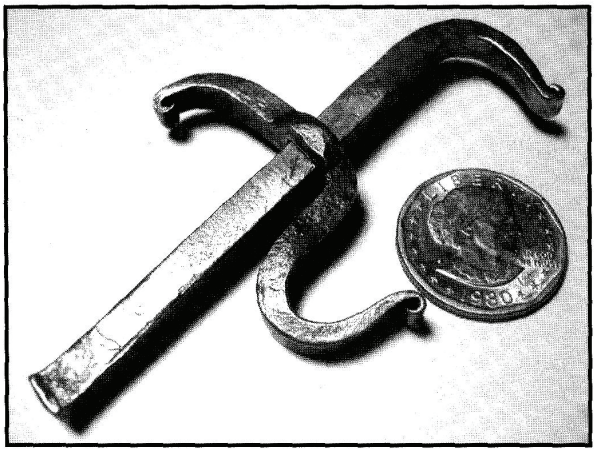
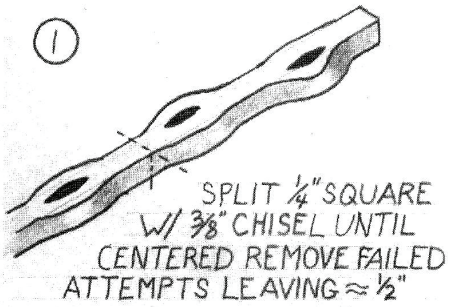
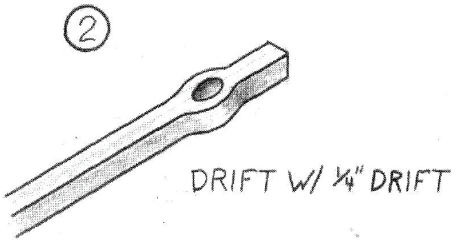
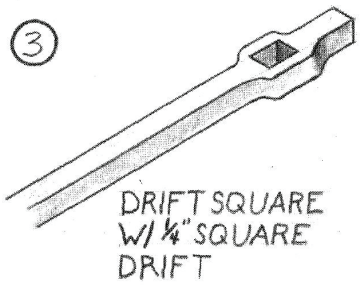
Adjustable Tong Clip

