done this on occasion to temporarily get greater control in making a plumb cut (like correcting a slightly erring cut).

It's not a particularly natural way to hold the saw so I revert to the proper grip as soon as I am able." The 'slightly erring cut'

is my speciality; I grasped the backsaw with renewed purpose!

Once I'd accepted the pain of the tapering upper horn chiselling into my thumb joints, and my pinky exposed to danger below the handle, I wondered if this awkward yet fascinating repositioning of the digits may indeed enable a lighter and more precise cutting action, lessening the influence of the heavy hand while allowing

proportionately more input from the tool itself. Perhaps the insistently pointing forefinger encourages a too forceful sawing action. Then again, perhaps not. My sawing that day was certainly no better than my average.

But it's patently obvious from the shape of the saw handle – old or new – that it was never intended to be held this way, and Ernest Joyce was a master of his craft. If only we could ask him.

The Best Good Joints

One of *Jeff Lefkowitz's* brilliant blog entries illustrates his techniques for cutting long-lasting joints

Good joinery is key to building a chair that will stand up to the stresses of everyday use and to the test of time. The primary joint in post and rung chairs – the joint between the rungs and the legs – is essentially a dowel joint, a round tenon in a round mortise. Dowel joints are notorious for their high failure rate, but, if you have an understanding of the properties of wood and pay attention to those properties during log selection, milling, shaping, mortising, and assembly, it's possible to make a dowel joint that is strong and durable.

There are five aspects of joinery that I work hard to control during the building of a chair:

- 1 Straight long grain, particularly in the rung tenons.
- 2 Grain orientation between mating parts.
- 3 Moisture content of the mating parts.
- 4 Precise fit between the mortise and tenon, as well as good surface quality in both parts of the joint.
- 5 Continuous glue bond over the entire joint.

Although getting a precise fit can be challenging, with a good process and some practice it's possible to get the size of the mortise and tenon extremely close (Pic.1). The other aspects of making a good joint are not difficult at all; they simply require paying attention at each step of the process.

Straight long grain

1 Straight long grain within a given part will make the part and the joint as strong as possible so it's important to pay careful attention to the long grain during the process of building a chair, from choosing a log, milling the log into boards, and milling the boards into part blanks. As many of you know, the straightest possible grain is obtained using a process called riving, or splitting the parts directly from the log. This is particularly important in Windsor chairs where many of the parts are very thin and need to be flexible. In this case riving produces parts with long grain that



is perfectly parallel with the edges of the part and with absolutely no grain run-out. These thin riven parts are generally made using woods that split well such as oak, hickory, and ash. In the post and rung chairs that I build the parts are heavy enough to be sawn rather than split as long as I pay careful attention to the grain direction during the various milling processes. And since I often build chairs in woods that don't rive well – cherry, walnut, and maple – it becomes much less wasteful to saw the parts, rather than rive them.

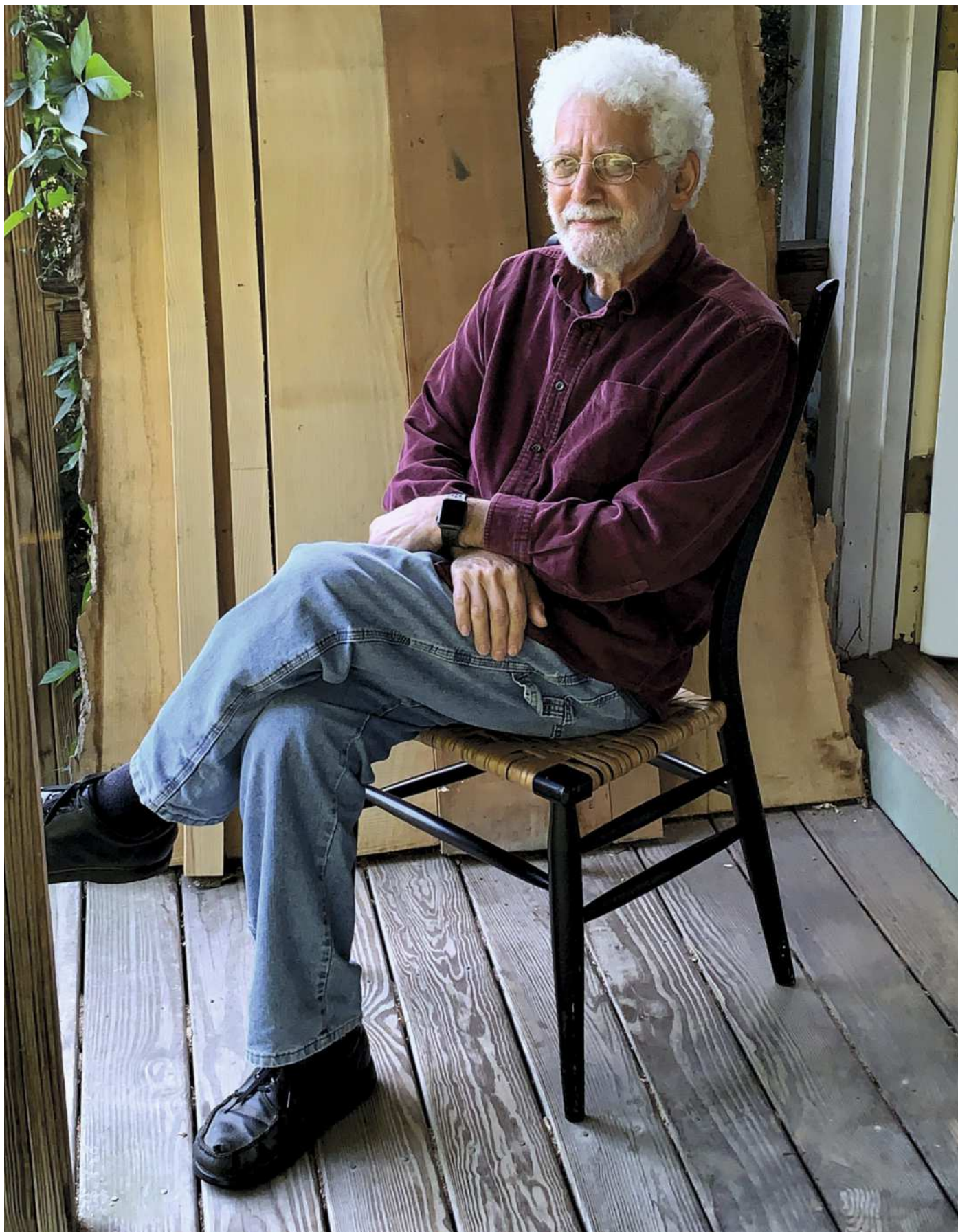
As an example, I always lay out parts parallel to the grain, not parallel to an arbitrary sawn edge. This photo (Pic.2) shows a walnut board that I plan to use for rungs. The straightest grain generally runs parallel to the bark edge. I begin by laying out a reference edge close to the bark edge and parallel to the grain. Then, working toward the center of the board, I lay out parallel parts from the reference edge. Since all logs are tapers, not cylinders, I usually end up with a wedge shaped piece in the center. Each of these rungs will have very straight grain end-to-end with minimal run-out. There are a few blanks (5th, 6th, and 7th from the right) that have some run-out at the bottom end of the blank. I will probably use these blanks for shorter rungs where I can trim off the part of the blanks that runs out.



Grain orientation and wood movement

2 Understanding how wood moves along its three primary planes allows me to align the mating parts of a joint so that, to the greatest extent possible, the wood movement in one part matches or complements the wood movement in the mating part.

Wood is hygroscopic. This means that it absorbs or loses moisture with changes in relative humidity. In a high humidity environment wood will absorb moisture and in a low humidity environment wood will lose moisture. When wood absorbs moisture it swells and when wood loses moisture it shrinks. The





Jeff's cherry rocker was
designed by Brian Boggs

amount of swelling and shrinking varies across the three main planes of the wood grain: tangential, radial and longitudinal (Pic.3).

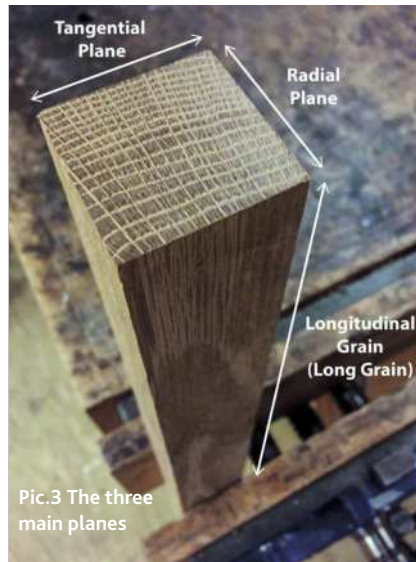
If you look at a cross section of a piece of wood the tangential plane is roughly parallel to, or tangent to the growth rings. The radial plane is perpendicular to the tangential plane and in a tree runs from the centre (pith) of the tree to the outside or 'heart to bark'. You can also think of the radial plane as grain that radiates from the center to the outside of the tree. In many woods you cannot see the rays in the radial plane, but they are there. In this piece of white oak (Pic.3) it is easy to see the rays. The longitudinal grain or long grain runs up and down the length of the wood. The greatest amount of dimensional change occurs along the tangential plane. As a rule of thumb the dimensional change along the tangential plane is roughly twice that of the radial plane. And along the long grain there is virtually no dimensional change at all.

To demonstrate the relative wood movement in the tangential plane compared to the radial plane you can look at the dimensional change in a cross section view of a round cylinder turned from green wood (Pic.4).

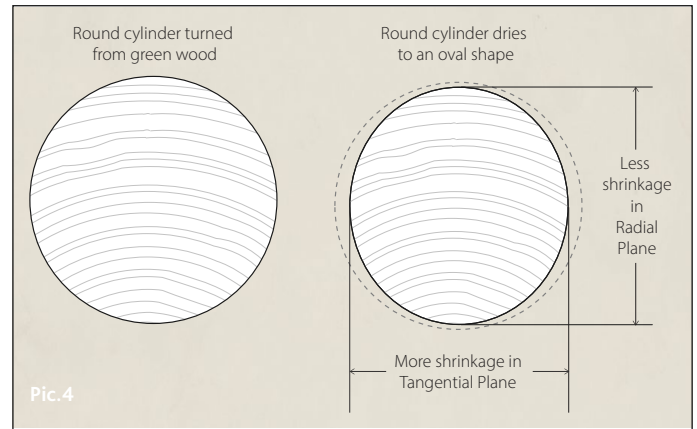
After the cylinder dries the cross section changes from a circle to an oval as a result of the wood shrinking more in the tangential plane than it does in the radial plane.

Applying the principles of wood movement when joining two parts is fairly simple, especially with turned parts that can be rotated to the correct grain orientation. The tangential planes in each part align with each other, while the radial plane in one part aligns with the long grain in the mating part. In the illustration (Pic5), when joining a single rung to a single leg, the tangential planes (A) align with each other and will shrink and swell in unison and at the same rate (assuming the two parts are the same species). Then the long grain of the leg (B) aligns with the radial plane in the rung (B). Similarly the long grain of the rung (C) aligns with the radial plane in the leg (C). The radial plane has the least amount of wood movement in the end grain of each part so it is the best choice to align with the long grain of the mating part, which has virtually no wood movement.

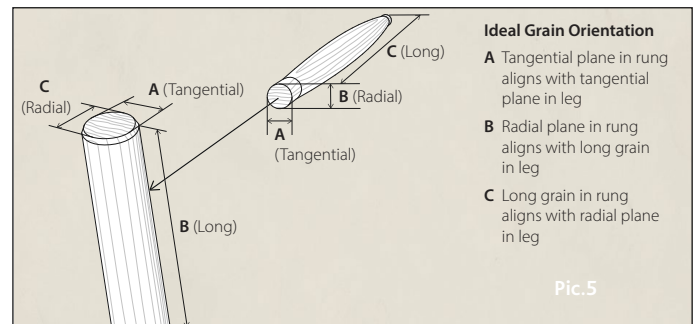
Not every joint in the chair can be aligned using the ideal grain orientation of the mating parts. Using the rung to leg joint as an example the ideal alignment of the long



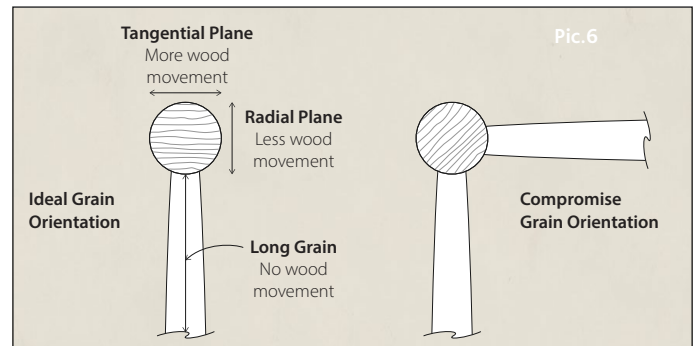
Pic.3 The three main planes



Pic.4



Pic.5



Pic.6

grain of the rung relative to the end-grain of the leg is shown on the left (Pic.6). In the actual chair there are rungs joining with the leg from two sides as shown on the right. In this case I rotate the leg 45° so that each rung, while not ideal, is equally happy (or unhappy, depending on your point of view).

Moisture Control

3 Controlling the moisture content of the rung tenon and leg mortise is another simple and effective way to enhance the quality of the rung to leg joint. Since wood shrinks when it loses moisture and swells when it absorbs moisture I can take advantage of that characteristic when shaping, mortising, and assembling parts.

I don't pay too much attention to the moisture content of the legs other than to get them roughly to equilibrium moisture content; a state where the moisture content is stable and the wood is not absorbing or losing moisture. In my shop this will be in the 8% to 12% range depending on the humidity and time of year.

For the rungs, however, I want to reduce the moisture content of the wood to bone dry or roughly 4% or so. To achieve this I place the rung blanks into the small light bulb kiln (Pic.7). The temperature inside the kiln is about 125°F to 140°F and usually



Pic.7 The temperature in this light bulb kiln is 125°F-140°F

a week is long enough for the rungs to get to a bone dry state. The parts are too small for me to measure with my moisture meter, but based on everything I've read and heard a week is usually long enough. If I am uncertain I can always leave them in the kiln longer.

If I wanted to be particularly fussy I could weigh the rungs prior to putting them in the kiln, and then again every day or two. When they stop losing weight they are as dry as they can get.

It is only after the rung blanks are bone dry that I will turn them on the lathe. The entire rung, including the tenon, is turned to final size at this bone dry state and then returned to the kiln until assembly. Just prior to assembly the rungs are removed from the kiln, still bone dry, and assembled. After assembly the tenons will gradually absorb moisture and swell within the mortise, resulting in a very tight joint.

Precise Fit and surface quality

4 A precise fit between the rung tenon and the leg mortise is the only part of making a good joint that can be at all challenging. The rung mortise is $\frac{5}{8}$ in diameter or 625 thousandths of an inch (0.625in). My goal is to turn a tenon that is as close to 0.625in as possible. I am generally happy with a range of 5 thousandths of an inch or a tenon diameter between 0.620in to 0.625in. To achieve such a precise tenon diameter I use several tools to help (Pic.8). From left to right in the photo: a dial caliper that measures in thousandths of an inch; a wrench with an opening that is fine tuned to about 0.650in for rough turning; a wrench with an opening that is fine tuned to precisely 0.625in for finish turning; a $\frac{3}{8}$ in wide beading and parting tool; and a small roughing gouge.

Dial calipers are not normally considered woodworking tools, but for this level of precision they are necessary. I use the dial caliper to measure the tenon after turning to confirm that the diameter is within range. I always turn the tenon after the rung blank has been in the light bulb kiln for at least a week and has dried to a bone dry state.

I have developed a process that makes it fairly easy to get a precise and repeatable tenon diameter as well as excellent surface quality. It begins by rough turning the tenon with the beading and parting tool to a diameter of about 0.650in using the roughing wrench as a caliper. Next I switch to the gouge and the finishing wrench. I take light passes across the tenon with the gouge and after each pass test the diameter using the finishing wrench as a caliper. When the finishing wrench just barely fits over the tenon it should have a diameter within a range of 0.620in to 0.625in.

