

# The Almost-Forgotten Fore Plane

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January 7, 2025

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## Learn to set up and wield one of the most useful (and inexpensive) handplanes.

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**Also check out:** A primer on [adjusting wooden planes](#).

Kevin Drake, a furniture maker who trained under James Krenov, stood before his wonky-topped workbench one day many years ago and hesitated.

His urge was to start flattening the benchtop by planing across the grain instead of along it. But that urge defied everything he had learned at the College of the Redwoods and afterward.

“I thought I was going to go to hell if I did that,” Drake told me many years later. But he gave it a go, and has never hesitated since then.



Flattening surfaces that are cupped, bowed or twisted had traditionally been the job of the fore plane, a tool that is used mostly by working across the grain of the wood. And sometime in the 20th century, the fore plane fell out of favor among woodworkers as the prices of electric jointers and planers dropped to the point where almost anyone could afford machinery.

But I think the fore plane is a tool that belongs in every shop, even ones that are fully mechanized, because it allows you to do things that no typical machine can do – such as flattening a 20"-wide slab with ease. It is the most common and inexpensive bench plane – used examples can easily be found for \$20. And the tool is a workhorse – it can remove up to 1/16" of wood in a pass without great effort. It is the opposite of fussy. And it requires no great skill to use it like a pro.



So what's the trick? Setting it up correctly and using it correctly. During the pre-Industrial age, fore planes were the most-used plane in a woodworker's kit. But the knowledge of how to prepare them and use them was almost lost for the modern woodworker. This article will tell you everything you need to know to get started.

## **What is a Fore Plane?**

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A fore plane is one of the three broad types of bench planes – smoothing planes and jointer planes are the other two types. Generally speaking, it is a plane that is 14” to 18” long with an iron that has a visibly curved cutting edge and a wide-open mouth.

A fore plane can have a metal or wooden body. It can have a mechanical adjuster or be adjusted with hammer taps. It can be beat-up or worm-eaten and still work fine. It does not require a sole that is dead flat.

In Stanley’s numbering system for handplanes, a fore plane would be a No. 5 or No. 6. Some of you might be wondering: What’s the difference between a fore plane and a jack plane? The answer is: The difference is who was pushing the tool. Old sources say that carpenters called the tool a jack. Furniture makers preferred the term fore plane, meaning that the tool was used “before” the other planes.

## Fore Plane vs. Scrub plane

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A shorter sister. The scrub plane does the same job as the fore, but it requires more skill to use.

The fore plane and scrub plane do the same job but are different animals. While the fore plane is long and has a somewhat shallow curve to its iron, the scrub plane is short (about 10”) and its iron has a tighter radius.

Most people choose one or the other. You don't really need both.

The longer sole of the fore plane makes it easier to get panels flat with less skill. But it's a bit bulky and heavy. A scrub plane requires more skill to use – you can easily overshoot your mark because it is so aggressive. But it is lightweight and takes up little space.

If you are a carpenter, you might prefer the scrub plane because its short sole allows you to go places a fore plane cannot – but that's not really an issue with furniture makers.

Either way, both tools are used in the same way in a furniture shop. So take your pick.

## How to Buy One

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I love my wooden fore plane, but for most woodworkers, I recommend a metal one. Metal No. 5 or No. 6 bench planes are easy to find and – no matter what their age – have few significant problems. Wooden planes can have serious problems that require skill to fix – if you do buy a wooden one, make sure the wedge cinches down tight and holds the iron during use.

One nice thing about fore planes is you don't have to fuss over them much. If the sole is a bit ratty, so what? The tool takes a coarse cut so sole flatness isn't much of a concern. The iron and chipbreaker don't have to be pristine. As long as you can get a clean and sharp edge on the iron, you're good (in other words, don't buy an aftermarket iron or chipbreaker for your tool).

The mouth isn't an issue because you don't need a fine mouth. In fact, you want the opposite. So a mis-filed or gaping maw is OK.

