Canoe Paddle

A single length of framing lumber will help you hone your skills with a spokeshave, a drawknife and a block plane.

It was a bright summer's day in 1993 at historic Strawberry Banke in Portsmouth, N.H. My wife, Sally, and I were unexpectedly in town and noticed a craft show and demonstrations on the green. The area is famous for such crafts as coopering and building Windsor chairs and wooden boats. I've always been fascinated to watch skilled demonstrators, and this demonstration by boatbuilder Geoff Burke would not be a disappointment.

Burke captivated onlookers while he made a canoe paddle. Here was a familiar object being made with a few hand tools. The material was a straight-grained 2x6 plank of spruce commonly used for residential framing. The time it took him to carve the paddle: less than one hour.

Everyone appreciated the efficiency with which the job was accomplished (not that reducing the blade thickness with a drawknife is easy – it's not). But the key is choosing the right tool for each step of the project, knowing how to put the right tool to use and having an eye for proportion to guide it.

by John Wilson

John first canoed in upstate New York as a Boy Scout. He has taught woodworking and boatbuilding at Lansing Community College in Michigan and the WoodenBoat School in Maine. Currently he operates the Home Shop in Charlotte, Mich., where he teaches woodworking classes and sells Shaker box supplies.

Photos by Al Parrish

But you should be forewarned. A paddle is sculpture in a traditional form and requires a practiced eye for proportion. This is something we're all born with to a degree, and we can develop it with practice. The exact ratio of "birth-given" and "practice-acquired" is a mystery. I have observed a wide range of accomplishment among my boatbuilding students when assigned this task. Most of my students made a functional paddle; few were able to make a graceful one their first time.

Today, paddle blanks stand in a corner of my shop, some cut out, some waiting as a piece of spruce framing. There are a few that are shaped, ready to be sanded and varnished. And there is Burke's demonstration paddle, signed and dated to remind me of that summer day when I was blown away by the accomplishment of tools in the hand of a craftsman with an eye to make something of utility and grace.

HOME SHOP CLASSES

To learn more about paddles and the tools shown here, check out John Wilson's classes at the Home Shop. It is located at 406 E. Broadway, Charlotte, MI 48813. Call 517-543-5326 (8:30 a.m. to 5 p.m. EST). For a class schedule, visit ShakerOvalBox.com.

The following one-day tool and paddle events are a good value at $90, which includes materials and lunch.

- Wood Block Plane Making
  Jan. 15, 2005
- Tool Sharpening
  Jan. 29, 2005
- Spokeshave Making
  Feb. 12, 2005
- Make Your Own Paddle
  March 19, 2005

John also is offering a Wood Block Plane Making class March 12, 2005, in Syracuse, N.Y. Contact John for more information.

Choosing the Right Wood

The best wood for paddles will be stiff, strong and lightweight. Maple or ash are fine for structure, but they are a bit heavy for long use on the water. Spruce is lighter and easier to shape. Sitka spruce is acclaimed, and rightly so, for being strong and light. But the effort required to secure that species is quite unnecessary.

There is a classification of construction framing called SPF, which stands for spruce-pine-fir (in this case "hem fir" or "western hemlock"). All three species designated for this class will work in paddle-making. Black spruce is most prevalent, and perhaps the best of the three. Pine has more flex, while hemlock is a little more difficult to work with hand tools.

The wide availability of residential framing stock at a reasonable price is one of the attractive aspects of this project. What is essential is straightness of grain, followed by clear lengths free of knots. Spruce is bedeviled by small knots, and an occasional pin knot will not significantly affect the paddle. I use a drop of cyanoacrylate glue (such as Hot Stuff) to seal small imperfections.

While you need only a 2x6 plank that is 6' long, you are unlikely to find the best lumber in small sizes of framing stock. The longer (16' to 24') and the wider (10" or 12") the stick, the better luck you will have getting your clear paddle blank. I believe this is because the mills use the better grade of logs for the longest lengths, resulting in some portion of a long joist (in a house) being clear. Buy the long length, cut your paddle blanks from the best portion and use the rest of the wood for some future project.