Another benefit of this method is that, in addition to a precise diameter, it leaves a very smooth, flat tenon surface which is perfect for a good joint (Pic.9). You can see the tenon after each stage of turning. On the left after rough turning to about 0.650in. And on the right after finish turning to 0.625in.

Careful attention should also be paid to the surface quality of the mortise. For this reason I use a HSS Lipped Brad Point bit from Lee Valley (Pic.10) which leaves a beautiful surface on the mortise walls and drills a very precise diameter mortise. At this writing the $\frac{5}{8}$ in bit is about \$28; pricey, but worth every penny.

To extend the life of the bit and keep it cutting as perfectly as



Pic.9 Rough and finish turning



Pic.11 Hide glue is best for chairmaking



Pic.8 Tools for sizing tenons



Pic.10 The Lee Valley HSS brad bit

possible I only use it for chairmaking. Another trick, if you are using a drill press, is to place the bit in the chuck, tighten finger tight, then successively tighten around the chuck so that the bit isn't pushed off centre. This helps to prevent run-out and consequently drills an accurately-sized mortise.

Continuous Glue Bond

5 Using modern glues, a precise, tight fitting joint and a good, continuous glue bond are usually mutually exclusive. Because of the

tight fit, most of the glue applied at assembly is sheared off, still leaving a tight fit, but not an ideal glue bond. To remedy this I use hide glue instead of any of the modern glues.

You may have heard that hide glue is reversible, meaning that it will become sticky again and mix with new glue upon exposure to heat and moisture. It is this characteristic of hide glue that allows me to get a continuous glue bond even with very tight joinery.

The method is simple. Prior to assembly I coat the mortise and tenon with a very thin coat of hide glue; this is called a sizing coat. The sizing coat is allowed to dry. After it has dried, it completely covers the surface of both the mortise and the tenon with a thin coat of glue and has soaked into the wood. Because it has already been absorbed into the wood – think of the glue as growing roots into the wood – it cannot be sheared off no matter how tight the joint.

At assembly additional hide glue, which is liquid and heated to about 140°F, is applied to both parts of the joint. This glue reactivates the sizing coat, making it sticky again. Most of the glue applied at assembly gets sheared off, but it has done its job by reactivating the sizing coat and providing lubrication for the assembly process. The result is a continuous glue bond.

The test of time

One of the things I love about building post and rung chairs is that inherent in the process is a respect for, and an understanding of, the qualities and characteristics of wood. This way of working wood almost always results in a chair that is well built and beautiful as well. There is nothing particularly difficult in making a joint that will stand the test of time; just careful attention at every stage of building the chair. I have been building chairs using this approach for more than 15 years and have never had a single joint failure using these methods.

Follow Jeff's blog at jefflefkowitzchairmaker.com.



A classic, ebonised
maple side chair,
designed by Brian Boggs

The Fine Art of Surfacing

Looking for the best surfacing planes, *Scott Wynn* reveals a trio of wooden favourites

Edward Barnsley resisted installing power machines in his shop until the late 1950s, believing that machinery would change the nature of the work and the craftsman's enjoyment of it. So they continued to surface lumber by hand until that time.

If you've ever done this task before, you'll realise dimensioning stock without the right planes correctly set up is not just difficult, it's nearly impossible. A pre-industrial woodworker could not have done this every day, all day (as they would have had to do) without having developed and understood the required set-up for the planes and their sequence of use.

Today, machinery spares us the necessity of having to bring stock from rough to final dimension by hand. But you may prefer the quietude of a handwork shop, eschewing the noise and heavy investment of money and space required for a machine that spews shavings across every work surface. Or you've just found the perfect timber, that's too big to fit onto your power jointer [stationary planer], but maybe not your power planer [thicknesser]. You can use these techniques to flatten just the one side so it can be put through your planer. This ability increases your versatility, allowing you to use lumber you might otherwise have to pass up. Nor does it take as much time and energy as you might first imagine; usually less time than it would take you to drive the board to your woodworking friend with the big jointer, wait, have him joint it (he's not going to let you work on that machine!) and drive back to the shop, having lost all momentum. And then there might come the time when, unable to pass up that certain piece of wood, even though it fits in no machine you have, you have no choice but to reveal the beauty of that rough board by the final polishing strokes of your handplane.

Styles of plane

Though all styles of planes can do this work, I feel the 'old fashioned' traditional wooden handplane – the type we are all familiar with, but often feel has outlived its usefulness – is the best style of plane for stock removal of Northern hardwoods. These planes were designed for it, the form evolved and refined over millennia by generations of users who used them all day long, every day. Lighter than their iron cousins, the wood sole naturally has less friction on the work and with a bit of lubrication about the only resistance you get is from the cut itself.

The traditional shapes fit the hand better and are easily altered to personal preferences. You can find antiques (or make your own) with blade angles that are more suitable to the work and wood. And antique blades are forged, laminated, heavy, and I find generally perform far better than a modern alloy blade cut from sheet stock. Lastly, you can outfit yourself with a set of the three most important planes for as little as GBP50 (USD75).

No matter which style of plane you use, you will need at least three to surface timber by hand: the jack, the jointer, and the



smoother. The setup of each is the same regardless of the style.

The jack plane

The jack plane is used first to shape the board to generally straight and flat and near its final dimensions. In traditional European wood planes there are actually two basic forms for the jack plane: what's sometimes called the English pattern jack (which corresponds to the Stanley No.5) and the horned jack.

The traditional length of the English pattern jack is 14in or so and I think that works well, but it is not critical, and this size can be adjusted according to the size of work you mostly do. It is said this length aids in getting the board flat, but it certainly is not self-jigging and still requires user input.

The scrub plane is an excellent plane for removing even more material, even faster than a jack. In

a way, the jack has made some compromises in order to retain its versatility, but the scrub plane is uncompromised. It does one thing: remove a lot of wood. Narrow blade, usually around 11/8–11/4in; 40°–45° pitch; 1/8in or more curve to the edge, and 1/8in or more mouth opening to clear the heavy chips.

I think the horned plane here is the best choice, the metal version having all the disadvantages of its style distinctly manifested here. If you've got to remove a total of 1/8–1/4in+ of wood when prepping stock I'd think about using the scrub to start, followed by the jack.

I most often use a German horned jack, which is less than 10in long. It's more comfortable on short pieces where a 14in plane could be awkward and works fine for roughing down larger pieces. I just use a straight edge to check my work as I would do with a longer jack anyway.

For hardwoods, the blade width should be 13/4in or less. With a blade wider than this it is too hard to make the heavy shavings this plane should be making. The edge should be sharpened to about 1/16in curvature. Don't bother trying to figure out what radius this is, and especially don't bother to make a pivoting jig for your grinder. Just mark off about 1/16in at each corner and grind a curve by eye back to this mark. It's not critical that this be a perfect segment of a circle; this is not a moulding plane.

The pitch, or blade angle, should be 40°–45°. I often use one with a blade pitch at 43°. It's less work to remove stock at this angle and any tearout will be subsequently removed by the planes to follow.

When removing this much wood, the use of a chipbreaker really provides no benefit. If there's one on the plane, set it back to the corners of the curve of the blade. Likewise, the mouth opening provides no benefit for reducing tearout and should be quite open to allow chips easy passage. The sole of the plane need only be as flat as will let the blade produce a decent depth of cut,



Scott's planes for surfacing (above and left), starting with the 43° of a jack plane in the front, to the 47.5° of the jointer, the 50° of a smoother and finally a 55° smoother at the back. The lower pitches of the first planes are used to make heavy stock removal less arduous, while increasing the pitch of the blade as the work gets flatter increases the reliability of the plane and reduces tearout. Note that this is for hardwoods. Softwoods require the same low pitch at all stages of the work. The panel plane in use (below), which follows the jointer as an intermediate smoother

theoretically only less than 1/16in, though it will work better if it is flatter than that. Wear at the throat, which is of concern in a smoothing and jointer plane is not a problem here as long as the sole is fairly flat over the length of the plane.

If you're doing larger scale work, say boards 14in or wider, 5ft or longer, the foreplane is handy. A blade 2-21/2in wide and a body 16-18in long is very handy as an intermediate step between the jack and the jointer. You can set this up with a blade curvature and blade pitch between these two planes.

The jointer plane

It depends on the size of the work you are doing whether you want the 22in jointer (Stanley No.7) or a larger one. The 24in Stanley No.8 is no longer made. Most antique wood planes are going to be 24in+. I prefer the 24in because I feel it gives a slight bit of added accuracy, though many feel strongly that the longer plane is excessive.

Blade widths were commonly 23/8in and 25/8in to 23/4in; blade angles 45° or 47.5°. The lower pitch makes it easier to plane with such a wide blade and is pretty versatile, though if you're working a lot of tough or figured woods, you might want a 47.5° pitch, or perhaps even 50°, though you will want to go with a 23/8in blade or narrower as removing substantial shavings at this pitch is very hard work. I usually use a 24in long plane, with a 25/8in wide blade pitched at 47.5in, and yes it is a lot of work, but tearout is reduced, even on a heavy cut.

The blade is sharpened to about a 1/32in curvature, though you might want to experiment with this depending on the work you are doing. For stock removal this works pretty well, though your subsequent smoothing plane will have to remove the scallops. I also use this plane for edge jointing and I find that less of a curve produces a better edge profile, especially on thicker boards; around 1/64in for a 25/8in wide blade. You're moving into territory



Jointer planes are currently available either 22in or 24in. Most antique wooden jointers are at least 24in long, which I prefer (below)





A panel plane (in the front, above), which is 12in long with a 2¼in blade bedded at 47.5°. Behind is a coffin-sided smoother, about 8in long with a 2in blade bedded at 50°. In the front (above right) here is a horned scrub plane with a 1¼in wide blade bedded at 45°. Notice the significant curve of the blade. Behind, a horned Primus jack plane with a 1⅞in wide blade bedded at 45°. Horned planes such as these could be found in the tool kits of 19th Century English carpenters who used them for heavy stock removal and often referred to them as 'Bismarcks'.

here where the chipbreaker will start to be of use. Set it back to the corners of the blade curvature or maybe a trifle more as this will be the maximum depth of cut you will be making. The sole of this plane must be flat and true, the throat area showing no wear. With the depth of cut required of a jack plane, there is little you can do to eliminate tearout. For a chipbreaker to work it has to be set no closer to the edge of the blade than the depth of cut, otherwise it will be below the sole of the plane and will immediately jam.

I have found it helpful, especially on difficult woods, to use a different plane after the jointer and before the smoother. I've started calling this slightly larger smoother a 'panel' plane to distinguish it from the other planes. It is basically a smoother itself but longer, say maybe 12in (or could be longer), and wider, with a 2in or 2¼in-2⅜in wide blade. The blade curve is shaped as a smoother but it can make a slightly deeper cut than your finest smoother. The chipbreaker and mouth opening are set tight and the blade pitch higher than the jointer, say 47.5°, or 50° if your wood is particularly difficult. Often this plane is the only smoother I need, capable of leaving a satisfactory surface by itself. But on difficult woods I may follow this with another finer-set smoother, shorter and narrower, possibly with a slightly higher pitch yet. The use of a second smoother saves tedious re-setting and sometimes some resharpener. Mathieson and Norris made planes they advertised as panel planes and I propose they were often used in this manner.

The smoothing planes

There are a number of forms in the traditional wooden planes: block, coffin sided, horned, perhaps you could even count Krenov-style (plus the metal Stanley No.3, No.4, and No.41/2), so you can pick what you like or customise, or make your own.

Eight inches or so is a good length. While you want some blade width on the smoother to reduce the effect of scalloping, blade width for hardwoods kind of maxes out at 2in, though if you were to make a finely-set finish plane for polish planing, you might be able to get away with 2¼in or 2⅜in wide blade, but it would have to be a very fine cut. Though the blade on the jointer plane is over 2in wide, because of its curvature it can be set to cut less than its full width if needed.

I would have the blade pitch at at least 47.5°. I wouldn't bother with anything less as you could just as well use a Stanley. This



Scott's contemporary interpretation of traditional wooden planes (above) for working hardwoods. In front a raze English pattern jack plane with a 1¾in blade bedded at 43°, 14in long. Then there's the 24in jointer with a 2⅝in forged Clifton blade bedded at 47.5°, then two coffin-shaped smoothers with 2in wide blades bedded at 50° and 55° respectively. These planes all have adjustable mouthpieces and crosspins with a bearing pad at the wedges. The sole of his jack plane (right) with its blade honed to less than a ⅛in curve



pitch gives good results in most hardwoods, without the greater resistance of a higher angle. As we tend to work with different woods, you might also find it useful to have planes with pitches of 50° and 55°. For instance, I have discovered that a blade pitched 60° and higher (though 55° isn't too bad if you're going to follow it with another plane) with a finely set mouth will work oak without tearout. The edge shape should be basically straight with the corners just slightly dubbed off an amount slightly greater than the expected depth of cut; maybe a few thousandths of an inch! This is easily done by putting pressure on the corners of the blade when sharpening, five or 10 strokes each corner, each stone. The chipbreaker is then set back this amount.

A tight mouth opening is useful here. On planes with blade angles above 55° I've come to rely entirely on a fine mouth opening for controlling tearout.

Follow Scott on Instagram @scottwynnatelier.

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Inspired by Jögge's Hooks

Quercus reader, *Henrie van Rooij* takes a new approach to carving tool hooks, Sundqvist style

At the moment I am still working hard at finishing the inside and outside of my new chalet-style woodwork shop (from tuin.co.uk). It is small (about 2.7x3.7m inside), and though it may be more expensive than a normal shiplap shed, you avoid all the lining of walls, strengthening of the walls etc... It has been largely inspired by *Quercus*, and Robin Gates in particular. I intend to use hand-tools mainly. Having said that, I am quite addicted to the nearly instant results with my cordless screwdriver. It is an 18v Bosch GSB 18V-21 drill driver, which cost £109 from Toolstation, including three batteries. When you want to get stuff done fast, it does beat a brace and bit hands down. Later, when urgency of getting things in order recedes, I will enjoy tinkering with my old brace, and a huge stack of antique auger bits, bought cheaply from eBay, most of which will need fettling. But for now, I just want to get things reasonably shipshape. It is nice to be able to go in without having to step on or over something.

I had been thinking how to store my hand saws in a practical way. Then I remembered an article in the Nov/Dec 2020 issue of this magazine (QM03), where Jögge Sundqvist in his article about Slöjd showed us his attractive wooden hooks, carved out of branches, just with a knife. Now, the hooks I was after would be simple, hard-working and unadorned. But it would be a good way to explore the possibilities of making them. I should be able to get those saws out of the way, and learn something in the process.

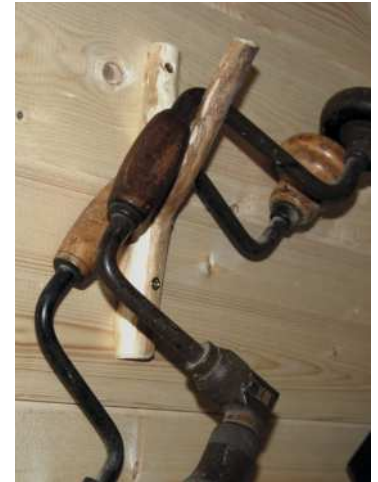
In my case, it started by making a stroll through the woods near our house, and looking for branches with forks in them. Using a small pruning saw (very cheap from Lidl) is the best way to free your hook blanks from the branches. The saw is one of those small folding affairs which you can put in your coat pocket. It works well. There is a trend at the moment to go for tool bling, and some of the prices make your eyes water. It is good to see that you can do it cheaper, and still do the thing you love.

The shape is most important

I had some hazel, holly and wild cherry, but it's not the species that matters. In most cases the shape of the hook is more important than the relative strength of the wood. Hopefully the main stem is fairly straight, and about 25mm thick. Although I learned that straightness is not crucial. The forking branch should not be too thin and spindly, and form a practical angle with the main branch. A simple coat hook can be fairly steep, but if you want to store several saws on one hook, it is better if it sticks out sideways a bit more. Initially it is best to leave all the elements of your hooks over long.

