MAKING AN ADZE

By Oliver Cameron
with Ole Wik

There are three basic kinds of tools: saws, boring tools, and cutting tools—axes, adzes, and chisels. If you've got a good chisel, you can get by without an adze.

I have a number of adzes. One is an ordinary American-made foot adze, with a spike on the back of it. I've read various books about tools, and nobody seemed to know what that spike was for. What it's for is to be able to stick that spike in a log to hold the tool steady out in the field, so you can file it.[1]

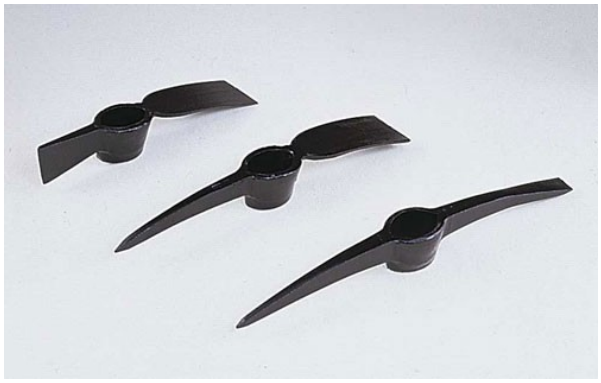
Image: http://2.bp.blogspot.com/_61PwEPmTcWM/SPYB6QiY3bI/AAAAAAAAAB8/WofNlW1-gCw/s320/adze.jpg

Then I have a heavier foot adze. It has quite a heavy poll[2] on it, and a wide blade.

Example of a carpenter's foot adze. Image: http://www.tias.com/8600/PictPage/3923807538.html

Then I have a couple of other tools: a Pulaski that has an adze bit on the back of it, and a mattock, which is primarily a long narrow heavy poll with a blade something like a small axe blade on the back, much smaller than an axe blade. That kind of a tool is real handy for digging out stumps or digging up sod or moss.

Pulaski. Image: http://www.ridemonkey.com/forums/f19/custom-trail-building-tools-213522/



L to R: Grubbing or cutting mattock, pick mattock, railroad clay pick.
Image: http://www.yardproduct.com/product_info.php?products_id=544

I had a book about a ship that a Viking chief had for his burial…he was buried with that ship. When it was excavated, they found quite a few tools in it. One of them was an adze. A thousand years ago or more, these ship builders had devised a way of making a tool like that.

Shipbuilders' adzes. Image: http://etc.usf.edu/clipart/15900/15903/ascia_15903.htm

I had been playing with making an adze by just fastening a blade onto part of a tree trunk with a branch sticking down on it, but this was an entirely different way of doing it. As soon as I saw it, just the blade without a handle, I recognized the idea. It was an "Aha!" experience.

Making and Adze

I decided to make one out of a hoof rasp. They're wider than ordinary files, and some of them are coarse on one side and fine on the other. The regular four-in-hand is not very wide, but a bigger hoof rasp is 1-1/4 to 1-1/2".

Hoof rasps. Image: http://www.sacro-intl.com/Products.asp?Main=6&Sub=153

I annealed it and bent it a little bit, so that it had a little hook to it like a regular adze has. I formed the handle part first, from about three inches of the end. I put it in the stove and heated it until it was malleable, and then peened it out so that the edges were thinner than the center. That made it wider too.

Then I took it where the horn of my anvil comes away from the main block, put it in that angle, took a cross peen, and started bending it a little bit. Since it tapers from the center out toward both sides, once I got a bend started, I could stand it on edge and roll both sides over to where it had almost a socket that was open a little on the side. I put a straight handle in that socket and use the tool as a chisel.

Cross peen hammer.
Image: http://www.sepulveda2.com/catalog_sepulveda/show_product_info.php?product=5064

Or, you can take a fairly wide stick of wood and make a handle that's maybe three inches wide at the end. Then, using a *mitlik*[3], you carve kind of a round knob on the end, and start fitting it into the socket. It's fitted onto the end crossways, not like a chisel, so that the handle is sticking off to the side and not coming out the top.

You whittle that down. When you're shaping it, you taper the eye part of the handle so that it's made to fit the taper when you put it into the tool head. You leave that so that it's not all the way down in, so that you can drive on it without driving on the metal. As you use it, it keeps itself wedged in very tightly.

Then you bend it in such a way that it will cut. If you bend it quite a bit, you can use it with a short handle. If you don't bend it so much, you can use it with a long handle. But the front side of the adze is bent so that when you're using it, you're chipping away. You're swinging it in a circle, so you want it to bite a little bit. If you tip your handle up a little bit, it won't bite quite as much. If you're familiar with a mattock or grub hoe, they all have that angle to them.