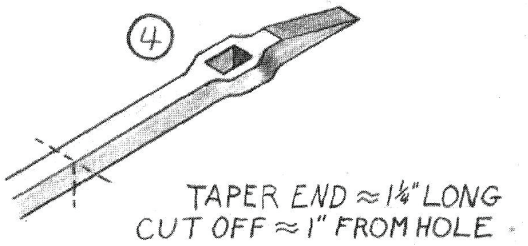
By Nate Pressel
a MABA member

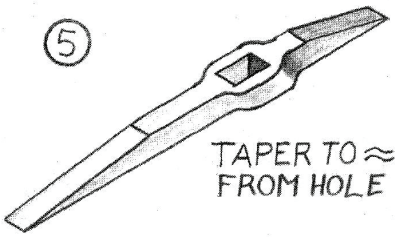


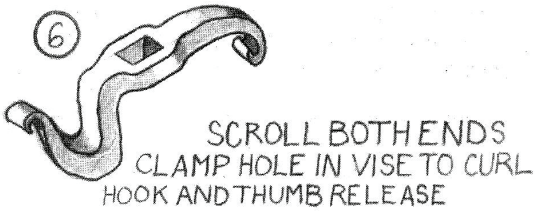


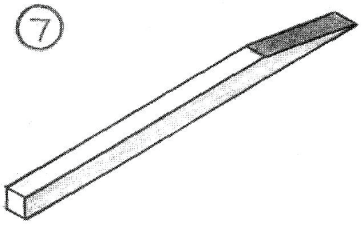


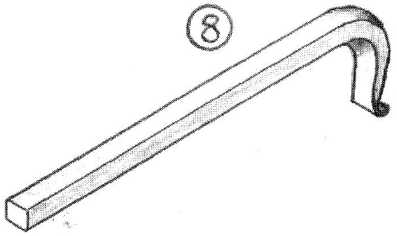












Michigan Artists Blacksmiths Association

Forging with Charcoal

by Beth Holmberg San Diego, California

I needed a forging fuel that wouldn't offend my neighbors. (My lot is 40 feet wide, and I forge in the driveway.) But I don't like the noise or equipment involved with propane. I decided to go retro and try the fuel used by blacksmiths for most of our history: charcoal! I'm not talking about briquettes of compressed sawdust and who-knows-what; this is solid lump hardwood charcoal. Here in Southern California, that means mesquite charcoal. (The neighbors really don't mind the smell.) In other areas you might get oak charcoal or charcoal made from mixed hardwood lumber scraps leftover from furniture building (green charcoal?). Any of these will work. Overall, I'm pretty satisfied with charcoal as a blacksmithing fuel, but I've learned a thing or two about working with it that might be helpful.

Where do you find it? For a first try, many grocery stores carry 8- or 10-pound bags of hardwood lump charcoal. Quantity buying makes it a whole lot cheaper though, so look for better sources by looking for charcoal and firewood in the yellow pages. Also, you might try sources that provide wood and charcoal to restaurants.

Isn't it expensive? A few years ago, coal was definitely cheaper to use. But with the recent transportation cost jumps, big bags of local charcoal are starting to look downright cheap. I'm able to get 40-pound bags for $16, which seems pretty good to me for nothing but carbon! What's weird about working with it? It isn't as dense as coal so you go through more volume than you'd expect - a bit disconcerting, but I think it's about the same weight in the end. It's not sticky like coked-up coal so the fuel pile tends to collapse a bit each time the metal goes in. A larger, slightly curved fire rake is handy for managing this. It doesn't go out on its own, even if you break up the fire. To keep sparks from escaping, I put an old barbeque lid over the forge when I'm done at the end of the day.

What are some advantages over coal? No objectionable smell, no black, gritty soot, no clinker! Just some nice fluffy light grey ash.

It's easy to get going with only a little newspaper. It doesn't require a huge fire to work well. If I'm working on small projects, I can use the fire well with less than a pint of fuel burning. I find that it takes less effort at the blower to get forging (or welding) temperatures. The scale only forms outside the fire, indicating the fire is more reducing than a coal fire. My successful flux-free welds have all been with a charcoal fire. And at the end of the day, you can even cook dinner over the last of your fire! Holy cow! What's up with this mesquite? OK, I'll admit that mesquite charcoal can be a little weird. It often comes in log-sized chunks so my first step is always cutting it up with a hatchet to about 2" pieces (maybe you could hire a youngster to do the job). When you burn it, it spits and sparks enough to be scary! The resin that makes it smell so great also causes this bad behavior. The best solution I've found is similar to the old tradition for coal: soak it in water. An overnight soak makes it much better behaved and also makes it easier to break up the logs to useful sizes. I treat fresh, wet mesquite charcoal like green coal, packing it around the outside of the fire, and pulling it after it has cooked a bit to drive off the resin. Two other anti-sparking hints: keep a spray bottle of water around to keep things controlled, and if you're still getting lots of sparks, you are probably overblowing the fuel - back off on the cranking!

What about making charcoal? Go for it! I don't have the space for it, so I can't offer specific advice. Plans for small collier setups made from things like 55-gallon drums can be found in cyberspace. Maybe someone else can share their charcoal-making secrets.

March/April 2008 California Blacksmith

Chain Saw Damascus

Carson Sams
Central Virginia Blacksmith Guild

Several people at the Pasture Party asked me about forging chain saw chain and how it is done. So I have put together a few steps. I hope this helps and does not confuse anyone.

1. I cut the chain saw chain into 4-inch pieces

2. I stack four 4-inch pieces on top of each other and electric weld the ends and spot weld in the middle to keep the chain from moving. I now call this a bar.

3. I weld a handle onto the bar, I use rebar.

4. I place the bar in warm Muriatic acid for about 20 minutes.

5. Caution when using the Muriatic acid, it is very dangerous. Make sure to read the instructions in case of a spill or getting the acid on you. Make sure you have plenty of baking soda around for neutralizing and you wear the proper safety equipment: gloves, apron and goggles are a must.

6. I warm the acid by placing a piece of hot steel into the acid, before I place the bar into it. Warmer acid works faster than cold acid.