Don't forget to shuffle your offcuts discreetly into the undergrowth. Also make sure that you know you are not harvesting your hook blanks illegally, especially in a nature protection area. I am fortunate in living on an estate of a community where I am free to browse and harvest a bit here and there. You may need to ask permission and even research byelaws etc... I would be surprised if they would allow you to cut branches from trees. I don't know. How do spoon carvers get by?

Once you have brought your hoard home, you can have a closer look at your blanks. You can then trim the pieces of branch closer to finished size. I tend to make them quite short at the bottom end, but leave enough length for your fixing. The top end can then be a bit taller, which is more practical for fixing the hook. The actual hook part should be left long for now.



I started the making process by creating a flat on the back of the hook. Holding a plane upside down in a vice makes it easy. Any plane will do, as long as it is not too small, and with straight sides, so that you can fix it in the vice. It worked well with the plane set to take a slightly heavier cut, though when working green wood you should dry the plane afterwards to avoid rust.

Hold the hook part as vertical as you can, and with firm deft strokes towards yourself, the flats appear very soon. It only takes a minute or two. Just like with a planing machine, you need to know all the time where your fingers and other body parts are! That is why it is useful to keep the hook long, so that it is easy to grip. Where your main branch has a curve, it is better to plane the ends one at a time, alternating the ends after a few strokes, so that you are not working against the grain. When you are making a number of hooks in one session, you will discover this process really does not take long at all.

When all the flats were made, I peeled off the bark, using just a Stanley knife. I don't have a Slöjd knife yet. They seem very expensive for such simple little knives, and I hope to find or make another solution soon. If you like the bark on your branches, then leave it on. Again, this all went quite pleasantly and easily. It is important to put a lot of consciousness into your hand grips and the direction of travel of your knife. Take your time, and work mindfully. One of my most repeated mantras while I still taught woodworking, was: "Hurry is your biggest enemy!" You only invite mistakes, and accidents. It also stops you enjoying the process!

Then the hooks were trimmed to the length that seemed best to me. My nifty electric drill made the holes. And soon my saws were neatly organised on the wall. And some of the braces too!

As anyone who has ever tried to split a log of firewood which had a large branch growing out of it before will know, those logs are very hard to split. The tree forms a very strong join between branch and stem by forming tightly cross-grained, interlocking fibres in the crutch. This process has already started inside your little hooks too. This makes those hooks surprisingly robust. This time I had made nine hooks, after about 1½ hours of pleasant work. In the future I would like to explore if larger forks could be used as shelf supports. And it will be fun to make some of those fancier hooks in the future, like we all saw in Jögge's article.



Flattening the back of the hook on a plane fixed in a vice, always working with the grain, this way and that



Cleaving and Sawing

Preparing for life under canvas, *Robin Gates* makes ash tent pegs and beech tensioners



Hewing close to the final shape of the peg with an axe (left). Cross-cutting 5in ash with a Laplander folding saw was hot work (below). The circular log is split (right) to produce eight peg blanks (above)



Nothing beats the satisfaction of making something useful from a single piece of wood. Spoons and spatulas, tool handles, door pulls, turnbuttons, cleats and coat hooks are a joy to make and they just keep on giving. But it's taken me a long time to get around to making tent pegs, and I thank John Williamson (@johnwilliamsondartmoor) for the push to begin on this most satisfyingly practical of all one-piece productions. In a lull between making Devon stave baskets John posted his method for making tent pegs on Instagram, including the story of how he successfully traded pegs for eggs!

The tent peg must rank among the most important wooden artefacts in history. For those of us living or working under canvas, through choice or necessity, it quite literally keeps a roof over our head. But like so many renewable, recyclable and beautiful hand-made wooden things the tent peg has been displaced by ugly mass-produced metal and plastic substitutes.

For me, wooden pegs rekindle sweet childhood memories. My first tent was a small cotton-canvas affair bought at the school jumble sale, and although it emerged from the bag somewhat chewed by generations of nesting mice the ash pegs were as sound as the day they left the woods. The sound of the mallet knocking on a wooden peg takes me back to a 1960s summer

garden, the musty fragrance of old canvas and sunbeams slanting through a constellation of skylights gnawed by mice.

If further encouragement were needed, as the UK relaxed its Covid-19 rules and people mindful of social distancing opted for a 'staycation' in a tent, the supplies of camping equipment were rapidly exhausted. Surely the day had arrived for making wooden pegs as a step towards a more environmentally-friendly outdoor life. And this applies equally to the woodland crafts professional returning to those outdoor events postponed by the pandemic. Surely wooden pegs are *de rigueur* for the greenwoodworker plying their trade under canvas.

Cleavable green ash

Wooden tent pegs are cleft, not sawn, with long-grain running unbroken from top to toe so they'll stand up to a pounding from the mallet. As luck would have it I stumbled across some highly cleavable green ash while out walking, although at 5in diameter it proved challenging to the 7in blade of my Laplander folding saw. On a July day topping 30C the arm muscles were soon burning and I was glad of the breather when the saw jammed in the kerf under the weight of the partially severed limb. I arranged a supporting block to reopen the kerf and powered on through.



The straight-legged saw bench featured in QM02 becomes a shaving horse with a corner vice (left). The peg is locked in the vice (above) with a wedge and supported by a block



A single cut establishes the beak of the notch (above) and a short knife (right) is used for controlled chamfering around the notch



Our native ash (*Fraxinus excelsior*) has been a mainstay of rural industry for generations, and it's an ideal timber for tent pegs; harder than oak but also more shock absorbent. Sadly, the one shock it will not absorb comes from *Hymenoscyphus fraxineus*, the fungus causing Ash Dieback which is predicted to wipe 80 per cent of ash trees from the UK landscape.

Back home on the chopping block, the fresh-sawn ends of the 10in log were already showing minute fissures indicative of drying and I used these as a guide to placing my carpenter's axe across the log's diameter. Three smart blows of the maul upon the axe's poll and the one piece was swiftly cleaved in two. The two parts cleaved to make four, and I finished with eight billets as my blanks for tent pegs. Because of the way the blanks are cleft from the log they approximate to sectors of a circle, a shape preserved in the cross section of the peg where the surface nearest the bark becomes the peg's thick rear edge, resisting the pull of the guy rope.

With a Biro I sketched the profile of the peg on one face. This curvy tapering profile, running down to a point piercing the ground and rounding upwards from the beak to a blunt striking surface, can be seen in the Roman tent pegs unearthed near Hadrian's Wall in Northumberland. The shape of the striking surface ensures

it is positioned squarely above long grain extending the length of the peg, eliminating the risk of a miss-hit with the mallet splitting off the beak. It's a shape echoed by wooden pegs still made in Herefordshire by professional peggers HW Morgan & Sons.

While hewing waste wood from the peg I worked cautiously up to the notch because a too-heavy blow at this point might cleave the beak off from below. But overall it paid dividends to approach final dimensions closely with the axe so as not to leave excessive work for the draw knife. And for working with the draw knife I moved from the chopping block to our multi-purpose straight-legged sawing, planing and mortising bench (see QM02) which, with the addition of a corner vice, makes a sturdy little shave horse.

Corner vice

The chrome and green enamel corner vice with its distinctive L-shaped jaws is worthy of a brief diversion. It was made by the long-gone firm of Birmingham toolmakers Parry & Bott, but the design is rooted in US Patent No 1,765,321 granted in June 1930 to engineer Christian Bodmer of The Stanley Works. Bodmer's original patent for a 'Bench Vise' showed a channel-shaped guide around the main screw, and straight jaws, but was developed



The cleft ash tent peg with a beech tensioner and natural fibre guy rope (left). Marking the block for a tensioner (above) and boring rope holes with a brace and bit



by Stanley to become the 'No 700 Woodworker's Vise' – a hefty tool in cast iron. Subsequently cast in aluminium-alloy, and less of a burden in the tool bag, it became the Stanley 702 which in turn gave way to the 5702 featuring twin guide bars and a more versatile angled clamp.

Although I also have a Stanley 702 which is a tad more convenient than the P&B vice, which requires a spacer beneath the jaws to prevent the tommy bar fouling the bench, in my view the P&B is better made. A grippy riven wedge is sufficient to lock a tapering peg solidly between its wood-lined jaws, while the end of the peg being worked is supported by a block.

Some old peggers used a massive pegging knife, which looks like a cleaver pivoting from an iron staple on the bench and develops tremendous leverage. But the use of a shave horse follows the method of the Chilterns bodgers who turned their hand to making tent pegs when not turning the legs and stretchers for Windsor chairs. Like chair bodging, making pegs was a family enterprise passed down the generations. The trees having been felled, cut to length and split in halves, the labour of cleaving with the dolly (maul) and flammer (fro), rough shaping with the axe,

then finishing with the draw knife on the shave horse would be divided among a group of three.

A trio of jazz men

In the quiet of the woods they worked like a trio of jazz men, synchronising their own work to the subtleties of their fellows' sounds and rhythms, easily keeping the children occupied with stacking pegs for drying in square towers of 100.

Naturally the Chilterns peggers used the easily riven and straight-grained beech growing plentifully to hand. They supplied pegs to the local army camps and during World Wars 1 & 2 the demand increased massively. One family received an order for two million pegs. Figures quoted for how many pegs a pegger made in one day range from 500 up to what seems an incredible 900, but it's difficult for us to grasp just how hard and efficiently country people were compelled to work simply to put food on the table.

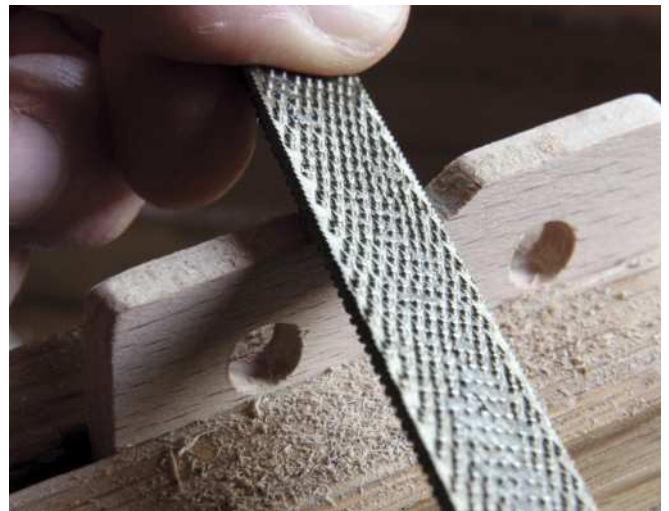
Their bodies grew accustomed to the task, developing the essential muscle memories while stoically resigned to the discomforts. In his novel *The Woodlanders* Thomas Hardy captured that ability when he described copse-work as 'an occupation



Ripping the block of six tensioners into three pairs (above). Separating pairs of tensioners on the bench hook we featured in QM?? (below) before making hollows for the fingers with a convex file (below right)



A beech tensioner on 1/4in three-stranded rope



which the secondary intelligence of the hands and arms could carry on without requiring the sovereign attention of the head'. So we can imagine that while the peggers cleaved, hewed and shaved through the livelong day they enjoyed a good old natter or perhaps escaped from the monotony of their labour in dreamy contemplation. After shaping and chamfering a peg with the drawknife I used a more controllable short blade for easing the edges of the notch, which reduces wear on guy ropes.

Tight ropes

There's no getting around the need to make tent pegs one by one, they are such curvy individuals, but the domino shape of the wooden tensioner used for setting up a guy rope lends itself to manufacture in small batches. Here I've used a planed-up piece of beech just over 5in long salvaged from a discarded chair frame, sufficient to make six tensioners of approximately 2½x1x¼in.

Using the try-square and marking gauge the tensioners were marked out as a pair arranged end-to-end and in a stack of three across the thickness of the beech, with rope holes 1¼in apart. I used a brace with clean-cutting shell bit to bore the holes before

ripping the piece into three pairs of tensioners with a tenon saw, then sawing the pairs into singles on the bench hook. The depressions for fingers were shaped with a rasp, and corners were rounded on glasspaper. Cheap commercial guy lines are typically of thin polyester which can be most uncomfortable if you walk into one in darkness. Thicker, low-stretch braided cordage is more user friendly but I think the more traditional three-stranded stuff looks better with wooden pegs and tensioners. Synthetic three-stranded Hempex almost looks the part, and its cut ends are quickly sealed by heat because it's plastic – but there's the rub: non-biodegradable plastic. So I'm going for natural fibre guy ropes of jute, sisal or manila which look, feel and even smell good. The cut ends are finished off with a simple twine whipping.

Tent pegs made for the Army by the Chilterns peggers ranged from 9 – 42in, dimensioned to suit everything from a bivvy to a mess tent. These pegs intended for a small canvas shelter are 10in long, 7/8in at the thickest and with the notch 2in from the top. Our first field trial was conducted in ground baked hard by July sun where the pegs drove in like javelins, but best of all was that sound of the old beech mallet on sturdy ash.

Drawing on a Sharper Edge

Answering a frequently asked question, *Richard Wile* details his approach to sharpening a drawknife



Drawknives can come from a broad range of hardness, depending upon the steel and how they are made, and it determines the degree of edge keenness that can be achieved. A hardness of HRC (Hardness Rockwell Scale C) 56-58 will be best sharpened with a fine stone (3000-6000 grit) and the burr stropped off with a compound-charged strop.

Many drawknives have their edges hardened to an extremely hard level, above HRC 63, like many of the finest Japanese edge tools. These edges will respond to the finest abrasive grits you wish (above 8000) and hold the edge. The harder the steel though, the greater the risk of it being brittle and breaking off bits of the edge in difficult material. For this reason I usually suggest only sharpening to the level necessary for the task at hand, similar to your plane iron. The finer the grit used to prepare the edge, the less durable the edge becomes.

When I sharpen, I like to prepare the back first, especially on a new-to-me tool. Once prepared properly the back of the blade will probably not need to be touched, except to remove the burr created when preparing the bevel. Most drawknives come with a back that is ground flat, however



With the drawknife clamped to the bench on a sacrificial piece of wood, the back is lapped flat on this well-loved vintage drawknife. Once the high and low spots are removed, move up through the grits to the finest grit you plan to use on the bevel. For me this was 4000

A drawknife is widely popular, with greenwoodworkers using it to debark and rough shape material quickly, chairmakers for more detailed work and others like myself when it's the only tool to do the trick. The drawknife must be sharp, like all other edge tools, to perform as you expect, and to reduce the likelihood of unpleasant surprises. Yet despite the long cutting edge, a drawknife is quite easy to sharpen.

Keep in mind that any cutting edge is the intersection of two surfaces at a zero radius, or point. As for chisels and plane irons, the back needs to be prepared as finely as the bevel.

a number of users will round the back slightly, creating a double-bevel, like an axe to split material better. I will focus on getting the back flat, and if you want to add a slight back bevel, you can adapt the process I will highlight for the main bevel.

Guide advocate

I am an advocate of using a guide to sharpen an edge to ensure efficiency and repeatability. Many people will develop the skill to sharpen their edges freehand but because of my hand issues I do not have this skill, nor do most beginners. Since I have yet to see a guide for sharpening

a drawknife [we hope to be studying Benchcraft's Galbert Drawsharp guide soon], we need to improvise. The trick with a drawknife is to immobilize the blade so it does not move while being sharpened. Many skilled users will grip the handle of the drawknife in their shaving horse and sight along the blade while preparing the edge. I use a quick setup with a piece of lumber to keep it above the bench and clamped in place.

A quick word about sharpening media. Your drawknife will respond to any of the media options (water stones, oil stones, ceramic or diamonds) in much the same way as your plane irons and chisels. I am demonstrating ceramic stones and diamonds for illustration purposes. Both will work. My preference is diamonds as this process concentrates a lot of work in a small area of the stone, resulting in a groove being worn into a water or ceramic stone. While easily removed by flattening, it wears the stone down prematurely.

A diamond plate or diamond bench stone stays flat, is easily worked and does not require lubricant so can work in a



On this drawknife in need of serious restoration, the bevel is marked with black marker for feedback on my freehand process and a very coarse diamond stone (120 grit) will remove the remnants of many previous sharpenings and restore the bevel to the desired 30°. With the bevel now set and a burr along the back of the entire back edge, I move up through the grits to hone the bevel with the finest grit I wish, which is usually 3000-5000 to give me a durable edge



For those seeking an easier and more repeatable option, a guide block with the bevel angle is set so that it is co-planar with the bevel on the drawknife. A ruler is used for alignment, the guide block is screwed to the bottom board in the right location and the drawknife clamped securely in place

variety of settings. Of course, the old standby oil stones will do the trick as well.