I do recommend your fore plane have wooden grips – not plastic. Using a fore plane is a vigorous operation, so plastic seams will wreak havoc on your hands, and sweaty plastic is just unpleasant. Last recommendation: Buy a used plane, and not a premium tool. New fore planes that are cheap are going to fight you. And premium tools aren't necessary here (save your money for a premium smoothing plane). My favorite fore plane is an old Stanley No. 5 that I bought at an antiques market for \$12. It has a wooden tote and knob, plus the original iron and chipbreaker. And it has enough life left in it for my kids and grandkids.

After you find your tool, take the whole thing apart, clean up the components and oil any moving parts. The next step will be grinding and honing the iron.

## Grind the Iron

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The iron of a fore plane needs a curved cutter to work well – the corners of a straight cutter will dig into the work and stop you cold. While you can experiment with a variety of curvatures, I prefer a radius somewhere between 8" and 10". These curvatures will work with

both bevel-up and bevel-down bench planes, the only difference is you won't be able to take as aggressive a cut with a bevel-up tool.

You are probably going to have to grind the shape of your iron so it is curved. If you don't own a grinder, this is an excellent excuse to buy one – I cannot imagine woodworking without one. An inexpensive 6" fast-speed grinder (3,450 rpm) is fine for woodworking. A coarse #60- or #80-grit wheel will do a fine job.



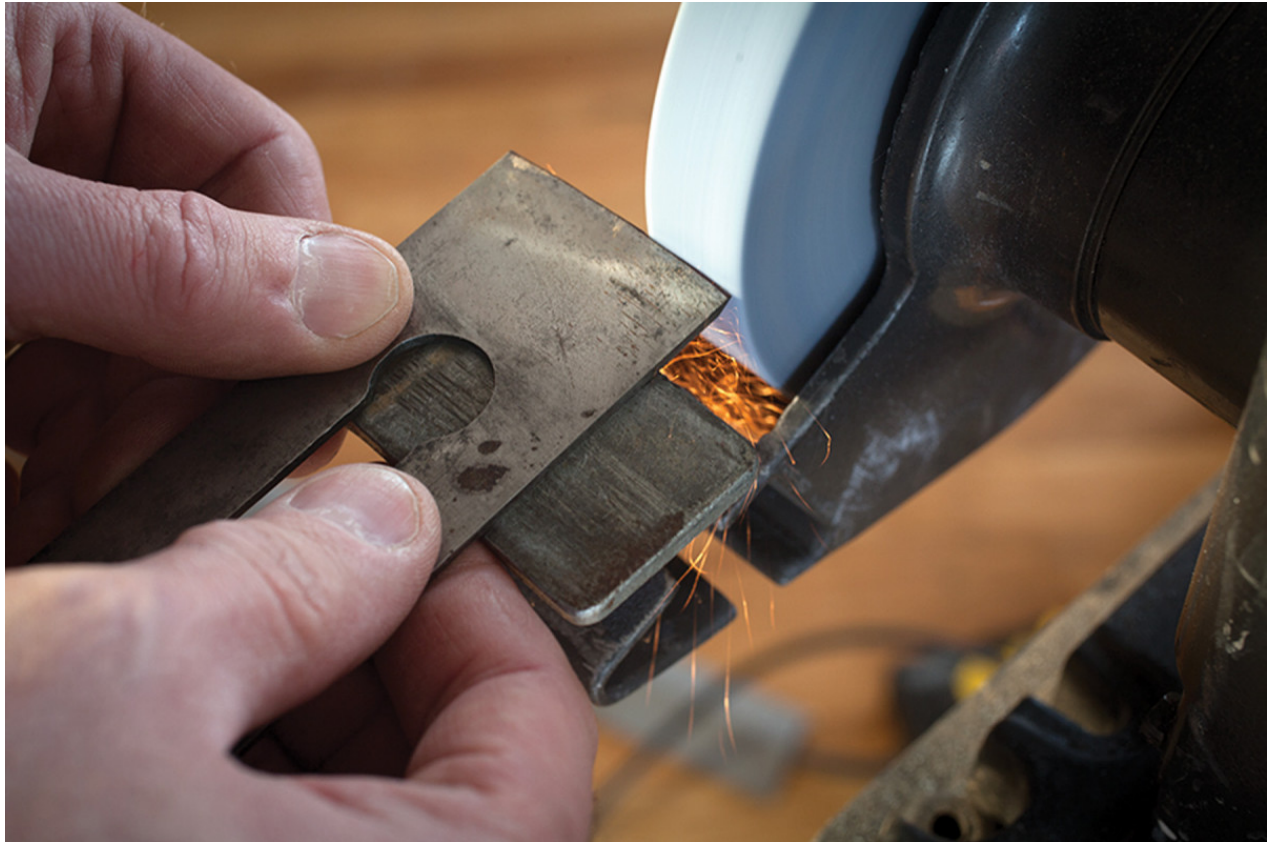
Around the bend. A wooden template of the desired curve is a handy thing to have next time you need to grind the iron – or for grinding your neighbor's fore plane.