7. Take the bar out of the acid and into the quench tank. I use a fine stainless steel brush. One like you would use for stripping paint, not the big stiff scale brushes to clean the bar with water. The water will flush out the remaining pieces of scale and dirty and derby from the chain.

8. At this point, the forge must be ready to go. The bar will rust quickly.
9. I use coke or charcoal for my fuel, green coal will not work.

10. Place the bar on top of the coke and rake coke onto the bar. With a slow heat, bring the bar up to a black heat, right to cherry.

11. Pull the bar and flux. I use anhydrous borax flux, I buy it off Ebay, from the Wagonman. If you flux too soon the flux will not stick; if you flux too late scale will have started to form.

12. Put the bar back into the fire and bring the bar up to a goood orange heat. Pull from the fire and clean the bar with your brush and reflux. Some people think this is a wasteful step, but it is very important to make sure the chain is clean. There are a lot of crevices in the chain, the flux will help clean them.

13. Put the bar back into the fire and bring up to a welding heat.

14. In the meantime, I put water on my anvil. Yes, water, when the hot steel touches the water, the water turns to steam. Steam expands very quickly and with a lot of force. If you trap this energy it will explode and taking with it any scale on your bar. This is called Spit Fire.

15. When the bar starts to spark, quickly pull it from the fire and hammer the first two inches or so. I'm hammering the flat of the chain, not the tooth part. I also do not try to hammer all four inches at one time. There is a lot going on in the chain links and the last thing you want is a cold shute or bluster to show up.

16. Clean the bar with your wire brush and reflux. The bar should still be at a dull orange heat, do not let the bar get too cold.

17. Place the bar back into the fire and bring the rest of the bar back up to a welding heat.

18. Remember to clean and re-wet the anvil after every heat. The anvil must stay clean, scale is your enemy.

19. Once again, when the bar starts to spark pull the bar and weld the rest of it.

20. Now I concentrate on making the bar as evenly flat as possible. I'm not trying to turn the bar into a sheet of paper, I just want it smooth and flat.

21. Flux and heat to an orange, pull the bar and with a hot cutter or the edge of the anvil, cut a groove across the bar half way down. At first, it is hard to judge the distance, but it gets easier with time. Fold the bar until the two halves almost touch. Flux and put back into the fire.

22. Bring the bar back up to a welding heat, pull from the fire and re-weld, starting from the top and working your way down. If you did not weld the entire bar in one heat, just re-flux and try again.

23. At this point the bar is nice and flat and even. The side edges have not been addressed. Now, the moment of truth comes into play. Re-flux, put the bar back into fire and once again bring up to a welding heat.

24. Pull from fire and square up the edges. If the welds are strong this will not be a problem. If not, you will see cracks in the layers and separations or you will see blusters in the middle of the bar. The world has not come to an end, these problems can be fixed.

25. Bring the bar back up to heat one more time, just for smoothing out the bar. Make sure it is even and square. Place the bar in some powdered lime and leave it to cool slowly,.

26. All right , that's bar number one. You will need four to five bars to make a 4-5 inch hunting knife. With a little practice, you can make a bar in about 20 minutes.

27. Cut all the bars off their handles and grind the flats smooth with a grinder or belt sander and back into the Muriactic acid they go.

28. Just like last time, stack the bars on top of each other and electric weld ends together and weld a handle on.

29. Now repeat steps 7-20. At this point there is a decision to be made. How many layers do I want? If you have been following the math:

a. 4 layers of chain folded once equals 8 layers equals one bar

b. One bar stacked four high equals 32 layers

c. Folded once again equals 64 layers
30. Most of the time I am after 512 layers (64x2=128x2=256x2=512=1 billet)

This is where your creativity steps in. At this point, you can do endless things with your billet. You can twist the billet and make a slow twist pattern. You can grind grooves across the billet and make the ladder pattern. You can roll the billet up and make the jelly roll pattern, the possibilities are endless.

I hope this helps, if you have any questions or comments give me a call or email me.

Thanks, Carson Sams
Central Virginia Blacksmith Guild
March-April 2009

How I Demonstrate to the Public

by Pete Stanaitis

I prefer to demonstrate "traditional blacksmithing" when I am before the public. It's the image that most people have and want to perpetuate in their minds. And, since your demonstration opportunities are most often related to historical things and craft events, this approach fits right in. This means, among other things, that I avoid using "modern" tools like an electric/ cordless drill. Save the plasma cutter and the Nazel demo for events when you are demoing to other blacksmiths.