How much work is necessary to prepare the back depends upon the current state of the blade. A new blade will be ground flat from the maker and just require a honing from a fine stone, while a vintage blade could be good or in desperate need of a re-grinding. Many drawknives made by blacksmiths have been prepared to the max having a mirror polish on both the back and bevel. These are ready to go and will only require treatment on the bevel side when its time to sharpen.

Lapping the back flat is the

same as a chisel or plane iron. I suggest starting with a fine grit and marking the back with a marker, if the back is already flat. The fine stone will not create deep scratches you will need to remove later. If this test shows you have deep hollows or bumps to remove, go down to your coarse grinding stone, keep it flat on the back until the marker is almost removed, then work back up through the stones to remove all the marker and hone the back with the finest stone you plan to use on the bevel. Watch those fingers! The secret here is to use a wider stone, such as a bench stone that gives maximum flat surface making it



The guide block ensures the diamond stone will be at the correct angle as I grind away the factory marks on this new drawknife, this same setup allows me to work up through the grits to get the edge I desire. Don't forget to lap off the burr on the back with the same stone you finish with. Be sure your strokes go away from the sharp edge of the blade. This guide block and base also allows for a quick setup and alignment for the next honing it will need

Changing the edge profile



Running a fine stone along the back at a slight angle will create a consistent back bevel. This eases sharpening, especially if the back is far from flat

Most drawknives are made with traditional

cutting edge geometry of a flat back and a single flat primary bevel. The flat back makes sharpening much quicker as there is only the bevel surface to profile and hone.

However, many drawknife users like to customize the edge profile to better suit their needs. Many users suggest a convex bevel profile, like an axe, makes material removal easier, this could involve rounding the primary bevel only or slightly rounding the back edge as well. This is easily done using either the guide board or freehand method. Adding a slight back bevel to the back is easily done with stone tilted slightly and running the stone along the back edge. Keeping the stone at a consistent angle and ensuring your strokes move away from the edge, keeping fingers safe. Set the angle and glide it along the edge from end to end. For those wishing to actually round over the back this can be done with a coarser stone first and finished up with a fine stone, although this is not a common approach.

Rounding over the main bevel is often done to ease chip removal but it is also, it is easier to sharpen because keeping the stone perfectly flat on the bevel is not necessary. Using the guide block you can start the process by adding a ruler to the block which creates a micro-bevel and allows you to consistently shape this secondary bevel. This can be finished up by running the stones along the edge with a curving motion which slightly falls over the edge ensuring the stones go over the edge.

This is much easier than keeping a stone perfectly flat on the bevel for many. Run the stone over the edge, look for the burr on the back and you know you have reached the edge. Over time this technique will introduce a smooth convex profile to the bevel. Be sure to follow the contour with the stone to avoid introducing additional facets which will make it harder to hone with a fine stone. I prefer the single primary bevel which works well for me; but using a curved bevel profile on one face is very common, making chip removal easier for some, as well as being much easier to sharpen in the field or on the fly.



Changing the angle slightly by adding a thin strip of wood or a ruler will create a micro-bevel of a couple degrees, creating the start of a convex bevel profile

easier to maintain flat contact with the back while being lapped. With the back lapped it should not need to be done again. Future sharpening will focus on the bevel side.

When using a blade that has been held stationary and taking the stone to the edge, you must always be aware of where the edge is. All your strokes should be away from the edge, do not pull the stone backwards - you are just asking for sutures. My motion is to push the stone forward away from the edge, like a planing motion and lifting it on the return stroke.

Bevel angles

Next comes the bevel and the angle of the bevel can vary. Most drawknives will have a 25° or 30° bevel, with the higher angle yielding a more durable edge for rough work. Many will adjust the angle depending upon the intended use, with a higher angle for rough work. My small 100mm drawknife is used for fine surface prep work on soft materials such as cedar and has a 20° bevel suited for paring work. I have also added a micro-bevel to make sharpening more efficient.

With the blade secured to the bench a freehand approach works for many. Using the larger flat of the stone helps with alignment, with some black marker on the bevel to tell you when you have the right angle. The key then is to hold that angle and watch the edge of the blade with each stroke. Lock your arms in place and repeat the motion. If you are grinding a dull or old blade,

start with a coarse stone (220 or 400 grit), and once the burr appears on the back of the entire length of the edge, move to a finer stone. Some folks will want a true razor edge, however most will be satisfied with finishing on a fine stone in the 3000-5000 range. This will create a sharp edge that is durable enough to remain sharp for a while.

The freehand approach does not work for everyone, and repeatability is key in getting a sharp edge quickly. Using a piece of wood bevelled the same as the edge helps to align the stone properly and keep it aligned along the full length of the blade.

When honing a working drawknife, this setup is quick; clamp the drawknife into your shop-made jig and make a few passes on your fine stone (3000-5000 grit) until you feel the burr, flip it over and lap off the burr with the same stone, and it's back to work. Many will add a stropping step here to remove that wire edge completely. The drawknife is a versatile tool suited for many uses from green woodworking, chairmaking, luthiery, and carving to fine furniture. With the edge prepared properly, a drawknife will do exactly what you need it to do for the task at hand.

Richard Wile is a retired computer guy and a lifetime woodworker, furniture maker and luthier living in Nova Scotia, Canada. He focuses on research, writing and teaching, often with an emphasis on sharpening. Follow Richard on Instagram: @rdwile.

With the burr lapped off the back, a final pass over the strop for both the bevel and the back will ensure all remnants of the wire edge are removed.



Blade Ways

Doug Stowe makes a simple spooncarving knife

Inspired by Bill Coperthwaite I began making spoon knives for use at the Clear Spring School using tool steel scrap pieces provided by a plane making friend, Larry Williams of planemaker.com. The tool steel holds a great edge if properly heat treated, and by sharpening only on the inside edge the knives are very easy to keep sharp using a piece of sandpaper wrapped on a 1/8in hardwood dowel.

My spoon knives are vastly different from most that are sold in woodworking shops and catalogues in that they are sharpened only on one side (the inside of the curve) and the shorter blades offer less risk to the inexperienced hand. These same knives can be made from 1/16in thick mild steel, or even be crafted from used Saber and Recipro saw blades. In the case of recycling old blades, grinding off the teeth can take some time. I have also been able to order suitable tool steel knife blanks from a local machine shop, though the price from my friend the planemaker was hard to beat.

The first step is simply to grind one side of the blade to a sharp edge (1). This takes practice and a good grip. Avoid touching the end that gets hot. Use large pliers to get a grip on one end and bend (2), using your thumb to help guide it to a smooth shape. Drill holes in the knife blank (3) to help the epoxy glue to secure the blade in the handle.

Heat the blade in the forge until it turns bright red (4). I was able to use a forge at the Blacksmithing Studio at the Eureka Springs School of the Arts (ESSA) and led a group of high school students through the process of making their own spoon knives. You can also use a MAPP torch or acetylene torch to get the blade to a high-enough temperature, but the propane forge gives guaranteed results. Quench the knife blades in vegetable oil (5).

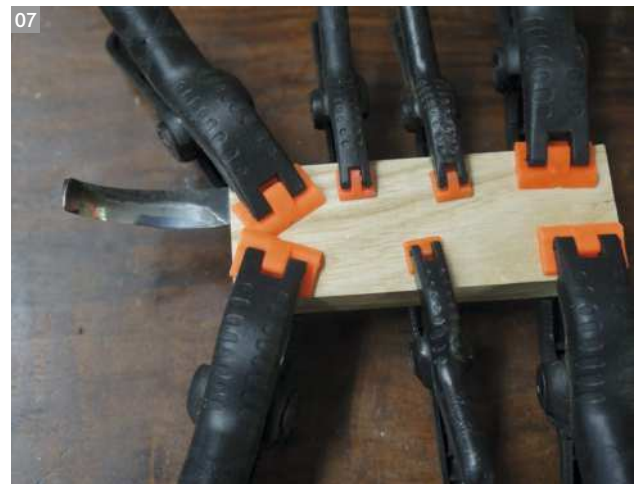
To sharpen the knife blades prior to adding the scales [handle or cheeks]. I use a dowel wrapped in 150 grit sandpaper and then use a polishing wheel with polishing compound on both sides of the blade bringing them to an almost mirror like sheen on the cutting edge.

After hardening the knives must be tempered. This is a process that makes the blades less brittle. Put the knife blades on a cookie sheet and put in the oven preheated to 425°F. Leave them in for an hour or so, and then turn the oven off and let the knife blades and oven gradually cool to room temperature.

To make a handle for the knife, I resaw a hardwood blank and then make a cut along one edge providing a place for the blade to rest (6). Use epoxy glue to hold the knife blade in place as the glue sets. Small spring clamps provide sufficient pressure to hold the knife blade in place. After the handle stock is added to one side, sand it flush with the blade so the other scale can be added. Then mix up a second batch of epoxy glue and glue the other scale in place (7). After the glue has set (give it 24 hours to fully harden) design the handle to fit your hand (8). And use a bandsaw to cut the handle to shape (9).

I find an oscillating spindle sander useful for quickly shaping a comfortable grip (10), but a knife, rasps and sanding strips can also give good results. I've made knives with various curvatures to be useful in different spoon sizes and depths, and a variety of handle shapes.

Spooncarving Knife • TOOLMAKING



Renovating Spokeshaves

Keen to make the very most of a bargain, *Debs Hart* makes a maple wear strip for a £3 spokeshave



This old wooden spokeshave costing £3 has seen a great deal of use, so it's not surprising that the wood has worn (above left). Having cut and pared away the waste, and inserted a maple wear strip (left), Debs had more power in her elbow and sweet shavings from a happy tool (above)

When I first started learning to make furniture 25 years ago my teacher said to me: "Don't buy cheap new tools, buy the best or buy old tools." I followed his advice and now more than half my hand-tools are secondhand and with a little fettling they are all good tools with the added bonus of having their own history.

I prefer a wooden spokeshave. I have a few and not one of them cost me more than £5. I think they are the most beautiful tools. Simple and ergonomic with gentle curves made to fit the hand perfectly. You can almost feel all the other hands that have used them, and if you're lucky you'll know their names because they are stamped on the handles. However, inevitably the wood wears, hence later models having metal wear strips. The mouth opens up and it becomes harder to set for a fine shaving. This is the time to let in a new piece of wood and revitalise the tool.

This one cost me three whole pounds. When looking for one make sure you check for cracks and most importantly that the steel is in good order. A little surface rust is ok but avoid any pitting. Also check that the steel is flat.

Bridging the gap

First mark out the dovetail shape. Here I have used a strip of straight wood to bridge the curve (2). After doing a series of cuts (3) chisel out the waste (4). Next cut the replacement piece in

any tough wood. I've used maple, for contrast, but any offcut of dense, non-splintery wood will do. It's hard to cut this piece accurately. You can't butt it up and mark it from the spokeshave because of those lovely curves. So it's best to cut slightly long (5) and trim the ends by trial and error as you gradually feed it in (6).

Gluing in the new piece is also made difficult by the curves. If you've done a good job you may not need to clamp, but if you need to squeeze it tight use elastic bands or improvise with a disposable glove and a stick tourniquet (7).

Now the hard bit's done you can clean up and sharpen the blade whilst the glue dries. Old steel usually comes up lovely.

Trim your dovetail back to match the old contours (8). Place the blade in position and draw a line along the cutting edge so that you can cut a nice tight mouth. Often the cutting edge gets skewed after many years of a craftsman's bias to one side and now we have the opportunity to make the mouth even again.

If the blade is loose in its holes you may need to pack them a bit but usually it's fine. I like to pop a small bit of light oil in the hole to swell it slightly. A quick clean and wax of the wood making sure to keep its patina and we're done. £3 and an hours work and this little tool is ready for another 50 years of service. Happy tool, happy woodworker.

Follow Debs Hart @d.a.hart.furniture or visit dahartfurniture.co.uk.

Wooden spokeshaves • RESTORATION



WHAT IS AVAXHOME?

Me & My Bowl Lathe

Hooked by turning bowls on a pole lathe, *Michelle Mateo* reveals the tools and techniques she uses

When I first held a wooden bowl in my hands a few years ago, I knew instantly that I wanted to learn this skill even though at that time I hardly knew anything about it. I had my first opportunity to learn how to make a bowl lathe and do a day of turning at the Cherrywood Project, Bath, which was taught by Oliver Weight, and spent the following years largely being self-taught. Although I was exposed to different kinds of greenwood working, I found that from log to bowl, the process is incredibly meditative and cathartic.

I have a simple pole lathe set up for turning bowls. It's easy to take apart and move if needed, and because of its simplicity, it is easy to replace parts as and when necessary. Unlike the older, traditional lathes (like that of the late professional bowlturner George Bailey) my lathe has two main differences; firstly, that I have uprights to hold the bungee cord for the reciprocal action rather than a green spring-pole and secondly, that my pedal is 'free-roaming' as it does not have a fixed point to the legs of the lathe.

The mandrel that I use to attach the bowl blank has short metal teeth which run against the grain when hit into place. It is hand turned from green ash and the teeth are made from nails which have been clipped and ground to a point. On the outside are the markers which you use to align to the markings on the bowl blank. The benefit of using a mandrel like this is that they last several years and only require a mallet to be hit into the bowl blank. Another variation of a bowl mandrel is one which is made entirely of wood, with a protruding part which goes into a

pre-drilled hole in the bowl blank. It can help beginners as they won't need to worry about catching tools on the metal teeth.

When I first started turning, I used only three double-tipped hooks. The first was a 'gouging' out tool which does the first cuts of the blank, taking the brunt of any rough surfaces created by the axe work and also hollowing out the majority of the inside of the bowl. It has two hollow-grind bevels on the back. The second hook is the 'finishing' hook. It has a flat bevel on the back which helps to create finer, hair-like ribbon cuts on the bowl. It is especially useful for doing the finishing details on the rim and foot of the bowl.

The third tool is the 'crank' hook which is used to reduce the bowl 'core' which is

attached to the mandrel. The last tool I use is a 'bottoming' knife to trim the core end after the bowl is completed and to tidy the foot of the bowl too. This task can also be completed with a crook knife.

Important lessons

The most important lessons that I've learnt are that good preparation of the bowl blank saves a lot of time as you have less to rough out on the lathe. That sort of good preparation is also better for your tools as they don't catch on roughly-axed parts, and the blade's edge doesn't dull too quickly.

Sharpening your tools frequently is also essential for a good finish, depending on the timber being used, and even while your



The completed cherry bowl



Preparing a bowl blank (left) and then on the lathe with the foot and outside turned (above). The cherry bowl detached (right) from the mandrel with a bottoming knife



piece may still be on the lathe. Turning quickly and with a sharp edged hook prevents the 'fluff' or 'tear out' on the end-grains. Some common problems I had when I started learning was not wedging in the poppets properly or not securing the mandrel to the blank, both of which causes the mandrel to turn elliptically, causing an oval shaped bowl, with a rim which has an irregular thickness.

Another branch of learning was drying pieces at the correct speed; too slow and your pieces may go mouldy, too fast and your wood may crack. After moving workspaces several times over the last few years, I can say there is no one correct way to dry your work; the variables can differ greatly depending on your local area, the season, the weather, the draughts that move through your space and how long you mellowed your timber prior to turning. I've dried work in a netted bag filled with shavings hung outside in a dry area and that's worked well, I've also kept work drying in a box on the floor in a cool draughty room and that's also worked well. I currently keep my work lightly buried in shavings for two days and then let them dry on a shelf in a cool room.

One last common problem I've seen with beginners is tearing the bottom of their bowls. There are two main reasons for this; the first is not checking the depth of your bowl as you hollow the inside and turn so thinly that your inside cuts meet the outside ones. The second reason is if people do not reduce the width of the core enough, it will break the bottom off with it if you force the core/mandrel off prematurely. The ideal thickness to remove the core from the bowl is about 3/4in.

