Blacksmithing Workshops and Classes:

Peters Valley Craft Education Center
19 Kuhn Rd., Layton, NJ 07851 (973)948-5200
pv@warwick.net www.pvcrafts.org

Academy of Traditional Arts
Carrol County Farm Museum
500 South Center St. Westminster, MD 21157
(410)848-7775 (410)876-2667

Touchstone Center for Crafts
R.D.#1, Box 60, Farmington, PA 15437
(724)329-1370 Fax: (724)329-1371

John C Campbell Folk School
One Folk School Rd.
Brasstown, NC 28902
1-800-365-5724 www.folkschool.com

Brookfield Craft Center
286 Whisconier Road
P. O. Box 122
Brookfield, CT 06804-0122
203.775.4526

Open Forges

If any members have a forge at home and work in the evenings or weekends and want to open it up to help a few local guys, let me know, Larry Brown, editor, as we get requests from members who have a hard time traveling to some of the open forge locations.
Please contact, Larry Brown, Editor.
We want to encourage all to join us at:

Monday Night Open Forge in N.J.

Marshall Bienstock is hosting an open forge in his shop at 7 pm almost every Monday night (Please call ahead on holidays to make sure , (732)780-0871)

Open Forge in Long Island

Sunday from 10:00 am to 6pm.
Starting the 1st Sunday in November until the end of April. Please call ahead to confirm and get directions. Ron Grabowski, 110 Burlington Blvd. Smithtown, NY (631) 265-1564
Ronsforge@aol.com

Business Members

We would like to thank those who joined with our new Business Membership category .
Business dues are $40
Please show them our support

Marshall Bienstock, Marshall's Farms
663 Casino Dr., Howell, NJ 07731
732-938-6577, 732-780-0871
jlfmib@optonline.net

John Chobrda, Dragon Run Forge
P.O. Box 315 Delaware City, DE, 19706
302-838-1960 jchob@verizon.net

Eric Cuper Artist Blacksmith
109 Lehman Lane, Neshanic Station, NJ 08853
908 642-6420 ericuper@msn.com

Bruce Hay, Jr.
50 Pine St., Lincroft, NJ 07738

Jayesh Shah, Architectural Iron Design
950 S. 2nd St., Plainfield, NJ 07063
jay@archirondesign.com

In Southern NJ contact
Joshua Kuehne, 543 Amos Ave.
Vineland, NJ 08360
(856) 503-5297 iforgeiron88@yahoo.com
In Northern Delaware and Southern NJ, contact Kerry Rhoades or John Chobrda
Kerry (302) 832-1631 John (302) 838-1960
(609) 610-3501 (cell)

HOLCOMBE JIMISON FARMSTEAD MUSEUM

1605 DANIEL BRAY HIGHWY (RTE. 29) JUST NORTH OF LAMBERTVILLE

The Holcombe Jimison Farmstead Museum is located on the oldest recorded farmstead in Hunterdon County. The day-to-day rural agricultural life of the county's farmers and their families is presented in the museum exhibits with authentic tools and equipment. Through various grants and donations the property has been restored. Several small buildings have been added including a general Store, Post Office, **BLACKSMITH SHOP,** Print Shop and a typical farm workshop. The museum is open to visitors on Sundays from 1:00 to 4:00 PM starting the first Sunday in May and going through the last Sunday in October. The museum is open every Wednesday from about 8:00 AM to 12:00 PM and is considered a work day.

This is the day members show up to do repair, maintenance and whatever is necessary to keep the museum going. Visitors are welcome and can see our members working on the museum.

The museum is located on Route 29 just north of Lambertville. If you are traveling on Route 202 in New Jersey, use the "last exit before toll" and follow signs to the Farmstead. From Pennsylvania, exit immediately after crossing the toll bridge into New Jersey. The museum is on the right.

Become a part of history, help out a fellow blacksmith. Make something for the shop or museum and get your name on the wall of a historic blacksmith shop in Lambertville. Drop by any Wednesday (or any Sunday, May though October), bring your favorite hammer and tongs or use ours. We have decent coal and typical farm yard scrap metal. Experience our unbelievable chimney, the fire is actually pulled sideways. The chimney was made by a master mason that really knew his stuff. We have two sources of air. A hand crank blower for use on Wednesday and a bellows hanging from the ceiling that we use to impress our Sunday visitors.

Bring the family, we have lots to see.