Layout involves transferring the dimensions from the plans. The centerline with cross lines indicate the major points. Connect the straight lines, then sketch in the curved transitions.

Ten Steps to Making a Paddle

Briefly, here is how the process works: Plane the plank to 1¼" thickness. Trace and cut the silhouette. Block plane and spokeshave all the sides smooth.

Draw lines around the edges to define the center of the paddle and its thicknesses. Thin the paddle's blade using a drawknife and a plane. Shape the handle using a hand saw, drawknife, chisel and plane.

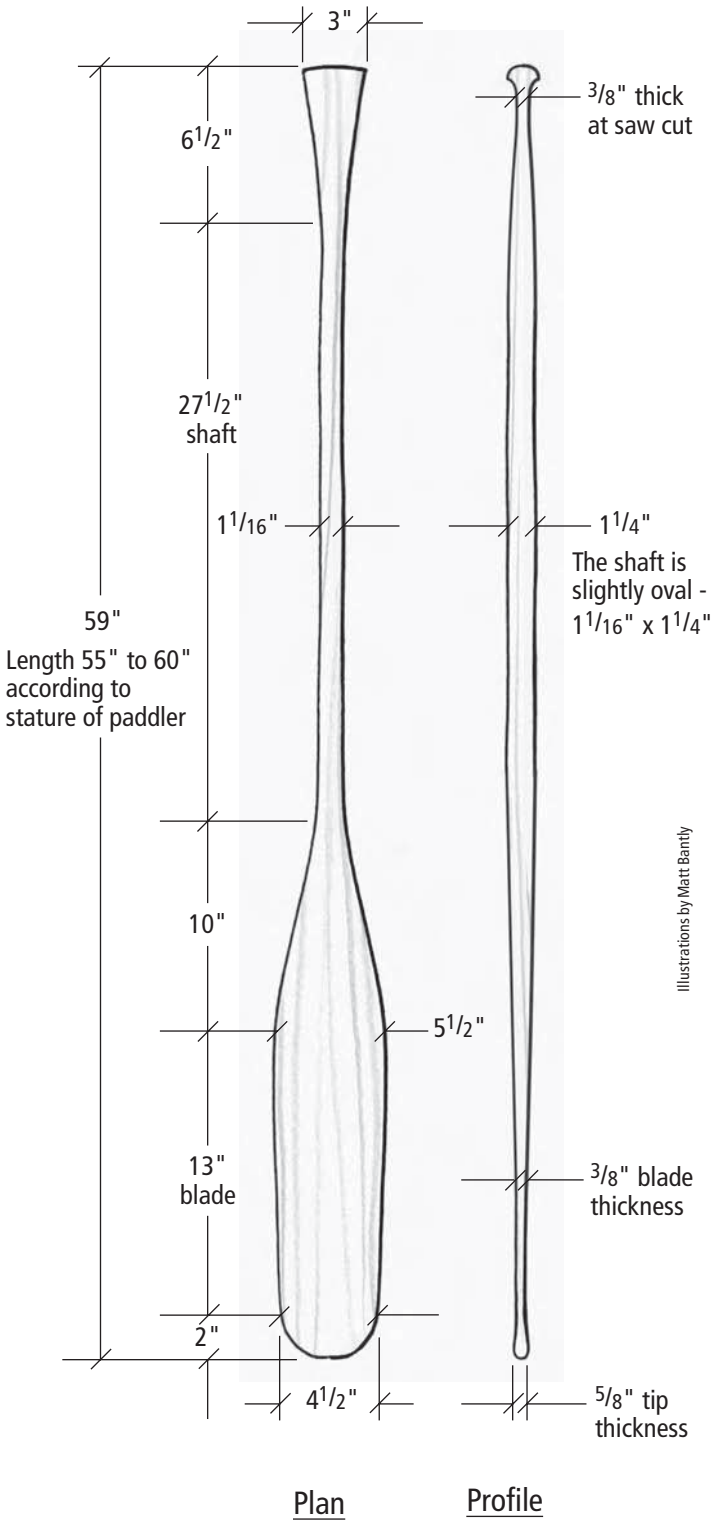
Round the shaft by first making it an octagon. Transition the shaft to the blade and handle with a spokeshave. Smooth the paddle, with a wood rasp and sandpaper. And finally, varnish the paddle leaving the grip unfinished.