I like to make a wooden template to mark the curve on the back of the iron. Make the template the same width as your iron. Then use a compass to strike an arc across its width – I use a 10" radius. Cut, rasp and sand the template to the final curve. Then lay out that curve on the back of your iron using a fine-tipped permanent marker.

Aim to remove as little material from the edge as possible when you mark your curve. Grinding is, as they say, a grind.

The first step is to grind the curved shape on the iron with the iron 90° to the edge of the wheel. This will remove material quickly and allow you to focus on getting the curve's shape just right. This operation will create a flat on the end of the iron. Then you'll deal with the bevel.





The right curve. Grind to the line on the back of your iron (above). When you are done, the flat on the edge should look like this (below).



So set the grinder's tool rest so the blade is 90° to the wheel. Grind down to your line. You'll find this process goes quite rapidly with little pressure, so take it easy. It's unlikely, but if the edge heats up so much that you cannot touch it, cool the steel in a cup of water.

Once you grind to your line, reset the machine's tool rest so you will grind a 25° bevel on the iron. Now dress the wheel of the grinder so it is a wee bit curved. This curve gives you more control over where the wheel is cutting.

Now grind the bevel to the curved shape. I start grinding in the middle of the iron with light pressure, then feather to the right or left, adding pressure as I rotate the iron. This helps establish the proper bevel because you will be grinding away more metal at the corners than the middle.

After four or five strokes, pinch the bevel. If it's too hot to touch, cool it in a cup of water.

After you get a curved bevel established you can work the entire bevel in smooth strokes, like the windshield wipers of your car. Pinch the bevel frequently to check the temperature and inspect the bevel.



Center to edge. Start grinding the bevel with light pressure at the center of the curve. As you rotate the tool left or right add pressure so that you remove more material at the corners.

The flat on the end of the iron should diminish in size equally at both corners. If it doesn't, work the corner that needs help to even them out.



Wave bye-bye to straight edges. After establishing the bevel with short strokes, you can then work the entire bevel in a single stroke. The wrist motion is like waving goodbye.

You want to get the flat as tiny and consistent as possible without removing the flat. I shoot for a flat that is a hair's width, or about  $\frac{1}{128}$ ". Leaving the flat intact prevents the edge from overheating rapidly and softening the tool's steel. Once you achieve this fine flat, turn off the grinder and head to your sharpening stones.



Tiny flat. This is when I switch from the grinder to stones. The flat is there, but it is barely visible.

## Hone the Iron

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I prefer to hone the iron in a side-clamping honing guide. If you buy a cheap one, just make sure its wheel is narrow – wide wheels won't rock on the stones.



Rock 'n' roll. Use finger pressure to make the iron rock back and forth on the stone as you roll the honing guide up and down the stone.

I set the iron in the honing guide to create a 35° secondary bevel, which is a robust edge and is suitable for this sort of work. Start on your coarse honing stone, such as a #1,000-grit waterstone. Rock the iron left and right as you move up and down the stone. You'll quickly find a rhythm. Work until you have eliminated the flat and cut a new edge – you'll know by the burr on the backside of the iron.