METALSMITH'S QUIZ - WELDING

By: Tommy Ward

Since many metalsmith's employ some form of welding, brazing, or soldering in their craft, this issue's quiz is on the subject of non-mechanical metal joinery. Check your knowledge for fun, and play fair - no Googling.

1. Electric welding
a) was developed in the aircraft industry during WW II
b) was inadvertently discovered by Nikola Tesla during his experiments with high frequency electric discharges.
c) was not common in amateur use until about the 1960's.
d) was once banned from railroad use due to uncertainties of the integrity of its weldments

2. Oxy-acetylene welding can not be successfully used on aluminum.
a) true
b) false

3. Copper can be welded to ferrous metals using DC reverse polarity with a Monel rod.
a) true
b) false

4. The technique of electric underwater welding is called
a) Thermite welding
b) metallic arc welding
c) submerged arc welding
d) none of the above

5. Which of the following brazing rods could be expected to give the best cosmetic appearance in copper joints
a) Harris 0
b) Harris 15
c) Sta-Silv 37
d) Allstate 11

6. The first two digits of the four digit number on an electric welding rod indicate
a) its carbon content in hundredths of a percent
b) b) the positions in which it can be used (i.e., flat, horizontal, inverted, etc.)
c) its tensile strength in thousands of pounds
d) a quality control code

7. Acetylene gas
a) was once furnished by mixing water and calcium carbide in a special pressure vessel and then distributing the gas throughout large shops and factories.
b) is produced through a petroleum distillation process
c) is a fairly benign product that produces a "softer" and less aggressive flame than propane
d) will not explode when kept in a liquid state below 25 degrees F

8. Wire feed welding must be used in conjunction with a special non- reactive shielding gas such as argon or helium.
a) true
b) false

9. Copper welding
A) can be done with electric or gas equipment.
b) is best accomplished with a oxy-acetylene torch
c) is not possible
d) a & b

10. Brazing
a) can be accomplished at temperatures as low as 436 F
b) involves the use of special filler rods with silver content
c) can achieve joints stronger than the parent metal in some circumstances
d) is not suitable for medium to high strength joints

11. In reverse current welding the electrode holder
a) is connected to the positive terminal of the AC welder
b) is connected to the positive terminal of the DC welder
c) contains a water coolant system due to the high directed heat generated by this type of welding
d) is pointed forward to prevent undercutting

Continued on the next page!

12. The maximum withdrawal rate of a fuel gas cylinder
a) is 10 lbs. per hour
b) is determined by the size of the torch tip
c) has been changed from 1 /7 to 1 /10 of the capacity of the cylinder per hour by the CGA
d) is a calculation used by the distributor when refilling the cylinder

13. The minimum recommended filter lens shade for protective goggles used in gas brazing is
a) determined by the type of gas to be used
b) 3-4
c) a matter of personal preference d) 6

14. A suitable flux for brazing aluminum can be made by mixing Dawn dishwashing detergent and Twenty Mule Team Borax into a thick paste.
a) true
b) false

15. Though fine for heating and brazing, an oxypropane flame does not generate sufficient heat for cutting or welding steel.
a) true
b) false

16. Which of the following "stick" welding rods would be least suitable for overhead welding
a) 6010 b) 6011 c) 7018 d) 7024

17. MIG welding
a) always requires a special shielding gas
b) can be accomplished without a shielding gas by using a flux-cored wire
c) is not suitable for high production work
d) is not a good choice for use on thin gauge sheet

18. TIG welding is expensive, difficult to master, and outside the scope of the amateur or art metal field.
a) true
b) false

19. Silver soldering
a) is capable of comparatively high strength and is a good choice for decorative work in which a visually pleasing joint is desirable
b) is used mainly in the jewelry field
c) cannot be performed at temperatures below 1250 degrees F
d) is a term mistaken given to any kind of low temperature brazing that leaves a "shiny" joint

20. High carbon steel
a) cannot be successfully "stick" welded
b) should be welded using pre and post heating and a low hydrogen rod
c) should be cooled in a brine solution immediately after welding to minimize the chances of cracking due to unrelieved internal stresses
d) none of the above

21. In certain circumstances of repeated exposure to electric welding "flashes" it is theoretically possible for a contact lens to be become melted or "welded" to the wearer's cornea.
a) true b) false