Creating a Paddle Blank

Plane your plank to 1¼" thick. Then draw the silhouette of your paddle. It's easiest to trace around an existing paddle, making adjustments in shaft length to fit the intended paddler's height. Paddle length is a personal matter – generally, the paddle should be about chin height.

To follow the plans given at right, start by making a centerline the length of the plank. Next, mark off both ends of the paddle. Mark where the blade and shaft meet, the start of the handle, and the saw kerf on the grip. (See the photo above for details.) Now mark half-widths (use the widths given on the drawing divided in

After planing the plank to 1 1/4" thick, band saw the paddle blank to shape.



half) on either side of the centerline for the blade at its narrower and wider parts, the shaft and the grip. Then connect your marks to outline the paddle. Use a straightedge for the main lines and sketch in the curved parts.

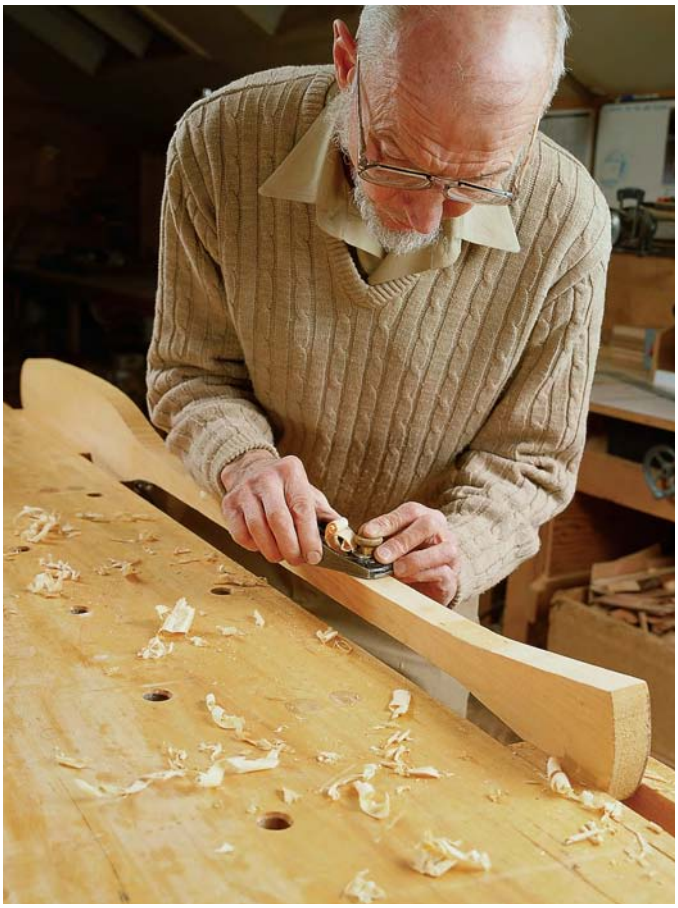
Cut out the paddle blank on the band saw as shown above. Use a block plane to smooth and fair the edges. Check your work by holding the paddle at arm's length to see if you have a fair outline.

Spokeshave-friendly Project

You will need a spokeshave to smooth the hollows. There will be several places where this traditional tool comes in handy, mostly at transitions from one shape to another. These transitions can be troublesome. You could use a variety of rasps and sanders, but the traditional spokeshave is the tool of choice.

According to some historical accounts, the spokeshave got its name from its use in transitioning wheel spokes from the square hub end to the round section. You will find this tool indispensable for making the transition from the handle to the shaft and from the shaft to the blade.

It is worth your time to buy an effective spokeshave (see "Three Traditional Hand Tools Plus One Hand Skill" on page 39). Because of the absence of wooden wheels these days, a good spokeshave is



Smooth all the paddle's edges with a block plane. If any lines don't look fair to you, planing can make them so.

Using your pencil held as shown, trace a centerline on all edges.

hard to find. Therefore, they've fallen into disuse – many craftsmen have become frustrated having used bad ones.

