

Clark & Williams, Plane Makers

BY CHRISTOPHER SCHWARZ

In an Arkansas basement, this somewhat unusual three-man company turns out extraordinary wooden handplanes.

The married couple wanted a custom gazebo. So Larry Williams, a successful carpenter, fetched his camera and was getting ready to photograph gazebos around town to show his clients. Right outside his door, Williams took a wrong step, slipped on an ice patch and became a full-time toolmaker.

Williams had broken an arm. To be more precise, he had ruined his arm and needed surgery and bone grafts. With one slip, his carpentry career disappeared.

"No one needs a one-armed carpenter," Williams says. "God I love carpentry. The kind of work I got to do . . ." His voice trails off.

Today Williams and his business partners, Bill Clark and Don McConnell, run Clark & Williams planemakers in Eureka Springs, Ark. This three-man business is one of the few in the Western world that makes traditional wooden-bodied planes.

The company uses modern and traditional tools to make planes that represent, in their eyes, the pinnacle of tool development—18th-century British moulding, bench and joinery planes. Planes of this era look simple—some woodworking authors have described tools of this period as "primitive." Yet once you see these planes through the eyes of their makers, later handplanes look and feel awkward.

The problem here is that even with modern woodworking and metalworking machines, building these tools is time-consuming. All the important details are made by hand. So Clark & Williams has an immense backlog,



Built for builders. Clark & Williams planes might appear simple, but they are actually extraordinarily refined tools that require machinery, hand tools and incredible skill to build.

How long? Williams won't even take a guess.

"We're always adding steps," Williams says. "Any time we think we've figured out how to make McDonald's wages at this, we add extra steps to the process."

This problem weighs heavy on Williams,

who has survived two serious health problems during the last two years. There is concern hanging in the air of this cozy basement shop in Arkansas that health problems, which launched the company into full-time production, could also be the end of it.



No small taper. Here you can see the bevel and the tang of two unfinished irons for snipes bills planes. The irons start thicker at the bevel and taper 1/16" along their length. That's a lot of metal work.



A steady hand. The swooping gouge cuts on the shoulders of the moulding planes require sharp tools and skill.



Mortises for wedges. "We've been careful not to design our tools around our machines."
— Larry Williams

After Disaster, Floats

Clark & Williams was born as a side gig of Williams and Clark, who were partners in a finishing subcontracting firm. The two had been using hand tools on the job for years, but they wanted to be able to make small amounts of custom or reproduction moulding.

Williams says they realized that hand planes would be the best way to do that. The problem was that Clark and Williams couldn't find planes that were in good enough shape to use, so they decided to make the tools.

That led to the second problem: They needed planemaker's floats.

These fascinating, useful and rare tools are a cross between a rasp and a saw. They cut wood aggressively, true the surface and leave a nice finish behind. Floats are key to making many parts of wooden planes, including the bed for the iron.

While vintage floats used by joiners showed up for sale occasionally, floats for the plane-making trade were rare. So in 1996 Williams and Clark bought the machinery to make floats; they helped pay for these machines by offering the floats for sale on the "oldtools" Internet discussion group. That led them to making 18th-century style planes and unlocking a key secret to handplanes without chip-breakers: a high cutting pitch solves most of the problems with tear-out.

For a while, they were splitting their time between finish carpentry and toolmaking. Clark built the bench planes (jointer, try, fore and smoothing planes) and Williams made the moulding planes (hollows and rounds plus complex moulders).

Then Williams broke his arm in 2000, ending his carpentry career and beginning his life as a full-time toolmaker.

Since day one, simply figuring out how to make these tools has taken an immense amount of thought and labor.

"Basically, we've had to re-create an entire industry," McConnell says. "In the 19th century, there were beech suppliers and (companies) who made the right tapered irons. When we started, tapered irons weren't even available. So we've had to make the tools to make the tools."

Unlike modern plane irons, many 18th-century irons tapered in thickness, which is key to their performance. So Clark & Williams had to figure out how to do this using metal milling machines. Then they had to heat-treat their own cutters as well.