Dress the part if you can. Sneakers are out. You probably shouldn't be wearing shorts anyway. I prefer to dress in the 1870s period, but at least look like a blue collar worker from the period you want to represent. There are several catalogs that have period clothing and patterns for sale. "Smoke and Fire" is one of them.

You may choose to stay totally within a character of the period you are representing or you might choose to jump in and out of character from time to time to make connections between the past and the present.

Staying in character:

For example, if someone mentions some modern item, you just (politely) appear to have NO knowledge of it.

Jumping in and out of character:

For example, you might be demonstrating a punched hole in a hinge. You might mention that "this is the way holes were made before the invention of twist drill". Or you might say something like "Hmmm, I need a hole here, but since the drill hasn't been invented yet, what shall I do?"

Position yourself so the people can see what you are doing. If you have to put your back to the audience, talk them through what's going on. They didn't come there to see butt cracks.

Personally, I think I am "teaching" blacksmithing when I demo to the public I am constantly trying to make eye contact and to find the people who are most interested, but I want everybody there to get something out of their visit. I get a big kick out of seeing how long I can hold a crowd.

Do your demonstrating in "sets". That is, have a plan, demonstrate it for a hour or two or whatever makes sense, then take a break. You can use this break time to talk with any REALLY interested folks who may want to take up blacksmithing or hire you to do work

My basic demo "set" consists of starting with something very simple and quick, relating to the basic processes of blacksmithing as I go, explaining each step, and adding more of the basic processes with slightly more complex projects as the "set" continues.

I often have a chalkboard on which each project is listed, in the order I will do it.

Comment on the old blacksmith sayings and explain their sources
-strike while the iron is hot
-dead as a door nail
-etc.

These comments fit in well while you are reheating your work or doing repetitive work at the anvil.

Do simple things, since peoples' attention spans are relatively short. There may be settings where you are doing "industrial" blacksmithing; -making big things that take a long time to produce, but that doesn't match the image that most people have of the "village blacksmith" If you do have to do something lengthy, encourage people to "stop back from time to time to check on the progress". Or, you can simply do one process on the big job at a time, then go back to the quick projects

Play to the kids:

When playing to the kids, watch the parents for clues about whether you are going somewhere that they wouldn't want you to go.

This probably goes without saying, but: This is NO place for foul language.

Don't short-change the women who stop by to watch.

So what if you have had to answer the same question for the hundredth time today? Even if the same person asks the same question several times, be polite in your answer. This is not the place to give wise-crack answers. You want people to enjoy what they saw and become friendly to the idea of blacksmithing as a worthwhile endeavor. You don't want to leave them with a "bad taste in their mouth" because you talked down to them.

If you are going to joke, let the jokes be about yourself. A favorite of mine is to tell them how, if I make a"fatal" error, I simply put the part back into the fire and crank like mad while I talk to them until the part burns up so they never see the mistake. I tell them that I can then blame the problem on THEM. ----So they are going to have to look real close if they are ever going to catch me making a mistake. Always gets a big laugh and NOBODY in the crowd is affronted.

Always be prepared with some brochures for your club. I used to lay my literature out on the table in front of me, but everybody seems to "take one": Most just toss them into the next garbage can. So now, I keep them hidden from view and offer one to anybody who expresses a genuine interest.

In closing, the idea is to provide a pleasant experience for your audience. And in so doing, you will improve both your presentation skills and your blacksmithing skills.

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This article reprinted from the New England Blacksmiths Newsletter Winter 2008

Cold chisel for cutting curves in sheet material

This chisel doesn't look like much, but it's the cat's meow
once you try it out. Forge a bluntly pointed chisel blank.
Taper and flatten, ending up with perhaps a 3/16" x 1/16" tip. File the tip to the shapes below. Do NOT round the corner between the 45 degree and flat portions of the edge (side view). To use it, tip; the chisel to the left (side view) and cut towards the right. Sounds strange, but it works very nicely. This tool should be made of high carbon steel, hardened and tempered.
Steve Smith, ME Rep.