You will need a spokeshave with a slight curve to the sole, not a flat one. Some of the best ones are the traditional wood-handled types with a blade flat to the sole, sometimes called razor-type spokeshaves. Another useful spokeshave has a concave sole, which makes it ideal for rounding the shaft of the paddle.

Defining the Paddle's Shape

It is important that the shaft be rounded last because as long as it remains square, you can capture it in the bench vise as you shape both ends of your paddle.

When the silhouette is fair and smooth, trace a centerline on the edge of the blank all around your paddle. Next, trace lines on the edge to show the 3/8" blade thickness, the octagonal edges of the shaft and the location and depth of the cut for the saw kerf at the grip. The profile view on page 35 gives you these lines.

The photo below left shows me tracing a centerline using the woodworker's method – a pencil held effectively between the fingers. If you haven't done this before, give it some practice. It is a great time-saving tip that shows off your skill as a craftsman. See page 40 for more details.

Thin the blade to 3/8" using the drawknife to rough it out and plane it smooth. Burke leaves the tip of the blade about 5/8" thick,

Use a drawknife to rough the blade to thickness. Bevel the edges first as shown, then take down the center. It may be tough using this tool, so try to hold it the way the photo shows. This should ease the struggle a bit.

Use the bench plane to smooth the blade to its final 3/8" thickness. The pencil lines on the edge should give you guidance in this step.

The point of the blade is left thicker (5/8") to reinforce the point where splits are possible.

Saw down to a point on the handle, leaving 3/8" for the grip.

The drawknife removes waste as you approach the saw kerf at the handle.

Chisel a hollow approaching the saw kerf. Beware that two cut lines like this can be difficult to blend smoothly. Before cutting too far, expect to clean it up with a rasp and sandpaper.

which is something that I like. This strengthens the end, which is vulnerable to being cracked.

Shape the handle by first sawing a kerf across the paddle 1½" from the end to a depth that leaves ⅜" in the center. Then drawknife away the wood for 5" along the shaft to meet your cut line. Chisel the handle to meet the cut line. I like to chisel a hollowed cut for a good finger grip.

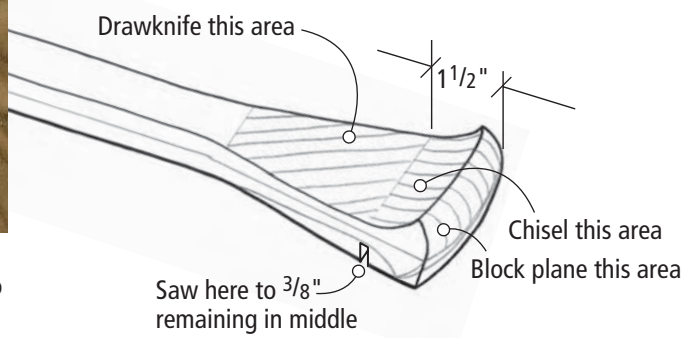
Round the end with a block plane and use a wood rasp (a toothed file) for finishing touches as shown in the drawing below.

The shaft is made slightly oval using a bench plane to first reduce it to an octagon. This will keep it uniform when planing the smaller edges smooth with a block plane and a curved spokeshave.

Use the spokeshave to shape the transition from the shaft to the blade. This versatile tool works equally well pulling or pushing so you can follow the change in grain direction.

Sanding and varnishing completes the paddle. Traditionally, a canoe paddle's handle is left unfinished to give you a better grip on the wood.

I have spent many enjoyable days paddling a canoe with a traditional paddle such as this. Making paddles for your children appropriate to their height is especially meaningful for a parent introducing offspring to the water. **PW**



A block plane will round over a comfortable end. The profile shows well here.

The shaft is planed into an octagon following guide lines.

The block plane will quickly smooth all the edges into a $1\frac{1}{16}$" x $1\frac{1}{4}$" oval, as I'm doing here.

The spokeshave (I'm using a wooden one here) is used to smooth the transition between blade, shaft and handle. It works pulling or pushing to follow the direction of the grain.