The last and most invaluable lesson I've learned is to persevere; it is this year that pole lathe bowl turning has become a viable craft in the UK, having spent years listed on the Heritage Crafts Associations Endangered Craft List. This crafts revival began with Robin Wood in the 1990s, and in recent times has grown exponentially since the first Bowl Gathering was held in



Turning the outside of the cherry bowl

Herefordshire in 2017. When I first started learning, I remember that there used to be one instructional video of Ben Orford turning a bowl on a pole lathe, and in the last few years there are so many more by turners based in Britain, giving much more access to this knowledge, with even more advanced work available like that of Yoav Elkayam with his end-grain cups, and Owen Thomas which features turning handled mugs and flasks. It is incredibly humbling and rewarding to be able to be part of a new movement to revive and champion an almost lost craft.

You can follow Michelle Mateo on Instagram @chelle.mateo.



Seen from either side, and from top to bottom, are the crank tool, the finishing hook and the gouging hook. Mandrels with metal teeth (right)



Big Bang! Small Hands!

Creative woodwork in early childhood is a big idea for smaller woodworkers writes *Pete Moorhouse*

These are exciting times. In recent years there has been a surge of interest in woodworking in early childhood education around the world. In some cases this will be in settings starting from scratch, in others, it's a case of dusting down the workbench and digging out the tools after many years of neglect. This is very welcome as benefits of woodwork for children's learning and development run deep across all areas of learning. Teachers who provide woodwork regularly observe exceptional levels of sustained engagement, with deep focus, concentration and perseverance for challenging tasks; especially with complex problem solving. It is not unusual for children to spend all morning at the woodwork bench. Woodwork really engages hands, minds and hearts.

The rise in the popularity of woodwork is not surprising given the levels of children's enjoyment and the fact that it provides such a profound learning experience. The renewed interest is perhaps in part a reaction to our increasingly digital world, where children have learnt to swipe before they can walk. Currently 'making' is back in fashion, with a renewed interest in craft and upcycling, perhaps a reaction to our overly-homogenised world. In terms of sustainability, woodwork gives children the experience of making and repairing, countering the prevalent culture today of consuming and disposing.

Perhaps the biggest factor though, has been the shifting attitudes moving away from risk aversion. Following on from Lord Young's review of Health and Safety 2010: Common Sense Common Safety, and subsequent positive guidance from the

Health and Safety Executive (2012), the DfE (Department of Education) (2013) and recently from Ofsted (Office for Standards in Education) (2017), schools in the UK have felt encouraged to take a more balanced attitude towards risk and embrace woodwork once again. This is a significant culture shift and whilst still in its infancy, should be wholeheartedly celebrated.

Special activities

There is something really special about woodwork. It is so different from other activities. The smell and feel of wood, using real tools, working with a natural material, the sounds of hammering and sawing, hands and minds working together to express their imagination and to solve problems, the use of strength and coordination: all go together to captivate young children's interest.

We observe children working with their hands, tinkering, constructing models, and working on projects, but in fact the real transformation is inside the child; personal development is at the heart of woodwork.

Woodwork is a powerful medium for building self-esteem and confidence. This is for a combination of reasons. Children feel empowered and valued by being trusted as they take responsibility to work with real tools. They accomplish tasks that they initially perceive to be difficult and problem-solve to resolve challenging tasks. They show great satisfaction in their mastery of new skills and take immense pride in their creations. This sense of empowerment and achievement provides a visible boost to their self-esteem and self-confidence. Children have a natural desire to construct and build. This imparts a 'can-do' attitude and imbues children with a strong sense of agency – a belief they can shape their world.

When we analyse a woodworking session it is extraordinary to see just how much learning is involved. It encompasses all areas of learning and development and invites connections between different aspects of learning. It supports current thinking on how children learn best, embracing all the characteristics of effective learning and thus fostering confident, creative children with passion for life-long learning. Woodwork really can be central to curriculum. It incorporates mathematical thinking, scientific investigation, developing knowledge of technology, a deepening understanding of the world, as well as physical development and coordination, communication and language, and personal and social development.

Woodwork provides another





medium through which children can express themselves. Creative and critical thinking skills are central both in terms of imagination and problem-solving as children make choices, find solutions, learn through trial and error and reflect on their work.

Exploring possibilities

Children are drawn in as they explore possibilities, rise to challenges and find solutions. Woodwork is really unrivalled in terms of providing children with problem-solving opportunities and with challenges. I know no other activity that promotes creativity and critical thinking in quite the same way that woodwork does, and I believe this is really at the heart of woodwork's appeal and success for young learning.

Some children flourish when working with wood, enjoying working three-dimensionally and working with their hands. The experience of woodwork can really be the key that unlocks some children's learning.

Children are surrounded by complex technology but this has limited their experience of basic technology, with fewer opportunities to watch and learn and to understand processes. In recent years there has been a marked decline of woodwork in primary and secondary schools with less than half of pupils ever using tools in their entire education.

The confidence to work with tools provides a skill-set for life. Many children will need practical skills for their future work and woodwork in the early years could well be children's only experience of working with tools. Fortunately working with tools leaves a deep memory, so even if early childhood education is their only experience of working with wood it will leave a long-lasting impression. Many adults recount that experiencing woodwork as a child is one of the memories from early childhood that still really stands out.

Big Bang learning

With woodwork children can develop their learning at their own pace and find their own challenges. Once they have mastered basic skills, they move into open-ended exploration; tinkering, exploring possibilities and then start making unique creations.



Their imagination, creative thinking and problem-solving skills really flourish as they meet and conquer new challenges.

Some teachers and parents are surprised that we introduce woodwork to children as young as three, but it must be emphasised that it is a low risk activity when introduced and monitored correctly. We have been successfully woodworking with pre-school children for over 20 years with no significant incidents.

Woodwork is one of the most popular activities and it incorporates so much learning. Let's provide all children with this valuable opportunity.

If you are already doing woodwork, please contribute to The Big Bang Research Project researching the impact of woodwork on young children's learning and development. Follow this link to complete the online research survey: irresistible-learning.co.uk/woodwork/the-big-bang-research-project/. Your contribution would be very much appreciated

Pete Moorhouse is an early years creative consultant and artist educator. He is the UK's leading authority on woodwork in Early Years education and has written several books and journal articles, including Learning Through Woodwork (Routledge). He

is currently working on his latest book, Creativity in Practice: Nurturing creative and critical thinking in early childhood education. Pete won the National Award (2019) from the Creative Learning Guild for his work promoting creativity in education.

Continuing Professional Development (CPD) woodwork training is available throughout the UK (when restrictions allow) and Pete is now offering an in-depth online woodwork course: a set of eight pre-recorded videos and a set of 14 handouts providing you with all the information needed to get started: irresistible-learning.co.uk/woodwork-cpd-online-course/. Pete's book Learning Through Woodwork goes into considerable depth and makes for a wonderful resource for any school, and is available through Amazon: amazon.co.uk/Learning-Through-Woodwork-Introducing-Creative/dp/1138071102. Pete can be contacted through his website: irresistible-learning.co.uk.





Secrets of Hand Sawing

John Lloyd discusses saws and sawing and explains why and how he cuts tenons by hand

There are so many machines available these days for sawing wood, fitted with razor sharp, tungsten-tipped blades and high-tech twin lasers, that you might be forgiven for thinking that a hand saw is just a quaint old-fashioned tool used when there are no viable options. But over the 20 or so years that I have been attacking wood on a professional basis, there has been a dramatic increase in the production of excellent hand saws, and presumably, if they are taking the trouble to make all the saws, someone must be buying them.

The first saw that I used during my training was a Japanese Dozuki, which at the time had the double novelty of cutting 'on the pull', and being sharp. It's amazing the advances that can be made in a fledgling woodworker's career when the secret of sharp tools has been disclosed. So why is there this resurgence in the art of making exceptional hand saws, when 200 years after the onset of the Industrial Revolution there can surely be no further need for them?

Well, without wanting to take the risk of appearing a Luddite, you might perhaps ask yourself: "Do I want to be a woodworker or a machinist?" If 'machinist' wins, then that's fine, but I bet there will be an occasion when it is impractical or impossible to use a machine to make a vital cut. So the ghastly truth is that when practising the gentle art of woodworking, in whatever form, sawing by hand is still a necessary skill, and if it is embraced and practised a bit, it is one of the most rewarding skills that can be mastered.

There is a certain sense of achievement when using machines, for example when using a router and jig for cutting dovetails, but mainly because the mysteries of how the jig works have been successfully unravelled. The sense of achievement when making an accurate cut by hand, particularly when cutting dovetails, is, I would suggest, on a completely different level.

There is no joy to be found in trying to saw by hand with a poorly-made, blunt saw, but then the same is likely to be

true of a machine, which would be just as frustrating, though perhaps a little less taxing on the arm muscles.

The pitsaw is a thing of the past, but sawing by hand can save time, especially with good hand skills and the right tool. Components can often be produced more quickly, possibly more accurately and definitely with a greater sense of achievement when using a hand saw in preference to a machine.

Types of saw

The outstanding hand saws fall into two distinct types, Japanese and Western, and these are both available with either 'rip' or 'crosscut' blades. Generally the big differences between Japanese and Western saws is that Japanese saws cut on the 'pull' and Western on the 'push'. Cutting on the pull allows a saw blade to be thinner, and while this can mean that the saw cuts quickly and with less effort, because it is removing so little wood as it cuts, it also means that the blade is rather delicate and prone to buckling, especially in inexperienced hands. The majority of Japanese saws, which are generally cheaper than their Western equivalents, are razor sharp when they come 'out of the box', but they can't be sharpened and are therefore disposable.

Western saws, of necessity, need slightly thicker blades and often a solid strip along the top edge to prevent them from buckling

as they are pushed forward to make the cut. The higher initial outlay of a good Western saw can be offset by the fact that it can be sharpened; a skill in itself, but one that it is worth mastering if Western saws turn out to be your thing.

A good quality Western saw will last a lifetime and as a result might also, I suppose, be considered to have better 'Green' credentials than its Oriental counterpart. In my experience, the other issue with Japanese saws is that they are not all able to cope with cutting the hardwoods that we typically use in the West. It's not uncommon to find that after a little use there are teeth missing from some makes/types of Japanese saw, but the saws used in this article seem to have proved themselves to be strong enough to survive the rigours of most hardwoods.

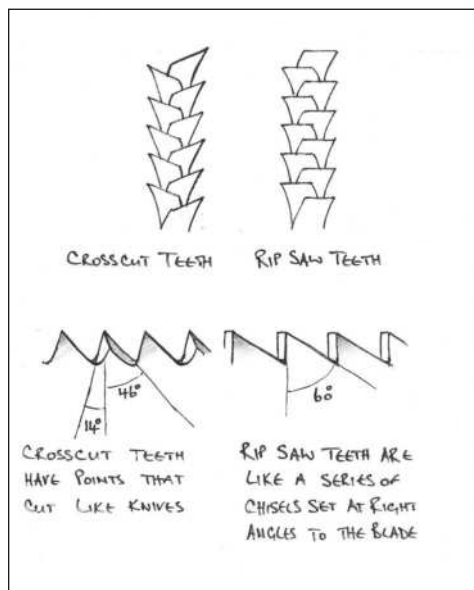
Types of teeth

The next important feature of any saw is the type of teeth, which simply means that they are good at either 'ripping' or 'cross-cutting'; cutting along the grain or across the grain. These two different types of cut require different types of teeth, with different angles filed on them and between them. This results in the teeth good for crosscutting looking, and behaving, like a series of knives which are able to slice through the fibres at right angles.

Rip teeth, by contrast, are like a series of 'chisels', which are much more efficient



Various styles of Japanese saw. The double-edged ryoba (centre) has rip and crosscut teeth, and a depth setting





Cutting tenons with a double-edged ryoba

at removing what are, in effect, tiny shavings, when cutting along the grain. Both saws will, of course, make an impact on any piece of wood, from whichever angle they are presented, they just won't be so efficient or accurate when they are not playing to their strength. The saw that is the better 'all-rounder' though, is the crosscut, but the rip tooth profile is much more straightforward to sharpen

Holding wood

For Japanese and Western saws, I like to point my index finger along the saw, which gives more stability and control. In Western saws I prefer an 'open' handle, referred to as a 'pistol grip'. I can't get on with the straight-handled or 'Gent's' type of Western saw, although I find the straight handles of Japanese saws comfortable to use and easy to control, but this is because they have an oval, rather than a round handle.

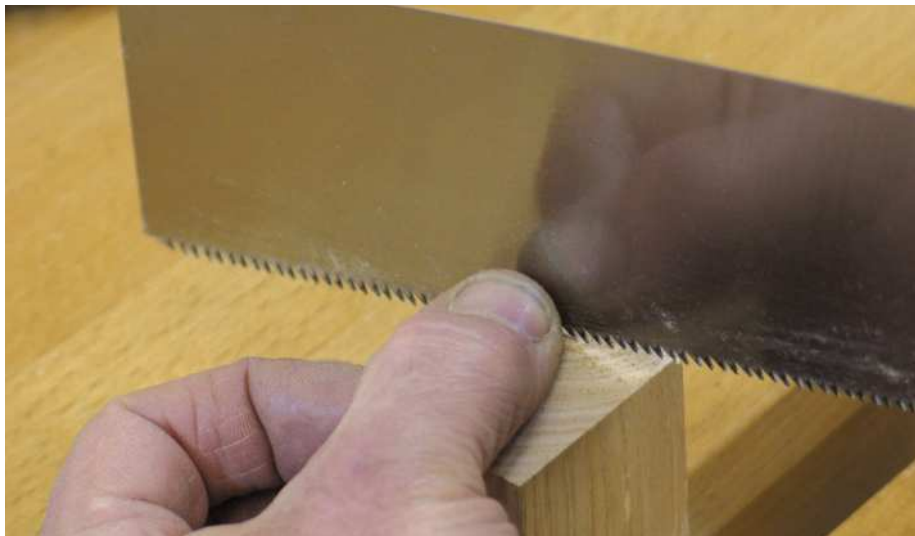
For all saws, a light grip is vital. If, when you are about to start a cut, you can see the whites of your knuckles, your eyes are bulging and your brow is furrowed, you might as well put the saw down and not bother. If you're not gentle with your saw, it won't be gentle with you.

Sitting on a stool while sawing is probably frowned upon, although I do indulge in this rather lazy approach at times. Standing obviously shows rather more commitment and is the better option. Stand comfortably, with feet wide apart, left leg in front if right-handed, and get positioned in such a way that the arm that is doing the work can swing back and forth, moving the arm a nice straight line with the saw and the line of the cut. Dropping the shoulder of the cutting arm can help to develop a nice smooth action and holding either the workpiece or the front edge of the bench with the free hand will make everything more stable.

Starting the cut

The biggest secret to starting any saw cut is to support most of the weight of the saw in the hand and make VERY light initial strokes. This is particularly important with Western saws. The generally recognised way to control the position of the blade at the start of the cut is to run it against the thumb of the free hand. This is a perfectly valid technique, but there is the chance that the saw will skip away from the thumb making a mess of the adjacent surface. When cutting dovetails I prefer to 'pinch' the blade with my thumb and second finger, not so tight there is blood.

A Western saw should be started using the tip of the saw, on the far corner of the work, while a Japanese saw is started using the heel of the blade on the near corner. The other thing that I do is to start



Using your thumb as a guide (above) to start the cut. After initial positioning of the blade John will lower the heel to begin cutting on the nearest corner



By pinching with the thumb and index finger you get better control at the start, but beware the risks of injury

the cut by pushing a Western saw rather than dragging it backwards. Dragging is a common practice but the blade won't cut very effectively like that. The vital thing is to take most of the weight off the saw at the start of the cut so that the teeth don't dig into the wood and get stuck. Also position the wood low in the vice to reduce vibrations and give a smoother cut.

Some Western saws are worse at getting stuck than others but today's Veritas saws seem to have a particularly sweet, user-friendly demeanour; lightness of touch and sensitivity at the start of the cut is the key with any saw though. When the cut has been established with the first few gentle strokes it will be possible to get a bit more brutal with the saw to quickly complete the cut.