Even getting the right wood is a constant fight. They visit small custom sawmills all

over the country to find beech that is thick enough to make their planes; they never glue up thinner stock to make their plane bodies. While beech is an important tree in Europe, it isn't prized in the United States by sawmills – it moves a lot in service when it is flat-sawn. So the three guys find themselves scrambling for the 9/4 stock they need for moulding planes, the 16/4 for bench planes and the 4/4 for plane totes.

In fact, almost all their components are a struggle. For joinery planes with depth stops, Williams has to make them from scratch on a metal milling machine using a set of complex fixtures he built. So they make every single part of their planes, with the exception of a single cut nail that fastens the tote to the body of some of the company's bench planes.



Clark & Williams (and McConnell). Bill Clark with one of his jack planes, Don McConnell with a pair of snipes bills and Larry Williams with a try plane.

A Shop of All Trades

As a result, the main shop for Clark & Williams is an unusual combination of woodworking machinery, all forms of milling machines (including a metal lathe), heat-treating ovens and nice European workbenches.

Adding to the atmosphere is a large wood-burning stove. Several times during the day Williams steps outside the shop to split some wood and feed the stove. With a bundle of wood under his arm, Williams enters the shop in the company's woodworking area.

This room would look like home to any furniture maker. There's a vintage Powermatic 66 table saw, a large Grizzly band saw, an older Makita floor model planer, a sander,



Machines help the hands. Here the Grizzly wood mill is milling out the hole for a depth stop on a moving fillister plane. While machines handle some of the operations, about 80 percent of the work is by hand.



The woodshop. Williams is a big fan of his vintage Powermatic 66 and its simple fence. He never switched to the popular Biesemeyer system.

drill press and small Craftsman band saw. Here they break down the beech into usable stock, usually 24" lengths, then they reduce those to 11"-long billets, which become the 10"-long planes. They also cut the shoulders, grips and some chamfers on the planes using the table saw.

From there the billets pass into the next room, which houses a Bridgeport-like milling machine, the metal lathe, some grinding equipment and a Grizzly wood mill. The wood mill is a favorite of Williams, who has developed a whole rolling cart of ingenious fixtures that hold the parts in position.

Today Williams is working on some moving fillister planes and is sinking the mortise for the wedge on the wood mill. From there the billets will go to the adjacent bench area where things will get cleaned up with floats and planes and sandpaper.

"Eighty percent of the work is with hand tools at the bench," Williams says. "We tweak them until we're happy."

Meanwhile, work begins on the irons of the planes. These come into the shop as $\frac{1}{8}$ " x $2\frac{1}{2}$ " bars of oil-hardened steel. The steel is cut to shape on the band saw then tapered on a metal mill – the irons have to taper $\frac{1}{16}$ " along their length. Then the irons are hardened.

After that it's back and forth to the stations around the shop to prepare the planes for finish. Some operations, such as cutting them to final length and planing the tops, don't happen until the end so that the work is as crisp as possible.



The Clark & Williams legacy. "If I drop dead tomorrow I'll have left a good legacy. I can look back at our books and see the names of the people I sent planes to. Those people now have a capability that I only dreamed of when I was a carpenter. That's pretty neat." — Larry Williams

Each plane is tuned and sharpened so it is ready to work right out of the box. You read that right. Clark & Williams are one of the very few makers who hone their tools so that your first swipe with the tool is an amazing one.

As you can imagine, that is a lot of work. And if you're wondering how long it takes to make a typical half set of hollows and rounds, you can keep on wondering.

"The honest answer is: We don't know how long it takes to make a set," Williams says.

"The truth," McConnell adds, "is that we really don't want to know."

Unusual Company

If you're in business yourself, you're probably wondering how a company like Clark & Williams can survive with such a huge backlog, an incredible amount of handwork and a constant struggle just to get raw materials.

Wait, it gets crazier.

I've heard Williams gently discourage customers from ordering tools at times. The company doesn't advertise, seek publicity or actively try to expand its work force. But the most amazing thing is that in 2007, the company basically gave away all its trade secrets in a series of two DVDs produced by Lie-Nielsen Toolworks, a friendly competitor.

In the DVD set, titled "Making Traditional Side Escapement Planes," Williams shows



Where to begin? *“When I became a furniture maker, I decided I wanted to go back and start at the beginning, 18th-century furniture. It turned out to be a good instinct. It was a very good foundation.”*
— Don McConnell

every step to making the company’s moulding planes using simple machines and tools. And in a follow-up video released in 2009, “Sharpening Profiled Hand Tools,” Williams shows anyone how to sharpen the contoured irons—shortening the learning curve for both users and competitors.