A spokeshave with a concave sole, such as this one from Veritas, excels at rounding the shaft of the paddle.

3 TRADITIONAL HAND TOOLS PLUS 1 HAND SKILL

Tools solve problems in wood. Hand tools bought just to collect do not serve you well. But tools bought when you need them will serve many projects to come. Don't hesitate to buy a good hand tool suitable to the task. The tools mentioned here actually stand a chance of being useful in the hands of some future woodworker a century from now.

Drawknife

I owned a drawknife for years without ever putting it to use. There were only two instances when I observed it being used in the hands of a professional. One was in a boat shop where planks along the sheer (the top of the sides where it meets the deck) were being finished off in the gentle curve that makes the profile of the hull. The other was watching Geoff Burke make a paddle that fine summer day. I have since learned that there are several styles and blade treatments for this tool.

Drawknives are made in a variety of sizes for a variety of tasks. The largest drawknife is used for peeling bark from logs. Carvers' drawknives are small. The one shown in this article is referred to as a carpenter's drawknife, and is 12" long with a 7"-wide blade.

As is so often true, the critical point of this tool is the sharpness and angle of the blade. Hogging off rough chunks of wood is not light work. Check the angle of sharpening before use. The tools often are made with an angle of 25° to 30°, which is steeper than necessary and will make heavy going of your work. A finer pitch of 15° to 20° will serve well in the straight-grained softwood of a paddle.

Drawknives are used bevel up for straight cuts. Turned over they will follow contours for shaping. Leonard Lee, in his book "The Complete Guide to Sharpening" (Taunton Press), points to an alternative:

"If you put a 15° basic bevel on a drawknife and dub [a slight bevel on the flat side] from 2° to 5° off the face of the knife, you will find that it is much more maneuverable." (See the drawing of a modified drawknife at right.)

Old drawknives of good quality can still be found at a considerable savings, and they can give you great satisfaction for having rescued a very useful tool.

For a new drawknife contact Ray Larsen, author of "Tool Making for Woodworkers" (Cambium Press). He has been forging quality tools for more than 30 years. Call 781-826-8931 or visit windsorchairresources.com.

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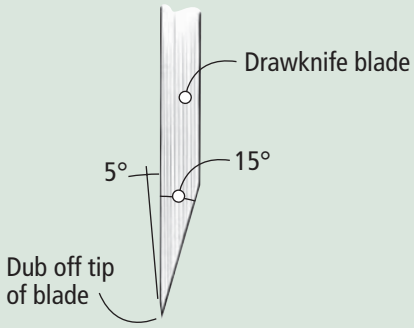

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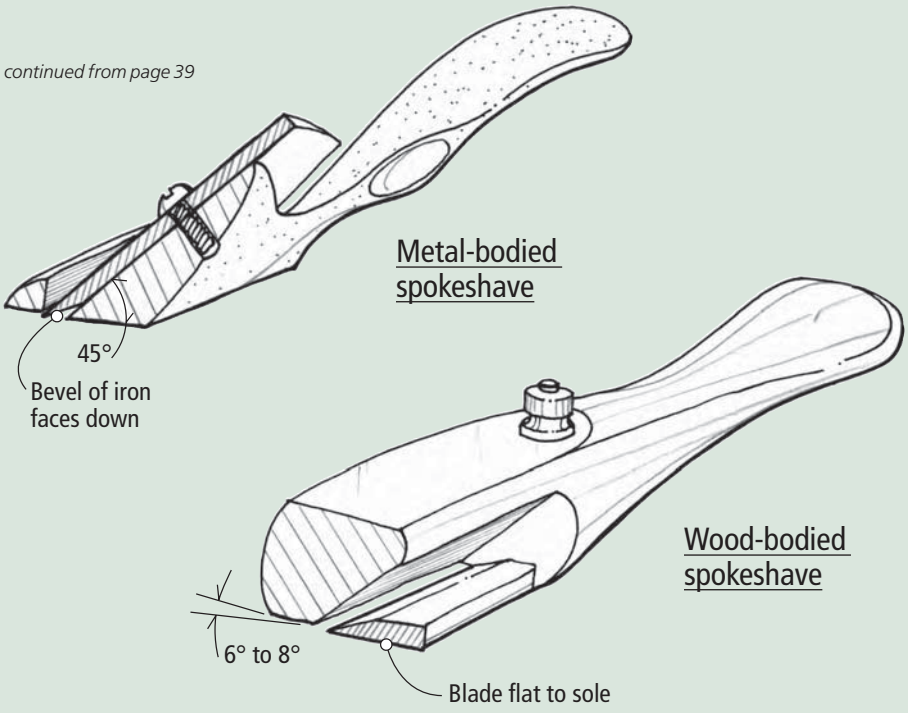