Directing the cut

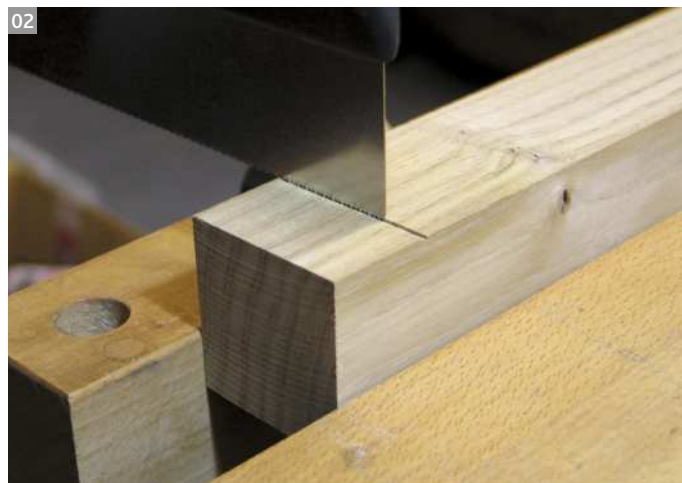
A good quality Western saw will have only the minimum 'set' to the teeth to prevent the blade from binding in the kerf. This



John extends his index finger for both Japanese and Western saws (above & below)



Cutting Tenons by Hand



Having used a marking gauge to cut a deepish line, cut a V with a wide chisel (left) as a guide for the saw, which sits in the V (above) without damaging the vital shoulder line



Cut the whole way down the shoulder to the cheek (left). For Western saws (above) the rail needs to be angled away from you, but towards you for Japanese ones. John only cuts one diagonal before sawing straight down (right). He says the blade is more stable that way



Complete the cut down to the shoulder (above) and then tidy up the junction between the shoulder and cheek with a sharp chisel (right)



Tidy up paring across the grain (above)



What started by cutting the shoulders (left) ends with the perfect tenon for fitting (above)

ensures the cut stays fairly straight, but there is still the opportunity to change the direction of the cut slightly by leaning the saw over to one side or the other in the kerf. Japanese saws have very little 'set', and with the blade being so thin, changing the direction of the cut when the cut has been established is almost impossible. Fighting with a Japanese saw will only ever result in one winner, and it won't be you. It sounds a bit daft, I know, but using a Japanese saw requires a bit of Zen-like thought-transfer into the blade. Just relax and 'think' the blade down the line, which sounds like hippy clap-trap but it seems to work.

Cutting a tenon

The big secret for cutting a tenon that looks perfect is to get the shoulders crisp and straight, mainly because this is the bit that's seen. That isn't to say that the cheeks of the tenon can be a sloppy mess because they're out of sight in the mortise. Despite any amount of gap-filling glue, a loose joint will ultimately fail!

The first part of cutting a tenon is the marking out of the shoulders. This can be done with a marking knife and a square, working with the square's stock against the face-side or face-edge for all cuts. Alternatively, a cutting gauge can be used, working from a nicely squared end. The critical part is that the shoulder line is a cut, and the cut must be reasonably deep for the next part of the process to work.

The vertical cut that has been made is turned into a 'V' on the waste side of the line with a nice wide chisel. It is advisable to put the rail in the vice for this bit so that both hands can be used to control the

chisel. The idea of the 'V' is that the blade of the saw will sit in the bottom of the line. That way the saw cuts the shoulder without the teeth of the blade making contact with the shoulder line.

Marking the tenon itself can be done with a traditional mortise gauge or a wheel marking gauge fitted with a pair of mortise blades. These lines can be made more obvious by running a pencil along the gauge marks. With the tenon marked out, the shoulders can be cut with a crosscut saw and because the original knife line is not actually touched by the teeth of the saw, the resulting visible shoulder line can only be perfect. That's if the person holding the saw has done a bit of practice of course.

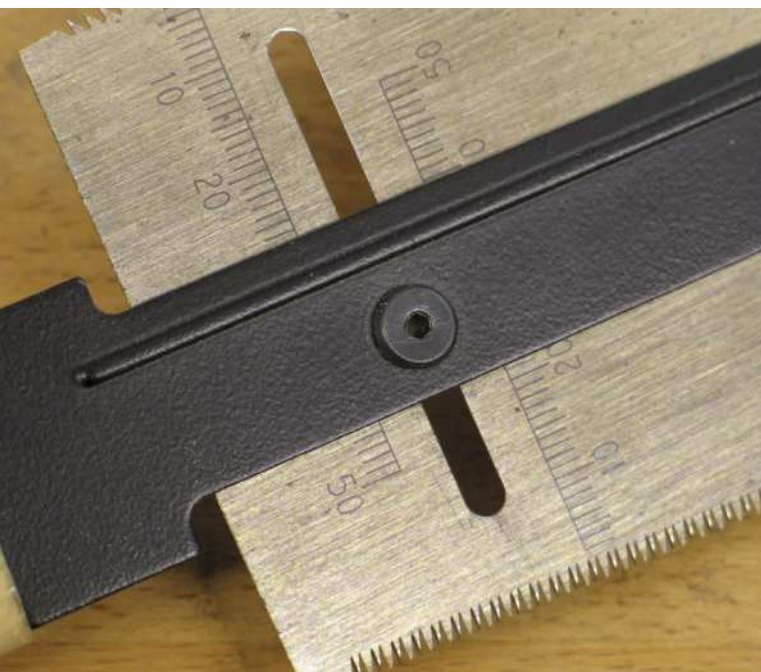
In an ideal world the saw cut for the shoulders should follow the marking out lines exactly, but it's not the end of the world if the cut line drifts a little into the waste. If everyone managed to cut shoulders perfectly they wouldn't have bothered producing shoulder planes.

Having cut both shoulders, the cheeks of the tenon can be cut. Once again the rail needs to be held in the vice, but at an angle so that the gauge lines along the top end of the rail and down one face can be seen. Which way the rail points depends on whether a Japanese or a Western saw is being used. For a Japanese saw, the rail should be angled towards you; the

opposite for Western saws. This orientation is vital for a smooth cut, which is started on the top corner of the rail, just on the waste side of the gauge line. Relax and keep an eye on the two gauge lines as the cut is made, and when the cut extends right across the top of the rail, re-set the rail vertically in the vice and complete the cut.

The resulting tenon can be adjusted with a shoulder plane and/or rebate block plane, if you have such a thing. Otherwise a very sharp, wide chisel will work well to make these final adjustments. Mortise and tenon joints are notoriously tricky to get absolutely right. But hopefully you now know what you need to do to get closer to perfection on a regular basis. And I don't mean, go out and invest in some machinery!

Visit johnlloydfinefurniture.co.uk for details of the short and long courses John runs in Sussex, England or follow @john_lloyd_fine_furniture on Instagram. This article was first published in British Woodworking magazine in 2010.



The small crosscut saw from Veritas has 16tpi (above), while the 20tpi fine cut dovetail saws is for stock less than 1/2in thick, and can also be used for cutting small stub tenons. The depth-adjustable ryoba saw (left) with rip teeth along one edge and crosscut teeth along the other is prevented from cutting long tenons by the bar, but it is great for curtting small joints



Art or Craft of Engraving?

Despite adding creative scrollwork to old tools, *Matt Lepper* confesses to not being an artist himself

I have been a woodworker and hand-tool enthusiast for quite a while. Like many, I enjoy the nostalgia and history surrounding the design, craftsmanship, and diversity of old tools.

About seven years ago, I came across an article spotlighting a local engraver whose primary focus was pre-1900 firearms (guns of the Old West, you might say). The scroll designs really made an impression on me. From that point forward, I felt drawn to the craft. In addition to engraving firearms full time, the gentleman also offered instruction every so often to just three to four people at a time. I knew right away I needed to take that week-long class and began researching everything I could about the engravers of that era.

Around the same time, I made the decision to liquidate some tools to bootstrap the endeavour with the end goal of becoming an engraver. Fast forward a few years, and I was able to squeeze into a class at the very last minute. To say I was thrilled would be a gross understatement. The week was a crash course in all things engraving: sharpening, graver control, inlay, lettering, and design. An additional bonus was the ability to practise with several different hand pieces and vices, which was extremely valuable when it came time to choose my own.

The most important information acquired was that of shaping and sharpening the graver blanks. That alone was worth the price of the entire course. In the era of YouTube, my experience of learning from someone who does it day in and day out was priceless as he was able to share many of the efficiencies and lessons learned over the years of engraving. Never had I experienced a class, before or after, where I felt everything was firing on all cylinders. My hands were doing what my mind was asking of them; and, while I wasn't what anyone would call an engraver at the end of that week, I knew this would be something I would do for the long haul.

As a member of the MWTCA (Mid-West Tool Collectors Association), and collector/restorer of used tools for a



couple of decades, I settled on doing scroll work inspired by designs that were popular in the late 1800s by engravers such as LD Nimschke and the Uhlrich family. Many of the old tools I favour stem from that same era, so the two just seemed to fit perfectly. While I do engrave old tools, I also enjoy some of the more modern ones as well, especially those that are a throwback to the early ones: Stanley Anniversary tapes and the new stock Stanley Classic 199 knives to name a couple. Most of my clientele still appreciate a good practical tool, and the tapes and knives seem to find a home in many of today's workspaces and trades.

It might surprise some that I don't consider myself an artist. While I can draw, I don't sketch much of the design before I start cutting. More often than not, I simply lay out the backbone of the scroll and freehand the rest. I approach my



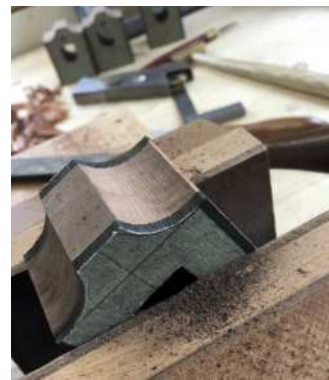
Matt Lepper uses just one push (pneumatic) hand engraver (above), and considers engraving metal is much slower than carving wood. He uses proprietary jigs from manufacturers for sharpening, ensuring the graver tip geometry is consistent and reproducible. He self-funded (or boot-strapped) his business by selling tools he already owned rather than borrowing money from a bank to buy the equipment

engraving as a craftsman, much like those churning out work back in the day. Many of the old gun engravers used transfers at the start and filling in as they seemed fit. Some of my pieces are one of a kind, but many I will do again and again so long as there is interest. I look at every tool and think to myself, "Can I enhance this with engraving?" Some tools can't be improved or there just isn't enough real estate to apply the scroll work. I strive to be good, quick and reasonable without overdoing it. Balancing the positive and negative spaces is always in the forefront of my mind.

If you're interested in learning how to engrave, I recommend finding a local engraver (preferably one who makes a living at it) to teach you. Much like woodworking, they will be able to provide the knowledge that will save you all that beginner's frustration to better ensure your potential for success.

Making One's Own Mark

After careers as a furniture maker, editor and teacher, *Derek Jones* began making tools to sell



An early batch of pear and bog oak pin gauge stocks (left) and tapping the thread in the gauge stocks for the screw (above). The shape of the stocks (above right) is partly created by drilling with a large Forstner bit. The top part of the shape is roughed out with a rasp (right)

Setting out to make a tool capable of performing a specific task is very different to making an item of furniture. Badly designed furniture generally performs reasonably well regardless of how well it is made or however ill-considered the design. A flat-pack piece from the High Street may have a shorter lifespan than one made to measure, but it will still hold clothes a few feet above the floor and might be considered a good design. Tools on the other hand, especially those designed to carry out a specific task, won't permit such vagaries in performance, at least that's my experience and how I approach the task.

Since retiring from making furniture for a living several years ago, I've had a series of fulfilling full-time positions, one in publishing and one in education. Although I can honestly say that I committed one hundred percent to these posts they always felt a bit like a side hustle from my true vocation in life, that of a tradesman. I don't identify myself as a toolmaker but when the urge sets in, I'm happy to give it my all.

When you first get into woodworking it's quite natural to accept the idea that all tools available off the shelf are fit for purpose and that the manufacturers have done their best to produce items of both quality and performance. But that's not the case. Some of the decisions made by the manufacturer in the production of the tool might have been taken to suit a number of outcomes such as the price point in the marketplace for that tool, the tooling to produce the item, the scale of production and shipping requirements or just because that's the way they have always been made. For the small-scale maker all of the above are negotiable, which could lead you to making something far better. If you count the workbench you built and the jigs you produce to

help you make furniture components as tools, you've probably already acquired a lot of the knowledge and skills necessary to make a range of really effective devices. A combination of tight joinery and good quality fixings can often be the starting point for a great number of tools.

Large-scale manufacturers will spend a lot of time and effort developing products, and in some cases almost as much in developing a need for them, but that's an opinion perhaps for another article. The only experience of toolmaking that I feel I can talk about with any confidence relates to marking gauges. In the scheme of things my output is miniscule compared to the well-known mass-produced brands. And while we're on the subject, and in the interests of full disclosure, I own and enjoy using a number of them. Which begs the obvious questions, why bother going to all the effort of making your own and what made me think I could make a better one.

The Eureka Moment

Like any eureka moment things that are seemingly out of your control have to come together at the right time for it to happen. Or to put it another way, you need to be open to opportunities when they present themselves. Long before I started making marking gauges I taught woodworking classes to students of all abilities. Depending on the structure of the course I'd always find time to cover the basics of planing and sawing if it was required. Consider for a moment what it takes to carry out these operations and you'll notice there's a process that often precedes them; making a mark. A pencil or knife might do the job but a marking gauge is really where it's at if you want to progress your



All the fine-tuning is done with fine metal files

woodworking skills. The problem was, more beginners were having trouble mastering this tool than anything that followed. I've talked about this with other teachers and the general consensus is that marking gauges are complex beasts. Applying a suitable amount of lateral force, downward pressure, forward and backward motion all at the same time and in perfect harmony is no mean feat and takes a little getting used to. I'm convinced that it's got something to do with not being able to see what's actually happening. With planing you see the surface and then the shaving. While sawing you watch the toothline munch its way through the material on or adjacent to a line. Sure, there are some physical sensations that we learn to read and respond to, but the primary source of feedback is visual, so why not have a gauge with that feature? Obviously this already exists in the form of a wheel type gauge and as much as I like the few I own they're not suitable for every task and not the easiest gauge to master for a beginner.

My solution to this was to take a standard traditional style wooden marking gauge with beam and stock and alter the shape of the beam to give a clear line of sight of the pin while in use. It was a huge change but it's become the pattern for several types of gauge.

One of the things I learned during my furniture-making days was that one-offs are ridiculously costly, for the maker and the customer. Whenever it was feasible I would have the shop make multiples of things like chairs, stands or small tables. Batch work has many advantages that outweigh the additional costs in labour and material. It's become the default method of production for me. Setting up for an operation whether by hand or machine is so much more productive if there is more than one part to produce.

For something as small as a marking gauge it's easier to produce some of the components when they are being harvested from larger sections of material. I prepare a length of material that will yield around 10 parts at a time. The extra length gives me something to clamp to or register from when machining. It also means I'm far less precious about the parts during the making process. Every operation increases the value of the part and knowing I have factored spares into the process definitely takes the stress out of proceedings. I accept that mistakes happen and not every part will make it all the way to the finish line but I carry on working blemished components for a couple of reasons. They serve as real test pieces for the following operation, and they may be used as sacrificial parts for a new technique and if the blemish is only cosmetic they're ideal for test pieces.

There's a line I use in the letter that goes out with every tool I make that says the tools I enjoy using the most are the ones made by me or by other small-batch artisan makers. I stand by this and would go so far as to say that if you want to raise your woodworking game get some tools that connect you with the makers you admire.

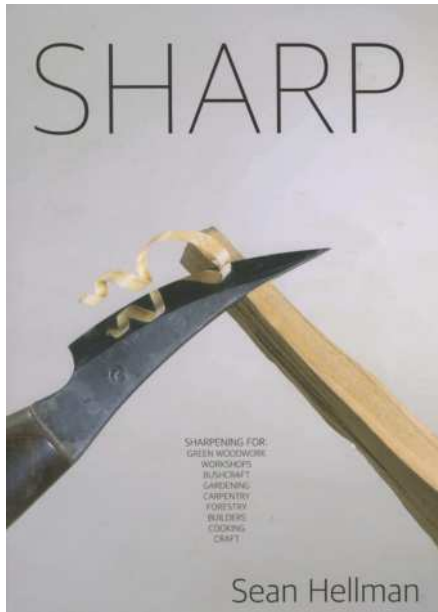
I'm not a fan of superlatives or mantras for success but here are a few observations that have helped me along the way.