22. A small welding bottle can be refilled in the field by connecting an appropriate hose and regulator between it and a larger bottle that is more than 75% full.
a) true b) false

23. "Peening" a weld to relieve internal stresses
a) should not be done on the weld bead itself
b) should only be done after the welded area has cooled to room temperature
c) should be undertaken with care to prevent damaging the strength of the metal,'
d) a&b

24. Glycerin can be used to lubricate a sticking oxygen tank valve.
a) true b) false

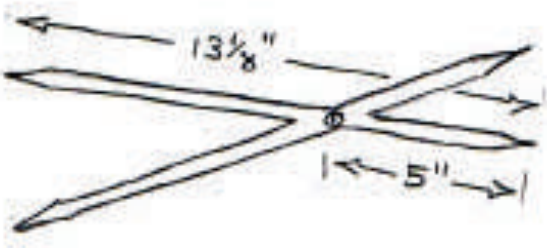
25. Certain electric soldering irons are capable of sufficient capacity to heat large areas of copper for soldering.
a) true b) false

The answers to this quiz are published in this newsletter, somewhere. You can find `em , they're here.

TWO FROM ROBB GUNTER

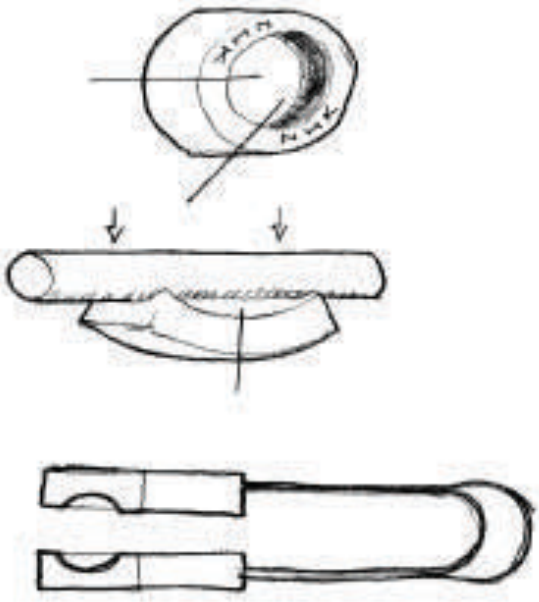
Here's two neat ideas from Robb Gun t e r, from the "I really wish I 'd have thought of this" department.

The first is for Golden Ratio dividers, which automatically gives the 1.618 ratio that those really old guys (Pythagoras supposedly discovered the golden ratio) thought was most beautiful. It's so simple that it defies description.



Robb Gunter's Golden Ratio dividers

The second idea is from Robb's ABANA Flagstaff Conference demo, it's a simple method of making a spring swage to forge ball shapes in the middle of a bar. Cut a section from a roller bearing race, flatten it with a solid bar that's the same diameter as the bearing balls. Cut this in two, and weld onto a flat bar handle. Anneal the whole thing, since you'l l be hitting this with a hammer… re m e m b e r, hardened steel shouldn't strike hardened steel.
Hammers Blow 8 3 SUMMER 2000



Robb Gunter's ball swage

The Safe Shop… Baby Ears

This comes to us from Bill Fiorini and Kirsten Stiles, proud parents of a soon-to-be striker. Very little ones in the shop need special precautions to keep them safe. "I checked with our family doctor on baby ear protection. She gave me 2 good options.

1. an ear wax that fits into the outer ear (not the ear canal), available at pharmacies.
2. 2. child ear muffs available from the audiology department at our clinic for $16. They are supposed to be adjustable to infants.

John Medwedeff's tip for eye safety is to use swim goggles on kids. He says they form a tight seal and are difficult for a young child to pull off."

The Safe Shop… **Tongs Under The Power Hammer**

A pair of tongs like the ones shown above would be a good choice for power hammer work, where it's especially important to keep a very firm grip on your work. Use two pairs if necessary, make sure they fit well, and *always hold the reins to your side*. A power hammer, especially a large one, can very easily kick your work straight back at you with considerable force. If the reins are pointing straight at your belly, things could get a little gory. So get into the habit of resting your back hand on your hip when holding tongs or long work, and stay out of harms way

Tips, continued

OKI FORGERS Newsletter -July 2008
From "The Safe Shop
By Brian Gilbert

Stretching Exercises

There are several easy stretches you can do to warm up before work. One is to lay your palms flat on the anvil, fingers pointing ahead, and slowly lean forward, stretching your wrist tendons. Do this a couple of times.
Next, grab a heavy hand hammer... say, three pounds or so ... and hold it by the handle, straight up and straight our in front of you. Lay the hammer slowly over to one side, and then the other. We're stretching the tendons that rotate the wrist here, with the help of gravity on the hammer head. You're also building upper arm strength as you hold a three pound weight at the end of your arm.