“Sometimes we run into people who have watched the video and made some planes,” Williams says. “They’re real hesitant to say they’re thinking of making them to sell. They don’t know that we’d like to pat them on the back and buy them a drink. We put this information out to be used. We’d be thrilled to see others get into it.”

That, right now, is one of the unusual goals of Clark & Williams—to train people to compete against them in the marketplace. In part to make it easier for people to compete, Clark & Williams raised its prices significantly in the fall of 2009 and is planning future videos on making and using planes that they will give away free on the Internet.

They hope that the DVDs will encourage people like Matt Bickford to make planes to sell.

Bickford, a derivatives trader in Connecticut, bought the DVD and has made three half-sets of hollows and rounds in cherry.

“This is certainly a project that any hobbyist can do,” Bickford says. “It is one of the

most thorough DVDs—it was the only source I needed.” The only part of the construction process that concerned him was heat-treating the irons, but even that was straightforward.

“The irons are certainly holding an edge,” he says.

Bickford has traded away his extra sets to fellow craftsmen and—in the back of his mind—says he’s considering making tools for sale some day. But first he wants to get some feedback from craftsmen now using his tools.

In the fall of 2009, Bickford showed one of his planes to Williams during the Woodworking in America conference held in Valley Forge, Pa.

“Matt did a fine job,” Williams says.

“I felt bad,” Bickford says. “I felt like I was plagiarizing Larry’s work.”

The Learning Curve

The other major challenge facing Clark & Williams is training its customers to actually use the tools. While barrels of ink have been spilled on teaching people to use garden-variety bench planes, chisels and other basic hand tools, there is little written about moulding planes that is useful.

This lack of information hasn’t stopped some craftsmen from diving headfirst into the world of moulding planes. Chicago furniture maker Jeff Miller owns a half-set of hollows and rounds and uses them in his work, which is decidedly contemporary.

The first time he used them, Miller says he was making a fancy Roman-style chair that had ornate arms, for a Catholic church.

“The arms had a rolled-over detail that you couldn’t rout,” he says. “These planes were perfect.”



Their mark. *Though McConnell is deeply involved in the production of the moulding planes, the company opted to keep its original name. “I wish Don’s name were stamped on each plane,” Williams says.*



Planing planes. *McConnell finishes up a set of hollows and rounds at his bench last fall. Dressing the beech right before finishing is what gives the tools their crisp appearance.*

Clark & Williams Planes at Colonial Williamsburg

For most woodworkers, the Anthony Hay Shop at Colonial Williamsburg is the Tabernacle of Hand Work in the United States. The reconstructed cabinet shop in Virginia embodies the methods and style of work that were typical in the Tidewater area of the state in the mid-18th century.

The interpreters who work in the small but neat space use period-appropriate tools and techniques to build furniture and harpsichords. And on their benches and in their toolboxes are 125 planes from Clark & Williams.

Mack Headley Jr., the master and supervisor at the shop, says they first became aware of Clark & Williams through a friend of the shop.

At the time the Hay shop was using mostly 19th-century moulding planes. After receiving a donation, the shop purchased one full set of hollow and round planes – 36 planes in sizes from 1/16" up to 1 1/2". After working with that set, Headley says they purchased a second full set of the planes. While most craftsmen of the period would have had only a half set of the tools, Headley says they purchased full sets in case they wanted to alter the curvature of any of the tools – that would allow them to have one unmodified set at hand.

In addition to the hollows and rounds, Headley says the shop also has snipes bills and complex moulders, such as ogees, astragals and beading planes.

Because the shop makes only short runs of mouldings, they work mostly using hollows and rounds, which are more flexible than complex moulders, but can be slower to use.

The shop also has 14 rabbet planes, two tooting planes, a compass plane and four tongue-and-groove planes from Clark & Williams.

Several years ago there was an effort at Williamsburg to make bench planes for the shop. The blacksmith made blades. Other artisans made the bodies. But there were still some holes in the collection that needed to be filled in, so Williamsburg purchased four bench planes from Clark & Williams.