Grub Hoes. Source: http://www.easydigging.com/Garden_Tool/Grub_Hoe_Grubbing.html

If your adze handle gets wedged in where it's getting too loose, you line the eye with a piece of leather, stick your handle back in, and drive it down snug.

The peened part is half or maybe a little less than half of the stock, depending on how you want to use it. You bend the edges around and up toward each other. It is a substantial edge that you can put a handle into.

Those edges are curled right over and come close to each other, not quite to each other, to form a socket. There is a gap between, so that when you cut the end of a fairly wide piece of birch or whatever, you can cut a groove on each side of that piece of wood and start the end of it down into that socket. Then you shape it to where it will go on down in there to where there's only about 3/4" of wood sticking up from the end of the tool so that you can drive on it. It's kind of like using a chisel that has a handle sticking out at right angles, rather than sticking in the end of the tool.

The turned up lips are a little closer about halfway down the tool, so that the handle will wedge in there.

What is the thickness of the steel lips?[4]

Not a knife edge—maybe half as thick as the original thickness of the original hoof rasp. The point in flattening it out that way is so that it will naturally curl. When you get it to start to bend, it's going to bend more on the outside edges. It just naturally wants to form into the socket shape. The two sides won't be exact mirror images.

The opening is narrower than the center of the socket, so that you have a notch in each side of your handle, and a bulb so to speak so that it is down in that socket. It…dammit…I need a pencil in my hand, but anyway maybe that gives you an idea.

When you start to use one of those, you'll soon figure out what you have to do to make a useful tool out of it.

Is it completely flat?

It will have a little bit of a waist to it, so that if you lay the blade down on its edge on the table, you can see some light under it. The socket might be almost as wide as the original blade—no, it won't be, but it'll be bigger at the upper end of it and where you had that steel hot and started to bend those ends in toward each other. You're going to make a little shoulder there. If it's lying flat on a table, the handle socket will be up a little bit. It won't be very much, depending on how you want to use it

If you put more curve in the blade itself, and it's sharpened on the inside, then you can cut out more like in a bowl, for instance. But if you're cutting a bigger surface, smoothing up or whatever, you may want the front side of the blade a little straighter so that when you're using it, usually with one hand, you can either flex your wrist and make that head travel in a short circle, or you can keep your wrist stiff and use your whole forearm and come down along a stick to true it up.

Do you do some blacksmithing to get this curve?

You've been doing quite a bit of shaping on the tool, so you anneal the whole thing. Then you heat it up past the critical temperature and plunge just the blade, so that you harden the cutting edge.

Since this is made out of a file which is a very high carbon piece of steel, you have to be kind of careful there. You don't just get it red hot and plunge it quickly. You plunge it into oil, or you can lay a couple of folds of toilet paper on top of the water and then cut the blade down into that so that it keeps the blade from cooling excessively rapidly. Otherwise, if the outside cools before the inside has time to cool and shrink, you're going to have cracks in the cutting edge.

You can use salt water that doesn't carry the heat away quite as fast, or you can quench it with oil, or use paper napkins or something like that on top of your quenching fluid and cut down through that.

Do you put the bend in after making socket?

Yes. It needs to be hot. You can't fool around with that high carbon steel it when it's cold. It's better to get it hot enough that it will bend without forcing it a lot.

You are swinging that tool in a curve, so what you want to do is to get that cutting lip so that it's more or less at right angles to the arc of your curve. Your hand will be holding it, you're bending the hand at the wrist, and you want that thing to cut a little bit. If you're using it on a straighter surface, you're holding your wrist stiff and using your whole forearm from the elbow down to guide it.

I made a couple of these at the same time—one with a little more hook or curve to it, and one that was almost straight. The curve is not a hook at the end—it's a gradual curve.

How do you shape the cutting edge?

The bevel is mostly on the inside. The face is not right straight across. It tapers a little bit towards each side, so that when you take out a shaving, you're not cutting out a flat chip; it's slightly rounded. You would get a narrow shaving if pressed lightly. The curve is not very much. It makes it cut easier and you don't have so much to break loose on the sides.

The finished widths of the one I made out of the file were just the width of the file. It was thinned down a little bit and peened out, so it was a little bit wider right at the cutting edge than it was up toward the handle, but not much—just a little bit.

How much belly was there?

Maybe 1/16".

Was it cupped at all, so that edges are lifted a little bit?

It's nearly flat crossways, just a gradual curve. You make a curve on the front of the tool that more or less conforms to the way you are holding and using it. Then also, that front side of the adze is filed off slightly toward each side, leaving the middle a little thicker. If you were to stand your adze head down on a piece of board, you could rock it back and forth before the edges would come down and touch the table.