A centipede is an inchworm that has switched to the metric system.

A great way to kill off a good idea is to do nothing but entertain it.

Do's and Don'ts of S- 7 Tool Steel

Allan Kress, Cullman Forge
from the Alabama Forge Council

S- 7 steel is air harden steel, so never quench when there is any redness on the tip. If you think that you have quenched it when it was red, reheat it and let it cool slowly.

S- 7 is a very tough and durable steel. You can push it beyond many other steels. It will work harden on the top, or strike end, of the tool. If you see any cracking or chipping, grind out the crack and anneal. Then you can get back to work. Even though the top end has not been previously hardened, it can work harden. It can be harder than your hammer. Beware of chipping of your hammer or tool. It can also put marks on your hammer face.

Keep your tool cool, never let it get too hot. With a hand hammer, hit 3 times then cool in water, in and out very quick, then go back to work. On a treadle hammer or a sledge hammer, hit twice, then cool in water, in and out quickly. Never quench when the tip is red.
If you break the tip or crack it, just grind or reforge, then anneal, and back to work.

If you are deep slitting or punching holes there are many high temp greases with moly out there. My standby is to drop in a dab of coal dust. Works great. I never slit or punch a hole unless I have some coal powdered up. The best way to mess up one of these tools is to stick it up in a piece of steel. It's no fun to get it out.

Warning: Caution should be taken when striking or hitting these tools. Injuries can happen if care is not taken. Always visually inspect all tools, hammers, chisels, and dies before use. Always anneal if in doubt.

Dumb Things Not To Do By Harold Hilborn

We were working in the shop the other day (my helper and I) and had just finished a project. I told him, "Finish the part with boiled linseed oil, rub it down with a rag and then go home". I had to leave and run some errands. So he did exactly what I told him to do. What I did not explain to him was what to do with the rag when he was through with it. I also had never told him about spontaneous combustion of boiled linseed oil soaked rags, which I knew about, (ask Joe Hernandez for more details).

I came back from my errands about 2 hours later walked into the shop to a strong hot odor of linseed oil. I found the towel folded up laying on the floor next a gallon can of linseed oil

and a can of mineral sprits. I know what some of you are thinking, " What kind of idiot keeps flammable material in his smithy?" I assure you I don't. I keep them in another building but sometimes things just don't get put back. Anyway, when I picked up the towel, it was so hot I could hardly hold on to it. Took it outside and opened it up; the whole inside was charred black but no flame. I was very lucky, to say the least, because all of this was laying next to my oxy- acetylene rig.

Well, I then grab the linseed oil can and read it. (Who reads warning labels anyway. Right? I new it was dangerous.) Sure enough there in big red letters is a warning about rags and what to do with them. It says to let them dry outside flat, and then rise with water before discarding.

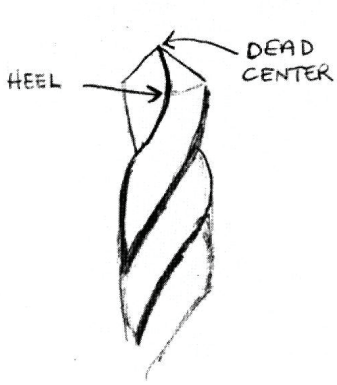
So there you have it folks, watch those oily rags.

Some thoughts on Tools
Mary Ann LaRoche

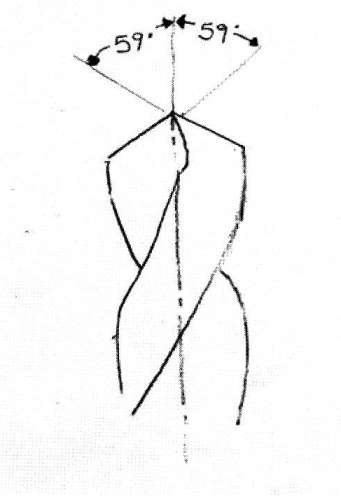
Metal working can range from the use of just a few tools, to actually acquiring a slew of them. No matter what type of tool you have or use, from the simplest to the most complex, they all require some sort of maintenance to keep them in tip top shape. Of course the more advanced blacksmith can always fabricate his/her own tools, but, why have to replace something that you already have made or purchased.