It's easier than it sounds. Honing a back bevel on the flat side is handy for fore planes.

Then move up in grits – I use #5,000 and #8,000 – to whatever polish you prefer. Then polish the back of the iron. I use David Charlesworth's ruler trick because it is especially handy at polishing out any rusty pits on the backside of my vintage iron.

Don't worry (much) if the iron doesn't have a perfect curve, or your sharpening needs help. Do your best, but know that the fore plane is a forgiving tool.

## Set Up

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Reassemble the plane. If your tool has a chipbreaker, set it slightly behind the curve on the iron. Then turn the tool over and sight down the sole. Increase the cut of the blade and it will appear as a sliver of a moon against the sole. Adjust it laterally until the curve is in the middle of the sole. To begin, set the iron so the amount of curve you can see comprises about one-third of the width of the sole. You can easily increase or decrease the cut.

## Use a Fore Plane

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It's time to learn some new woodworking words related to this tool. All three come from Joseph Moxon, who wrote the first English-language book on woodworking in the 17th century, "Mechanick Exercises."

The first new word is “dawks”; those are the curved furrows left in the wood by the fore plane.

The second word is “traverse,” which means you use the tool across the grain of a board or panel instead of along the grain. Traversing allows you to take a much bigger bite with much less effort. It leaves a woolly surface behind, but that can be cleaned up with other tools or left as-is for unseen surfaces in your furniture. (Personally, I quite like the woolly texture and the ridges of the dawks.)

The third word is “spelching,” which is when you traverse a board and splinter the far edge. Some people call this “blowing out the backside,” but that sounds to me like a trip to Tijuana. So I prefer the traditional word.



Stop spelching. A heavy bevel on the far edge will prevent spelching when you traverse a board. The bevel can be ripped away after you flatten the board.

Every traversing operation begins by beveling off the far corner to prevent spelching. I create this bevel using the fore plane, holding it at a 45° angle and running along the corner to chamfer it off. Then I begin traversing.

Your first time out, I encourage you to just give this a go on some scrap material and see how big a bite you can take. Don't worry about flatness. Just get used to the feel of the cut and find your limits – you might be surprised how much wood you can remove in a pass.

## The Finer Points of Flattening

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OK, so after you sow your wild oats on a piece of scrap and know what you can do, let's talk about how to control the surface below the plane, to make it flat.

The trick is to remember these two suggestions:

- 1) Focus your efforts on the high spots as much as possible.
- 2) It's usually best to work two high spots down to a low spot.



Conquer the cup. With cupped boards, traverse the high edges to bring them down to the valley between.

So let's say you are working the bark face of a board that is cupped. There are two high spots on the board's edges with a low spot between. If you traverse the board you'll work the two high spots down to the low spot. When your plane's iron touches the low spot, you have brought the edges down to be in same plane as the low spot. Is the board flat? Maybe. But you first need to check for twist.

One of the great gifts of the natural world is that boards twist in predictable ways – like a corkscrew. Diagonally, two corners are high and two corners are low.





With a twist. When your board is in wind, plane diagonally across the two high spots to bring them down to the low spots. If you are removing twist from a big tabletop, you might have to plane locally at the two high corners first.

If you want to remove twist, you should work across the two high corners – bringing them down to the low corners. So you plane the board diagonally across the high corners.

As always, you should check your work with winding sticks, which will point out any twist in a board as you work.



Take out the middle. This board is bowed in the center. Take the middle out by either planing with the grain down the middle of the board (useful with narrow boards) or traverse the hill alone (useful with large tops).

But what about the heart face of a board that is bowed? There's a single hump in the middle of the board. If you traverse this hill you will not flatten it. Your tool will merely follow the hill up to the top and down again.

Here you should focus your efforts entirely on the summit of the hill. Bring the hilltop down to the level of the long edges (or even below the long edges). You can do this one of two ways:

- 1) In wide panels, traverse the hilltop alone until it has been defeated.
- 2) In narrow boards, plane with the grain of the board to take the middle out, reducing it until it is at the same level as the long edges or even below them. If you go below the long edges, you can then flatten the board by – you guessed it – traversing the board.