The steel is flat back halfway to the socket. The cutting edge is very nearly straight across. It's not that much. It's a flat piece of metal with a slight relief on each side. I file that relief in. I don't carry that back too far toward the socket. You could leave it flat if you wanted to, but this way it makes it easier to take the chips out, because as I said, they're thinner toward the edges.

It doesn't leave the work with a perfectly flat surface, so you finish up with a wood scraper. That scraper has several different curves on it so that I can adapt it to any place I want to use it. One side is straight, and the other side and the ends will be cut off with a different radius.

Tell me more about this wood scraper.

I had an extra plane bit. There is a long opening in the middle of those bits.

Typical plane bit, showing long opening.
Image: http://www.craftsmanstudio.com/html_p/H!BLOCK.htm

I cut it off, and that formed one side with a narrow end [*to use as a tang*], and then around the other end it was the full width of the plane bit. One side of it is straight. On the narrow end it's a

chisel bit, and at the other end it's curved a little. The curve is not quite uniform, so you can use it to shape various things.

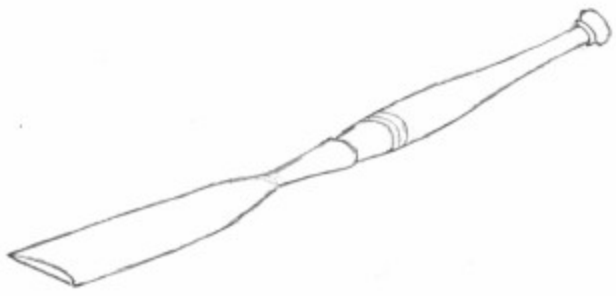
Probably the wood scraper just described. Image: Dorene Cameron Schiro.

Oliver's tool doubles for the gooseneck scraper used by fine woodworkers.
Image: http://outdoors.magazine.free.fr/spip.php?page=print_article&id_article=333

That long opening in the blade, it was cut off toward one end, and at the other end it was cut too, so I'm just using one side of that part of the blade. It's the full width of the blade a little bit beyond that opening, and that's why it happened to be in that shape. But it doesn't have to have that J shape; most of them are almost an oblong piece of steel.

What is the length of the adze handle?

I have two handles for that—one straight, sticking out like a chisel, and the other one grooved for more or less right angles to the tool. The chisel handle is about 3' long; I use it like a slick. The other is maybe ten inches.



Slick tool. Image: http://en.wikipedia.org/wiki/File:Slick_tool.gif

Sasha's father gave me an old-time adze that has upturned edges along the sides.

That's called a lip adze. It cuts the chips loose on the sides.

Lip adze. Image: http://www.jonzimmersantiquetools.com/tools/adze_1_a.jpg

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1) Alternate explanation for the spike: The shipwright's adze has a peg-poll for driving down broken nails. Please follow the link below to see the complete drawing of all adzes.

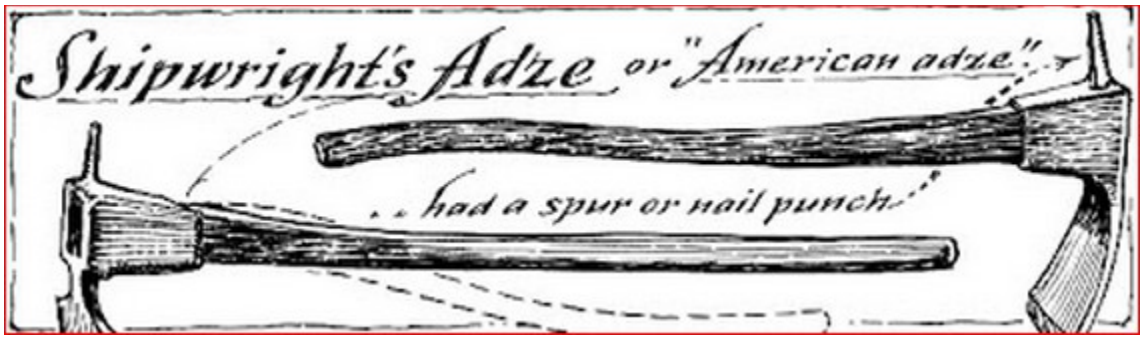

Image: http://thedukesattic.blogspot.com/2011/04/adze.html

2) The poll is "the blunt or broad end of a tool such as a hammer or ax." (http://www.thefreedictionary.com/poll)

3) One of Oliver's handmade mitliks—tools for hollowing out cups, bowls and the like.

Image: Heidi Dammann

4) This essay stems from a series of telephone conversations that Ole Wik had with Oliver between December 2007 and February 2008. Highlighted text indicates remarks made by Ole.