Though the Hay shop is in the United States and the Clark & Williams planes are decidedly British in appearance, Headley says the tools are appropriate for the shop and time period – toolmaking on this continent was still in its infancy so many wood-working tools were imported. Read more about the Hay shop at history.org. — CS



Reclaiming a lost art. McConnell explains the inner workings of historic moulding plane profiles to students in a planemaking class at Kelly Mehler's School of Woodworking.

In fact, Miller wants to develop a series of contemporary details using the hollows and rounds for his chairs and table edges.

"They are so useful for shaping and give you so much control," he says. "You might have this router bit and that router bit, but that's so

limiting. These tools free you up to do work that is difficult to (cut with a) machine."

However, Miller's confidence might be the exception. Many Clark & Williams customers are looking to make traditional mouldings and are looking for good step-by-step instruction.



On making planes. "It's fun seeing them come to life, setting them up and sharpening them."

— Don McConnell



Here, take this secret. Williams shows students at Kelly Mehler's School of Woodworking how to make a hollow and a round plane during a 2008 class.

But you won't find that in modern woodworking magazines or books. Even finding a class in moulding planes can be a challenge.

And so the guys at Clark & Williams also spend hours poring over nearly forgotten books to recreate the lost techniques for making mouldings efficiently. Before joining Clark & Williams in 2005, McConnell was already one of the country's leading authorities on pre-industrial woodworking. Not only is he a professional hand-tool furniture maker and gifted carver, McConnell has also spent his adult life digging into the history of steel, measurement systems and early tool development.

And now his research is guided by his day job as a plane maker. McConnell has always shared his knowledge freely on the Internet, and now he also is hosting DVDs produced by Lie-Nielsen that show woodworkers how to unlock their tools to make mouldings that

Supplies

Clark & Williams
planemaker.com or 479-981-1313

Lie-Nielsen Toolworks
lie-nielsen.com or 800-327-2520

"Things men have made with wakened hands, and put soft life into are awake through years with transferred touch and go on glowing for long years. And for this reason, some old things are lovely warm still with the life of forgotten men who made them."

— D.H. Lawrence (1885 – 1930)
English writer

no electric router could easily accomplish.

So six days a week McConnell and Williams meet at the shop, which is in the basement of the house where McConnell lives (Clark, the third guy in the company, works from his shop at home). They start at 9 a.m., talking history, working and drinking the discolored water that Williams calls coffee.

They finish at 5 p.m. or so and go home to answer e-mails, troll the Internet a bit and read, read, read.

"This," McConnell says, "is our lives."

All this hard work has earned them recognition. In 2006, Williams was named a Living Treasure by the Arkansas Arts Council. Various shops at Colonial Williamsburg own and use many of the company's planes. And the men are in high demand from woodworking schools all over the country to teach.

But in talking to them, it's clear that what drives them are the chunks of beech and steel they fashion each day. Each plane is like a wooden jewel. It withstands the closest scrutiny. Even the freehand cuts made with a gouge on the shoulders of each plane are perfect.

This display of bravado would be remarkable for any craftsman, but it's especially so for Williams, who has survived cancer and a heart attack and still doesn't have the full use of the arm he ruined. Yet he is still as steady and sure as a young man at the bench.

With a plane, chisel or brace in his hand, it's clear that Williams is simply driven and possessed to build the set of moulding planes he always wanted when he was that carpenter working on amazing jobs, carving linenfold panels from English oak.

And by his own measure, he's just about made it there.

"There is very little in this world I'd be willing to steal," Williams says, looking at a half-set of hollows and rounds that McConnell is finishing up. "Fifteen years ago if I had seen a set of planes like this, I would have been willing to steal it. That's really scary that I would be willing to say that. But it's true."

McConnell looks down at the planes and, in his own way, agrees.

"My test of a set of planes that I've made is whether I secretly wish I could keep it," he says. "That's when I know they're ready to be shipped." **PWM**

Christopher is the editor of this magazine and the author of the books "Handplane Essentials" and "Workbenches: From Design & Theory to Construction & Use."



A new plane maker. One of the students at Kelly Mehler's School of Woodworking takes one of his moulding planes for a spin. One of the goals of Clark & Williams is to teach the art to budding plane makers.

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