- 1 Embrace the one trick pony – multitools generally over promise and under deliver.
- 2 Don't assume that the old way is the best way.
- 3 Make more than you need and don't throw the rejects away.
- 4 Make tools to sell but also buy tools from other makers.

Follow Derek @lowfatroubo or www.lowfatroubo.co.uk

The Sharper Options

Searching for sharpening tips, *Nick Gibbs* compares print and digital instructions



One Christmas my late Aunt Ann gave me *What to Do in an Emergency*, a hardback the size of a coffee table browser. Yes, it had tips on dealing with a burst pipe or a blown fuse, and many other household disasters, but where would it have been when a snake bites or you're trapped in a car? Probably at home in the bathroom where it had become valuable and entertaining loo reading for anyone with an excellent memory or a morbid sense of humour. With that in mind, and considering you can still buy Jim Kingshott's *Sharpening Pocket Reference Book* and there's always the Internet, one is led to question the role of Sean Hellman's 333pp softback, *Sharp*.

I am currently facing two key challenges when it comes to working wood by hand. I want to conquer my fears of sharpening chisels and plane irons without a honing guide, and I am keen to continue therapeutic spooncarving by learning how to sharpen a hook tool. Oh, and I'd like to see if I'm touching up chainsaw teeth correctly, stropping kitchen knives the right way and wise to welcome a hand-powered grinder to my workshop.

As a print magazine ourselves, much to many readers' delight, I'm interested to see if an encyclopedic bible on sharpening can compete with digital options. I've watched carpenters on site sharpening

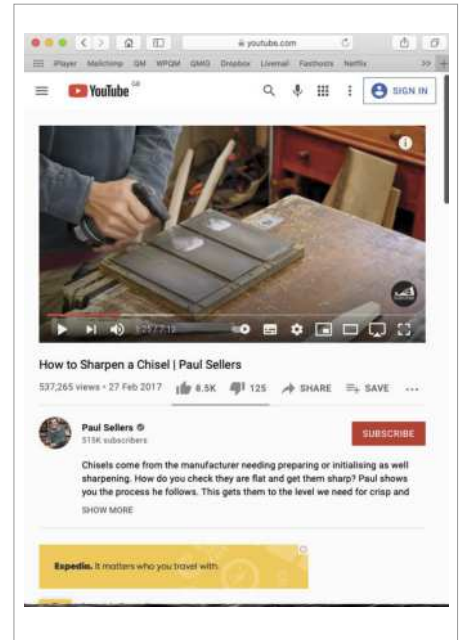
their chisels and blades on diamond stones by eye, and guides taking too much time setting up. I'd assumed that unless you have a six-pack of sharpening muscle memory you will end up rounding over the bevel, and dulling the edge. In his early chapter on geometry Sean Hellman discusses bevels in detail, and to my surprise writes about convex grinds with more enthusiasm than I expected. "I have noticed in museums... as with most of my students... that convex bevels are most common and possibly a historical tradition." Having extolled the value of convex bevels he adds: "I often hear it stated that convex grinds are hard to create. This is not true."

Meeting in Wales

I am reminded by Sean's comments of a time I visited Paul Sellers' workshop in North Wales, when he was running a course. Paul had a couple of stones set up, and he encouraged his students to sharpen their blades by hand (without a guide). I was surprised that he reassured them that 'rounding over' the bevel was not an issue, indeed he was teaching them how it should be done. With that memory in mind I logged onto Paul's YouTube channel to see if he is still promoting that technique, and to see how digital tuition compares with holding bound-paper instructions.

It is no surprise so many of our readers have been enthused and instructed by Paul's videos, he himself perhaps inspired by Lord Reith's BBC mission statement mantra to educate, inform and entertain. John Reith founded the British Broadcasting Company in 1922 as the first Managing Director till 1927, then Director-General up to 1938 once Britain's great institution became a Corporation. In the UK publishers and broadcasters strive to meet 'Reithian' standards, just as Sean Hellman, Paul Sellers and many others strive to combine personality and guidance.

With all that in mind, and with *Sharp* open on my desk, I move to YouTube to see what one can learn about freehand sharpening, just as Sean and Paul teach, in both cases with convex-only bevels. Sean says of a convex bevel: "The joy of this bevel-setting method is that you will never have to regrind the primary bevel again. No re-grinding is necessary unless the tool becomes damaged. It is easy to convex-hone, just push the handle of



the chisel towards the stone as you push forward, or if using a set stance to hold the bevel angle, drop down the forward knee and raise it on the return stroke." And in typically honest style, and offering credit where credit is due, Sean mentions Paul Sellers in his instructions.

Technique reminder

The great benefit of *Sharp*, despite it being 333 pages, is that you can turn the pages to find the paragraph and illustrations you need as an introduction, confirmation or reminder of techniques you want to perfect. YouTube is a much more unwieldy beast for reference. I recall coming across a brilliant film of Paul's which shows him sharpening with a convex bevel, but forgot to bookmark the episode and can't find it now. During my searches I was drawn towards Rex Krueger's film on Freehand Sharpening, because a) the video aims to rid us of honing guide stabilisers, and b) Rex writes for us. It helps that Rex favours Norton India and Arkansas stones, exactly the pair I have chosen after years of using waterstones and diamond plates.

A strop is also essential, but in his typically down-to-earth manner Rex Krueger adds: "For God's sake do not buy a strop. It is just a scrap of leather, any leather. Cut a piece out of an old handbag, or an old belt. When one of my neighbours

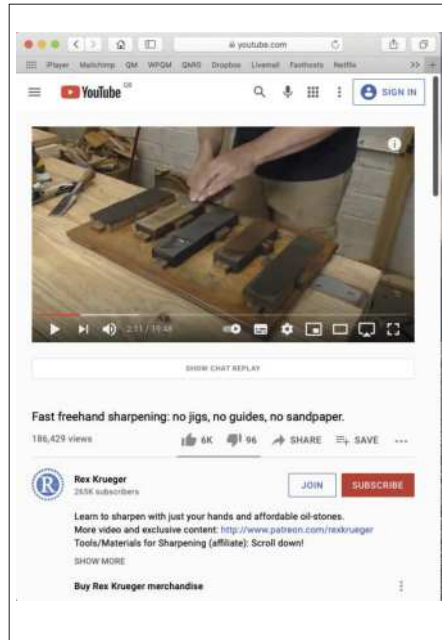
throws away a leather armchair, I go out there and skin that thing like a dead buffalo.” Just as Paul and Sean are open-minded about sharpening, so Rex disparages debates and obsessions on techniques and products.

Having had to rewind the video a few times to make a note that Rex glues his leather strop to MDF with 3M Super 77 spray adhesive, I was about to ask which side of the leather is best up or down. Smooth or rough? “There is a whole debate as to whether your leather should be shiny side up or fuzzy side up,” chats Rex. “I think arguing about that sort of thing is a stupid waste of time,” he says, as if the options are indistinguishable and each is as inalienable as the other. “I go fuzzy side up because it holds more buffing compound,” he concludes.

Entertainment's sake

For argument's sake, it is entertaining to compare the designs of Paul Sellers' and Rex Krueger's sharpening stations. Sean doesn't appear to have a dedicated base for his stones, but then that's hardly surprising as he illustrates the pros and cons and characteristics of so many options. And anyway he leaves the reader time and space to make scribbles and sketches on the pages of other folk's ideas. In essence the Krueger and Sellers stone homes are matching, except that Paul shows how to chisel out recesses and Rex screws battens to a board to stop any wow and flutter. Without wanting to show much favouritism towards our *Quercus* jockey, I have to say that my 'station' is designed Rex's way, as much as anything because it is quicker to manufacture and more adjustable, using a shaving, suggests Rex, to halt any rattle.

Rex and Paul's tangential teaching of freehand sharpening is energising. For that matter Sean makes a fine stab of competing with film on paper by showing freeze-frame photos of his hands and body in perpetual motion. Paul is the embodiment of Sean, relaxed and steady. Rex, on the other hand, is a force of nature, a scatter-gun of energy with a sniper's aim. And he's funny. I'm sure I noticed a subliminal image of U2's The Edge when an annotated sketch appears to illustrate the bevel, back and edge of a chisel. All Rattle and Hum. Perhaps it's just that when Robin Gates came up with



the name of this new *Quercus* tool section, my first concern was that pop fans might contest our use of a rock icon.

Sean, Rex and Paul are such a breath of fresh air. *Sharp* isn't as neatly produced as, say, Leonard Lee's *Complete Guide to Sharpening*, but it covers more distance and has tons more personality. Don't expect this to be a myopic guarantee of sharpening success. It's a book to explore, and explore again. It's a book with which to learn for yourself skills that will make woodworking so much more rewarding, without dispelling the truth that sharpening requires effort and practice.

We devoted paper boys (and girls) may dismiss digital footage, just as YouTubers consider books and magazines things of the past. Of course, the prudent embrace the best of all possible worlds, welcoming Paul, Rex and Sean into their workshops, which is in a *Candide* kind of way exactly what *Quercus* aims to do in our dog-eared, pocket-sized, rolled-up attempt to entertain, inform and educate.

Sharp, by Sean Hellman, is published by Crafty Little Press. Paperback with 333pp, *Sharp* costs £25 from seanhellman.com.

Rex Krueger



Rex Krueger has been a regular contributor of ours since QM05 when he wrote about the forgotten Gage brand of planes. He seems to love print, but has 256k subscribers to his YouTube channel. Rex has taught Literature, Writing and Media Studies at several large American universities.

In 2016, he left academia to start Rex Krueger Fabrication, a custom-furniture company that specialised in unusual objects made from wood, metal and plastics.

Rex, who now lives in Cleveland, Ohio, USA, comes from a family of auto-mechanics and he started out as a machine-tool woodworker. After discovering vintage hand planes, he transitioned to a hand-tool approach. “I feel that hand-tools are especially relevant for the hobby woodworker,” he says, “because they're safer, less expensive, and take up less space than heavy machine tools. A hand-tool woodworker can also make many of their own tools, which is a huge advantage.”

Rex's approach to woodworking is mostly historical and most of his tools and techniques come from books. Many of his projects are reproductions of actual, historical pieces.

In 2017, he started his YouTube channel, where he teaches low cost, beginner-friendly woodworking. The channel is now Rex's main focus, along with writing books. His most recent one, *Everyday Woodworking*, was released in June. His previous book, *One Week to Woodturning*, gives new turners an introduction to the equipment needed to get going.

In Travishing Style

Phoebe Everill interviews Claire Minihan, whose specialist tools are renowned by famed chairmakers



According to the renowned chairmaker, Peter Galbert, “Claire Minihan makes the best travisher in the world today.” That’s some call for any toolmaker, but especially for one so young, Claire Minihan has absolutely dedicated the last ten years of her making life at perfecting the travisher, her version of a tool that has hundreds of years of making history.

The dictionary defines the travisher as a carpenter’s shave designed for shaping and smoothing concave surfaces, typically used in making chair seats. There is currently a lead time of 13 months to get your hands on one of these beautiful hand-made travishers.

Claire grew up on the island of Nantucket off the east coast of the USA, in a community of strong trades. She had no young dreams of a trade career, but chose woodworking at high school, where she was inspired by teacher, Chuck Colley, who encouraged her to train as a maker. “His passing last year had a profound effect,” says Claire. “A teacher can make a real difference when it comes to pivotal moments in a student’s life.” Ultimately, though, it was Peter Galbert, and the making of his early travishers, that found the toolmaker in Claire Minihan. She thinks she has an unusual brain, that even after 10 years of making the same tool she doesn’t hate it. In fact she still really likes getting into the zone of the making process.

PE How did you get into this making life?

CM The ‘craft’ really chose me as a maker. I fell into woodworking. After choosing an elective of woodworking at high

school, I was inspired by the teacher Chuck Colley, who became my first woodworking mentor. Chuck was always pushing for diversity in his wood shop, both gender and race, encouraging everyone to participate. My first project was a Japanese toolbox, learning machine and hand skills. I was encouraged to draw and design my next one, and I chose a chess board. We figured out how to make it together. The craft had become fun and alive. Then in my senior year Chuck and I worked on a dory together, a small flat-bottomed boat which is double-ended, making it easier to drag over the local sand flats.

What happened next?

After school I started a semester at college but it didn’t really ‘fit’ well and I found myself working with Chuck on the dories. Then he suggested I might think about going to the North Bennet School, and he helped organise a scholarship from the local builders’ co-op to assist with the costs.

I was only 19, with only two years of high school training, so I went in really ‘green’ for the two-year course. At the end of the first semester I had to decide what I really wanted from the school. I didn’t even know what I needed to know! There were 10 students per teacher, so we needed to be very self-reliant, motivating ourselves to achieve our goals. But the training gave me confidence on machines and hand-tools and I left able to select timber, and able to design and start making successfully.

What did you do after North Bennet?

I worked in a small cabinet shop in Andover, Massachusetts for three years, a job which gave me experience working from the start of a project to completion. I was doing a lot of the day-to-day running of the shop but wasn’t really learning new skills.

Enter Peter Galbert. How did he redirect your path?

Peter Galbert had taught a semester at North Bennet and there was already a mutual respect, which developed into a friendship and mentorship when Peter moved to Massachusetts and set up his workshop. It gave me a place to be creative, and the courage to leave the cabinet shop. I ended up working in the Galbert workshop learning how to make the travisher he was developing.

How did that go?

The prototype standard sweep 4¼in travisher had a hardwood sole, but after Peter’s teaching experience in Australia he found that the Aussie hardwoods were literally ‘eating up’ the soles of the travishers. The first big change was the introduction of the brass sole. Then I was offered the opportunity to take over the making of the travisher, initially as a temporary step to finding a new job. The orders for travishers kept coming, and the summer job turned into something more permanent.

What did you most enjoy?

I was really engaged with the process of tempering the metal components and the working out of the angles of the bed and blades. I learnt a trial-and-error design style from Peter. The best attributes of other tools are researched, a prototype is made and tested, then evaluated and further refined. This process is repeated and tested many times, adjustments made and then retested. It requires painstaking attention to detail and

Walnut travishers



PHOTOGRAPH: SAM WAXMAN

persistence. These are the nuances of toolmaking. You feel you can communicate with the tool you are making.

Does the finessing ever end?

Not really. When I was in Australia a few years ago I spent time with both Terry Gordon (HNT Gordon tools) and Colen Clenton who are both legends in the toolmaking world. These guys can really talk the minutiae of machining and processing. They led me to rethink the quality of the screw clearances in my travishers, which has become yet another challenge in my work to improve the tool. I can become obsessed resolving issues like this. I guess that's what sets toolmakers apart; a drive to perfect a process.

Tell us about the 'shallow sweep' 6½in radius travisher. Did the need arise for it as a finishing tool?

You don't have to have the extra-wide sweep travisher. But if you really enjoy using hand-tools, and you have the means for it, and you really don't like scraping, you get a 'scalloping' pattern and then the wider sweep will take that away and removes some of the need for using a card scraper.

This travisher is particularly suited to work on the front half of the Windsor chair seat where the curve is not as steep, and provides an exceptional quality finish straight off the tool.

There are three components in every tool: steel, brass and timber. Do you have a preference?

I love the timber. That's one thing I learnt from school is I love

shaping wood and I love chamfers and I love how the edges intersect. There was an excellent exercise done at North Bennet when a cabriole-legged foot stool with four different designs had to be carved into the foot. My favourite is the 'slipper' foot, which looks like a leaf and is four-sided. I love the way those sides flow and interact with the undercut. It has 'harsh' lines that still appear 'soft'. If I wanted to describe my design aesthetic it would be the 'slipper' foot!"

The toolmaking world is particularly male-dominated. How has this worked for you?

The experience of having Peter Galbert at my side especially at early tool shows cushioned any negative gender responses. I feel that I had to 'prove' myself constantly along the way. Comments like "Do you know what you're doing?" and "You're the pretty little helper," grate but you just have to deal with the bullshit, and let the quality of the tool speak!

Other aspects you love in your work?