One of the more simplistic yet extremely handy tools it the hand file. File care should start with the storing of them, so that they do not rub or batter against one another. Rust and corrosion will dull them quickly. Cuttings that get packed in the gullets of the teeth will prevent the file from biting in. Tapping the file on a wood bench helps free the shavings caught, as well as using a wire brush with bristles help to remove the cuttings. A simple trick to help remove the stubborn pieces is to use a short strip of some soft metal, like brass or aluminum about 1 / 16" and 5/8" wide. Simply press the lower corner of the end of the strip down against the teeth and push it across in the same direction as the teeth are slanted. This will form a sawtoothed edge which will dig down into the teeth and clean them of packed metal. Finally, to keep your file sharp, going in one direction across your work will keep the cutting bite sharp.

Drill bits can be your best friend, when sharp and used properly, yet we have all been lazy at one time or another, and found our dull bit to take forever, maybe even producing that lovely gnawing loud squeal. There is a lot to know about this seemingly simple tool - the twist drill, including sizes, speed, lubricants, and tricks of the trade to learn how to grind a drill so it cuts easily.



First, just by examination of the twist drill look at the tip, it really isn't a point like an auger bit, but is actually a sharpened flat. This is called a dead center, because it really doesn't do any cutting, hence the reason for the punch mark, or why it ends up skating across the work piece. If you look at the drill from the side you will see that each cutting edge or lip, has a slope of about



59 degrees to the vertical axis of the drill. The shoulder-like portion of the drill tip slopes on each side, back and down from the actual cutting edge. This is called the "relief' or "clearance angle" and is the most critical angle when sharpening a drill. Without this angle, usually 12-15 degrees, the drill simply will not cut. The grindstone is the best tool to use for sharpening. Its rotating abrasiveness combined with a swinging and rolling motion will produce the desired angle on the drill tip.

It also pays to avoid destructive practices of the twist drill. One such no-no is to use it to enlarge a hole just a slight bit smaller than the drill. You might for example, have a 1/2 inch hole that you want to open up to 9/16. Trying to run a larger drill into such a hole concentrates all of the cutting action on the extreme outer corners of the lips and flute margins. This usually causes a wedging and wearing action which reduces the diameter of the drill and causes it to bind. This type of job is best left for a reamer.

Drilling speed, and lubricant are another way to extend the life of your drill bits. The actual force that tends to burn or break the drill is a combination of both speed and feed. Using a lubricant will help cool the drill and lets the chips slide more freely. These chips that get wrapped around and stuck in the hole are culprits which can actually twist a drill off Common drill lubricants are: a good grade of SAE 10 or 20 automobile engine oil, machining and a sulfur-based type lubricant sold as threading and cutting oil, turpentine or kerosene, for tough hard steels, lard oil for softer steels, kerosene for aluminum and other soft alloys, paraffin oil or drill dry for brass, and for cast iron drilling dry is recommended.

These are only two simple tools that we rely on in our shops, they take on a lot of abuse, but, with simple care and attention, they make our jobs so much easier.

Also, just a quick FYI regarding the use of shearing tools, which are great for short cuts in sheet metal. The best technique is to work the metal well up into the throat of the snips, cut about two-thirds of the way towards the snip jaw tips, and then advance the shears again. If you make a full cut to the end of the jaws you will wind up with a series of little notches or jogs in the metal which are hard to clean up. From the “The Anvil's Horn”

Tommy's Tips

BY: Tommy Ward

Pieces of scrap leather placed in a vise make a quick and effective method for holding work pieces that are irregularly shaped or might be damaged by the jaws. Leather is flexible and tough, and will withstand a reasonable amount of heat and a surprising amount of pressure. Threaded objects, saw blades, tools, soft materials, and items that are round or tapered are just a few examples of things that leather pads can protect from damage in a vise.

I got mine from a flea market vendor, but old leather belting would work as well. Try and find material that is at least 1/4" thick and around 6" or so square. Punch a hole in a corner of each piece and hang them on a nail near your vise for ready access. Cut scrap pieces of leather to the width of your vise's jaws.
MISSISSIPPI FORGE COUNCIL