The above strokes are the fundamental rules for fore planes. Anytime you wonder how to approach an operation, think of the high spots. Can you find two high spots on which to register the sole of the plane? If not, work the single high spot until it is gone.

## Other Fore Plane Operations

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The fore plane is the most economical way to remove lots of wood in a localized area. Take the example of tapering legs for a chair or table. If you mark the taper on the part, you can use the fore plane to hog off material until you are close to your knife or pencil lines. Then finish the job with a jointer, smooth or block plane (depending on the scale of the work).



Differing strokes. To taper legs, take a short stroke near the end of the leg, then take a slightly longer stroke.



Keep lengthening your strokes until you are planing the entire leg.



Repeat until you reach your layout line.

Let's say you need to chamfer the edges of a table – either to make a flat and modern chamfer or a traditional thumbnail profile with a moulding plane or router bit. The fore plane can quickly remove the bulk of the material, saving you time and effort with the tricky-to-sharpen moulding plane or router.

Need to fit a moulding to a case that is bowed or crooked? Use a fore plane to relieve the moulding on its inner face (or plane the surfaces of the carcass if needed). A fore plane lets you remove material precisely where it needs to be removed, even if it's a 2" x 2" area. It's difficult to train machines to do this.



Remove bulk. A fore plane can quickly remove material that is interfering with a tight fit between your moulding and carcass.

Do you have a board that is too wide for your jointer but fits in your planer? Plane the bark side flat with your fore plane – taking the high edges down to the middle and removing any twist. Then put the board through your planer. This is much easier than building some sort of sled for your router.



The infinite jointer. With a fore plane, you can flatten any size board within your reach. Get the bark face flat, then run it through the planer.

Need to flatten a workbench top or a dining table top? Again. find the high spots with a straightedge and winding sticks. Work them down to the low spots. Then finish the job with whatever tool you prefer, be it a smoothing plane or belt sander. After you do this a couple times, you will laugh when you see videos of convoluted router sleds at work.

I could go on and on, but you'll figure it out. So let's talk about a couple advanced tips.

## **Reducing Tearing**

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Skewed but straight. To reduce tearing, skew the tool in the direction the grain is running but push the tool straight across the board.

When you traverse a board, the surface is going to look pretty crappy, like a woolly worm after a bender. But there is a way to improve the look of the planed surface without reducing the effectiveness of the fore plane.

When you put your board on the workbench, note which way the grain runs in that board. Let's say it runs from right to left – toward the left side of your workbench. Place the plane on the board and rotate it about 30° to 35° to the left – the toe of the tool should veer to the left end of the bench. Now traverse the board – straight across – with the plane rotated.

I know this seems an odd thing to wrap your head around. So let me put it a different way: Plane straight across the width of the board, but rotate the plane 30° to 35° in the direction that the grain flows in the board. This feat of legerdemain will greatly reduce any tear-out you experience and make easy work for your other planes (or your belt sander).

And here's a second tip straight out of the 17th century: After you plane a surface with the fore plane, reduce the tool's depth of cut and plane the board again to remove the high ridges of the dawks. This flattens the wood a bit more and makes the work even easier for the tools that follow.

So what do you have to lose? Buying a fore plane costs less than a half-decent router bit. And even if you decide it's not for you (a rare occurrence) you can sell the plane for the price you paid.

The payoff for mastering this ridiculously simple tool is that you can tackle boards of any width, no matter what the capacity of your machines. And I promise you won't go to hell in the process. Instead, you'll join a long line of woodworkers who considered the fore plane their bread and butter.

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### Product Recommendations

Here are some supplies and tools we find essential in our everyday work around the shop. We may receive a commission from sales referred by our links; however, we have carefully selected these products for their usefulness and quality.

#### Christopher Schwarz

Chris is the former editor of Popular Woodworking Magazine. He continues to blog and publish woodworking books at Lost Art Press. He's a hand-tool enthusiast (though he uses power tools, too).