I love sharpening. It is sensory, watching the edge develop and the steel 'brighten' and then that first cut when you hear the sharpness and your hands get to feel the sharpness of the edge and often you can smell the shaving, all the senses at work."

The metal components of the travishers involve bending both the brass and the steel. How is this done?

The steel blades are cold pressed using a positive and negative

form. There is some spring-back, so each blade is similar but not exactly the same. Then the brassware gets custom bent to that profile and hammered out until there are no gaps between the two profiles. That's the beauty of the truly hand-made tool and the reason it costs what it does.

Tell us about your involvement in the creation of Workshop of Our Own (WOO).

The space in Baltimore is the brainchild of Sarah Marriage, created four years ago with the assistance of the Minnick Grant. The mission statement for WOO is 'to create a professional woodworking environment which cultivates and promotes the careers of women and gender non-conforming craftspeople in our field'. With a group of professional, female woodworking friends I became involved in an amazing 'working bee', making storage for the space, workbenches and tool boxes, funded by a crowdfundingraiser.

It was a lesson in how rarely women get to be in a workshop with no men at all. That was an extraordinary confidence boost. Unfortunately, the workshop has been closed by the advent of the Covid pandemic but is running online courses, one of which I have delivered on the theory and practice of sharpening curved blades. The workshop remains ready and waiting for its community to take over.

How has Covid affected you as a maker?

There's been little change in my day-to-day life, except there were some cancellations of tool orders. Plenty didn't cancel, which is the advantage of already having an established client list. Some of the material components, like blades, and the cutting and drilling processes were interrupted, but a new, more local supplier was found who is supplying better quality steel and brass, just a little more expensive. This interruption of supply meant that I was out of work for two months, and I spent that time connecting with another cabinetmaker in my workshop complex, and I started working with him to develop and refine my skills in cabinetry. I've taken a part-time job in a cabinetry shop while still having my own toolmaking business to run with a long list of orders to fill. These last few months have meant lots of very big days.

Is teaching a part of your work life mix?

I do teach travisher making, but it is kind of niche and I'd like to get more involved with teaching cabinet making and carpentry. I am passionate about giving more back to the community, and teaching may be the way to do this, passing on universal skills to allow people to manage their homes and make furniture for themselves.

What other skills interest you?

I have started letter carving for enjoyment and for skill development. I have a particular interest in the Tolkien genre in the Elvish font, as well experimenting with colour and milk paint for picture frames. This is the fun element of making.

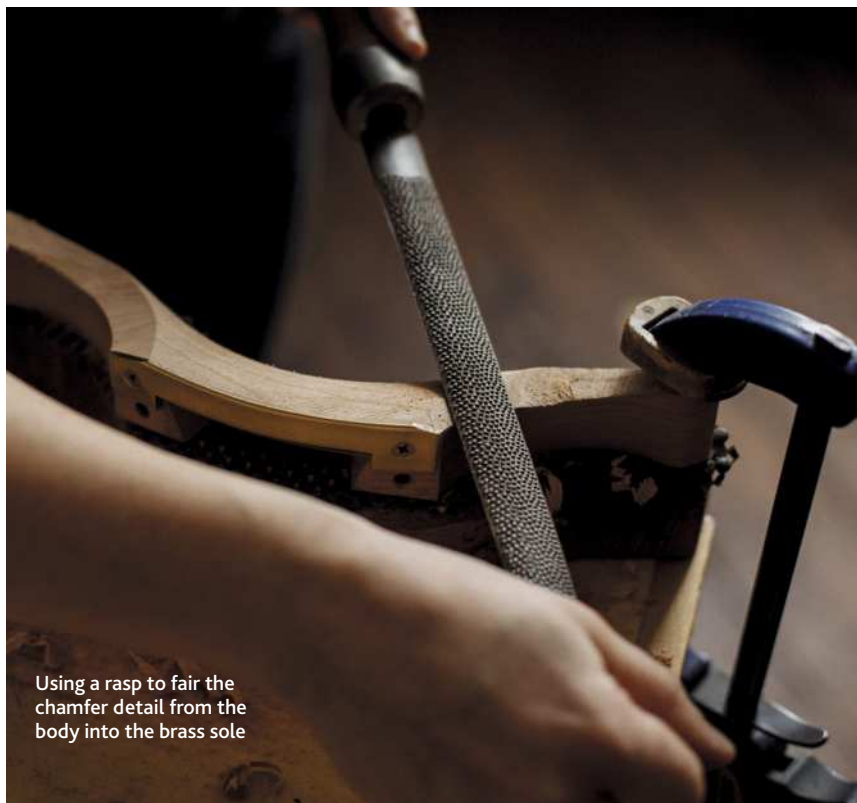
Tell us about your new workshop

It is the first workshop of my own, and feels pretty awesome. It is quite large so I've walled off an area to make it more contained. It feels very different being in a space of my own but at the same time a new beginning, making larger projects as I'm doing for a friend's upcoming wedding.



Shaping the body of a cherry travisher with a spokeshave of Claire's own creation

PHOTOGRAPH: SAM WAXMAN



Using a rasp to fair the chamfer detail from the body into the brass sole

PHOTOGRAPH: SAM WAXMAN

Given the success of your travisher is there any thought of outsourcing its production?

So, here's the thing. I am fussy, so I want to keep control of the process. Having said that I want to pass it on in the same way that Peter passed it on to me.

Are you interested in developing other tools?

I have designed and made a spokeshave, and I have also taught that exercise. At this stage I just make them as a one-off for people. Peter Galbert asked me to make one for a very specific need he had, that was a very great pleasure to be able to give back to him. There is also a video that I did for *Popular Woodworking* magazine on how to make your own spokeshave and travisher.

How does the future lie?

One project I've been able to take part in this year is 'The Chairmakers Toolbox' developed by Aspen Golann. The goal is to acquire sets of Windsor chairmaking tools made by non-binary,



Final shaping of a Windsor chair seat with travisher

PHOTOGRAPH: SAM WAXMAN

trans, BIPOC, LGBTQIA, and female makers. These sets will then find homes with non-binary, trans, BIPOC, LGBTQIA and female woodworkers to learn Windsor technology and make it their own. Definitely keep an eye out for 'The Chairmaker's Toolbox'. There are many more facets to the project that, I believe, will resonate with lots of folks!"

A rare breed of toolmakers

PE Great toolmakers are a very rare breed of makers. They have an unwavering desire to produce high-quality tools that have specific tasks to perform. Ultimately they are practical people with a precise way of thinking and problem solving. Claire Minihan is one of those special makers. She stays true to the practical nature of the tool, and with a design flair and exceptional hand skills, you have an extraordinary outcome.

Contact Claire by email at cminihanwoodworking@gmail.com or Instagram @cminihantravishers



Cherry travisher in process of being made

PHOTOGRAPH: SAM WAXMAN

Vices and Bikers

Readers, followers and friends tell us their sharpening tips and answers, plus other *Quercus* comments

Once again it is hugely satisfying to hear from Peter Marshall of Maple Ridge, British Columbia who has built yet another *Quercus* project, and this time it's Robin Gates' sliding lid tool box from QM06. Using materials to hand in his workshop and following the suggested hand-tool techniques, Peter has done a great job (see photo opposite). That's some speed. "As usual Robin's article was a pleasure to read and was accompanied by some great photographs," Peter wrote to us. "In the spirit of the article I worked only with hand-tools and used mainly reclaimed materials." The sides are Douglas fir from a house demolition and the 6mm birch ply for the lid and base from Peter's own offcut pile. "The lid pull is cherry and the box is fastened with traditional forged nails. I finished the box with shellac topped with a coat of oil/wax butter mixture. It is a very nice addition to my 'Gates Collection'". We agree.

Barbara's vices

Other readers follow up on our articles by offering alternative techniques and/or tools. Norman Billingham, for instance, has written in regarding Barbara Roberts' bench improvements in QM07, and has sent us a photo of his own improvements (see opposite). "Barbara shows a Moxon vice with the screws projecting through the front jaws," writes Norman, who works in the Department of Chemistry at Sussex University, England. "I am sure this is authentic but it means there are two steel rods sticking out in front of the bench just at the height of some tender bits of flesh." As you can see, Norman has made his with the nuts and rods to the rear, and he says



that it feels safer, with no loss of function. Norman goes on to praise Richard Wile's way of setting up a honing guide, meanwhile explaining his own technique. "I have made a couple of setting guides, with angles of 25° and 30°." He adds that they make setting up blades in a guide very easy and the angle is independent of the thickness of the blade. "I make no claim for originality. I think the idea came from David Charlesworth. He made his from wood. Mine are brass."

Posting comments

In QM05 Derek Jones discussed drawer construction, and in particular the use of slips. We raised this point on Instagram, asking followers how they consider the strengths and weaknesses of grooving the drawer linings (sides) or using slips (which are so poorly named). In response Josh Howard-Saunders says: "Slips for heavy-load capacity drawers, give wider bearing surfaces between drawer and runner and no compromise of

strength in the side panels." Recognising that it's each to their own he adds: "Otherwise grooves direct into sides are fine, making sure the groove is covered by the dovetail."

Effectively Erika Torres agrees with Josh. "It honestly depends on the drawer for me, what it's function is and how often it will be open. I LOVE the look of slips, but love the ease of grooves." Jonathan Judeich points out that slips demand extra work, but also accepts that not having to worry about the groove in the main construction would really make up for it. "Basically I am going to have to read the article!"

Then in QM07 Derek showed how he makes Japanese toolboxes in quantity, just as Barbara Roberts (@barbiwoodshop) is doing at the moment as her contribution to our Young Woodworker of the Year 2022 challenge. "I think of all things you can make of wood," comments Ben Chlapek from Chicago, "the Japanese-style toolbox is my favourite."

Georgian joinery

Looking ahead our Editor Nick Gibbs has shown how he is aiming to replicate the making by hand of windows for his John Nash Georgian folly. "Well done," comments Mark Howlett. "Not an easy task. Those Georgian chippies knew their stuff."

In one post, Nick shows how he is using a sash fillister (kindly donated by Richard Arnold) to make the windows. When @markivanfuture asks, "What's the difference between a sash fillister and a plow plane?" Richard replies: "The only thing a sash fillister and a plough have in common is the adjustable, wedged, stemmed fence. A plough plane cuts grooves, whereas the fillister cuts rebates, primarily for windows, but I have a feeling joiners found other uses."

As part of his hope to become a Self-Sufficient Woodworker, Nick has been illustrating how he learnt to sharpen gouges on a bench grinder without even a tool rest, let alone a honing guide. In response Chris McPadden questions Nick's other plan to use a hand-powered grinder. "I sharpen with a hand grinder, and a tool rest is almost a necessity when you only have one hand to use. If you don't want to use tool rests you will need a treadle grinder." Jim Hendricks can vouch for that approach: "I have that exact grinder... amazing thing."

Modern spokeshave

In QM06 we showed how Michal Cholewinski, a chairmaker from Poland, has been renovating wooden spokeshaves, inspired by Robin Gates' article in QM06 mentioning the adjustment of screws in a Hall's 'Modern' spokeshave, which had kindly been sent to Robin by Phil Gaynor. "I often see these or similar in antique centres,"



comments Graeme Brown. "I have always wondered if they are worth getting." Robin replies that for older wooden shaves it depends on how worn they are. "This one from Phil is in excellent shape although 100 years old." Phil says that he sent Robin the Hall's spokeshave for it to return to the UK. "I am so pleased the journey back home to its rightful place [got] the much-needed appreciation after your restoration and spruce up, and that you were able to get it into the spotlight."

On the topic of favoured tools we posted a photo of the classic Stanley 199 knife that had been engraved so beautifully by Matt Lepper from Missouri, USA (featured elsewhere this issue). "I used nothing else but one of these," comments Adrian Meredith, "and a bent gouge for spoon-making for decades." Matt's engraved knives are presented exquisitely in a box with a stamped leather fob. "I have the model you have there," writes Drew Blowers. "I have four different styles of the 199 and two 199As. The 99E is the classic retractable."

We had a great response to the tantalising challenge to name the motorcycle rider pictured above a *Quercus* bench. "It's Valentino Rossi," posts Tim Ross, winning the prize of a free sub as the first correct entry, "but there's truly only one racer worth hanging on a wall: the late, great John Surtees." Tim Garland favours another rider: "Joey Dunlop has to be the hero in the Garland workshop. I've followed him from the first race at my home track Southern 100 in the mid-1970s as a school kid." Of course most followers identified 'Il dottore' correctly, but Rob from Bristol and Francois Pernod somewhat hopefully suggested Barry Sheen and 'Mike the Bike' Hailwood.

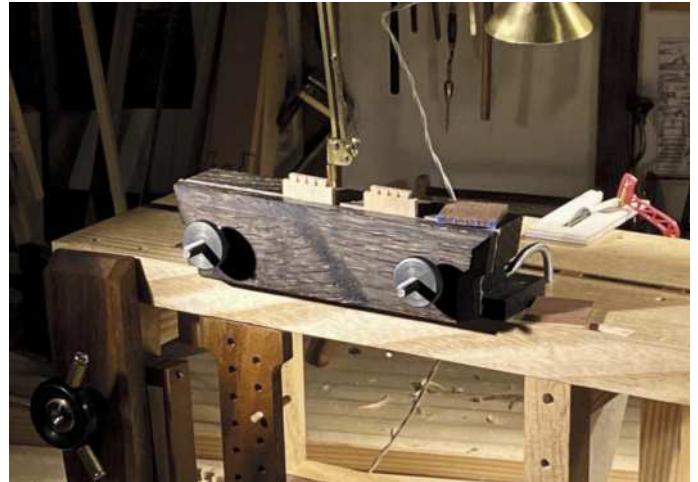
Motorbikes are a bit of an obsession at *Quercus*, especially since we acquired a 250cc Mutt Mongrel as a new company vehicle. Already Paul Hayden from Westonbirt Woodworks and the planemaker, Bill Carter have given Muttley, as the bike has unsurprisingly been nicknamed, a go. "Wow," exclaims our follower @dneprwood, "Mr Carter is a rocker." "More motorbikes, please," requests Red Zed.

Moki the dog

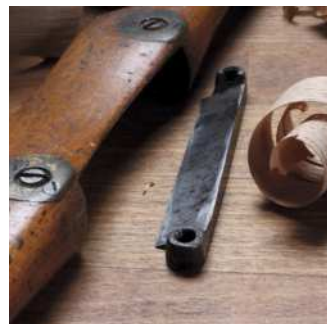
We digress. The star of Last Posts is of course Moki, brought to life by Omi Gates (@omigates). "She [or he] happens to share the name of our family dog," reveals Josh Pinkston. "It's fun to announce that I have just found a picture of Moki sawing a board or using a drawknife."

Barbara Millicent Roberts (@barbiewoodshop) is another *Quercus* regular. "I have known her since I was six," says Australian Julii Gaunt, "and she has been such an inspiration," which has been the same for Kevin Groenke, who adds: "I bet she hates it when you call her Barbara."

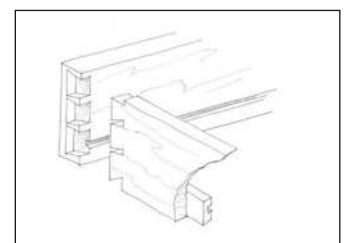
A new contributor is Giorgio Nicodemo, who as @the_attic_ woodworker lives in Verona, Italy, and lusts after the 'Medieval' tools Gerwyn Lewis displayed in QM06, to add to his Lockdown selection: "I need some of those tools."



Norman Billingham questions the safety of Barbara Roberts' Moxon vice (above), with his own version (top left). Regular correspondent Peter Marshall has made his own version of Robin Gates' Sliding Lid Toolbox (right), which we described in QM06. We now have a magazine bike named Muttley (below right), tested by planemaker Bill Carter and his wife Sarah. New contributor Giorgio Nicodemo lusts after the 'Medieval' tool kit discussed by Gerwyn Lewis in QM06



The renovated Hall's 'Modern' Spokeshave (above & left) from QM06 inspired Michal Cholewinski to do the same (above right), as shown in QM07. In QM05 Derek Jones discussed drawer slips (right)





Matt Lepper, The
Tool Engraver, in
his workshop in
Missouri, USA