Spokeshave

This is a short-soled plane used for smoothing hollows that typically appear when transitioning from one shape to another.

Modern versions of the spokeshave have a metal body holding the blade at an angle to the sole similar to a plane. They come with a flat sole like a conventional plane for flat work or outside curves, with a convex curved sole for shaving inside curves, or with a concave sole. Two high-quality versions of this concave-soled tool should be available from Veritas (Lee Valley Tools, 800-871-8158 or leevalley.com) and Lie-Nielsen Toolworks (800-327-2520 or lie-nielsen.com) by the time you read this.

The traditional spokeshave had a wood body and the blade lying flat to the sole. They are sometimes called razor-type shaves, identifying the shape of the blade, which looks like a traditional straight razor. The change in blade angle makes the modern version less effective for many cutting operations. The flat position of the razor-type blade makes it easy to work with.

The traditional wood-bodied shaves have a 6° to 8° bevel in the sole ahead of the cutting edge. This allows for making hollows, while the blade slices into the wood at no angle at all. (Check out the "Tool Reviews" link at popwood.com or see the April 2004 issue of *Popular Woodworking* for a review of metal-bodied spokeshaves, and the November 2003 issue for information about traditional wood-bodied razor-type spokeshaves.)

Following are sources for spokeshaves:

• Dave Wachnicki (603-356-8712 or ncworkshops.com) has been making shaves for chairmakers in the traditional design.

• Glen Livingstone (508-669-5245 or woodjoytools.com) makes small, medium and large shaves. The largest is especially favored by boatbuilders.

• Leonard Lee of Lee Valley Tools not only wrote a great book on sharpening, he has pioneered a new generation of spokeshaves under the Veritas label, including metal-bodied shaves with flat, curved and concave soles.

• High-quality metal shaves also are available from Lie-Nielsen Toolworks.

Block Plane

For years, a block plane was a familiar tool tucked into my nail apron as a trim carpenter. It was used for almost any planing job, not just the smoothing of end grain that tradition has made its appointed task. To this day, I will reach for a block plane more often than a bench plane to smooth wood.

Fortunately, a good version of this plane, the Stanley No. 60 1/2, is readily available. You will find this version in most tool catalogs and may even find it in the hardware section of a home-supply store.

Be aware that there are two versions of the block plane – a regular and a low-angle. The low-angle Stanley No. 60 1/2 is 1/4" narrower than the standard version. It is this low-angle, narrower block plane that fits my hand best.

In all these tools, their effectiveness depends on being sharp. That should be job one before beginning your paddle.

Finger Marking Gauge

To the list of these tools – drawknife, spokeshave and block plane – I have added a fourth "tool:" the finger marking gauge. This is simply a pencil in your hand.

I learned this skill from my father so early in my woodworking career that I thought everyone knew how to do it. That is, until I started teaching woodworking. I would use this technique for gauging a line along a board and find that my students would do a double-take to see where the straight line came from.

The photo below shows this better than a description could. The middle or ring finger serves as a stop to determine the width of the space to be drawn. To find the center of a board, as in the paddle blank, simply gauge a line from both sides approximately half the board's width. Seeing now how closely they meet in the center gives you an eye for the exact center to set the final holding position for your finger marking gauge. In applications where the space to the gauge line widens, you need to hold the pencil higher, using your ring finger instead of your middle finger as a stop.

– JW

While your forefinger and thumb grasp the pencil, your middle finger or ring finger acts as an edge stop to define the width of the line.