

May 2010



The Florida Clinker Breaker

Florida Artist Blacksmith Association - Established May 18, 1985

Presidents Message

Jerry Wolfe

I'm sitting here trying to determine what to write that could be of benefit to YOU, the CB reader. Most times I suspect folks just skim it to see what the FABA Pres is going on about this time. I look for general interest items that might be helpful and interesting but most of the times, it's just "what is happening".



I would like to welcome new members: Bob & Cindy Cagiamilla, Glenn & Linda Jarreau, Bill Kleiber, Bill & Angie Maxwell, Jim & Pat Merrigan and John & Suzy Pfund. Make sure you welcome these new members and get to know them.

25th Year Celebration

This is the month FABA was initiated / organized 25th year ago. Our historian, Dr. E. Charlton "Skeeter" Prather, wrote in the November 1995 Clinker Breaker that the FABA organization grew "from one man's desire for learning how to shape iron." That man was Willard Smith of Blountstown, Florida. This is just a glimpse of what "Skeeter" will be reporting for our 25th celebration - I am sure you will want to hear "the rest of the story" and help celebrate the many accomplishments from the vision 25 years ago. We will be honoring our Charter Members.

ABANA was organized during a "Blacksmiths' Convention" hosted by Alex Bealer (author of *The Art of Blacksmithing*) at the Westville restoration village in Lumpkin, Georgia on March 16 & 17, 1973. Approximately 47 participants from all over the country, although primarily from the Southeast, attended this event.

Scholarship - We want to help you advance your skills in blacksmithing; so make sure you apply for the scholarship.

Why are so many members not "renewing membership" - That's a great question we are pursuing to assure we are fulfilling our mission to the members. If you have any input the officers and Board would love to hear from you - Critical Criticism is needed to grow, adjust to changing times and

correct any difficulties along the way. PLEASE TELL US.

Our 2010 Program committee is busy lining up demonstrators for our Oct 8-10 Barberville Conference. Part of the conference will be our 25th year celebration, so you will not want to miss this one, put it on your calendar and start planning. We want many items for our auction, so please start making things NOW. I'm sure you can make "something" that will be a wonderful contribution to our money raising effort or Gallery Exhibit.

SAFETY TIP: Safety Glasses - choose impact resistant lenses with side shields. Many smiths prefer a tinted lens to cut down on glare from the fire. Some safety eye shields cut the ultraviolet rays that are particularly intense from gas and propane forges. Use shields when doing both hot and cold work. You are blessed with only two eyes. Protect both of them

Sad News from North Carolina

Marty Lyon, Secretary and Newsletter Editor of the NC ABANA affiliate write to say: It saddens me to tell you all that our president, Jimmy Alexander, passed away in the early hours this morning (7 Apr, 2010). (*No further information was available at press time - Editor*)

Walt Anderson Scholarship

Deadline for receipt is June 15, 2010 So there is not much time left Full details are in the last (April) issue and on the website.

In the spirit of acknowledging members activities, here's Dot Butler doing some cooking at the Pioneer Settlement in Blountstown.



Upcoming Events

The calendar includes events of interest to the blacksmithing community. The regions have no boundaries - everyone is welcome everywhere. Come to more than one if you can. We hold regular meetings in each region on the following Saturdays of each month: NE-1st, NW-2nd, SE-3rd, SW-4th except for quarterly Statewide meetings. The actual dates vary so check the schedule below. Our meetings are informal gatherings around the forge. Prospective members are always welcome. Come for all or any part of a meeting, bring your tools or just watch. Most meetings run from 9AM to 4PM and you'll need to bring lunch if not otherwise noted. If you have any questions about meetings, please contact the Regional Coordinators:

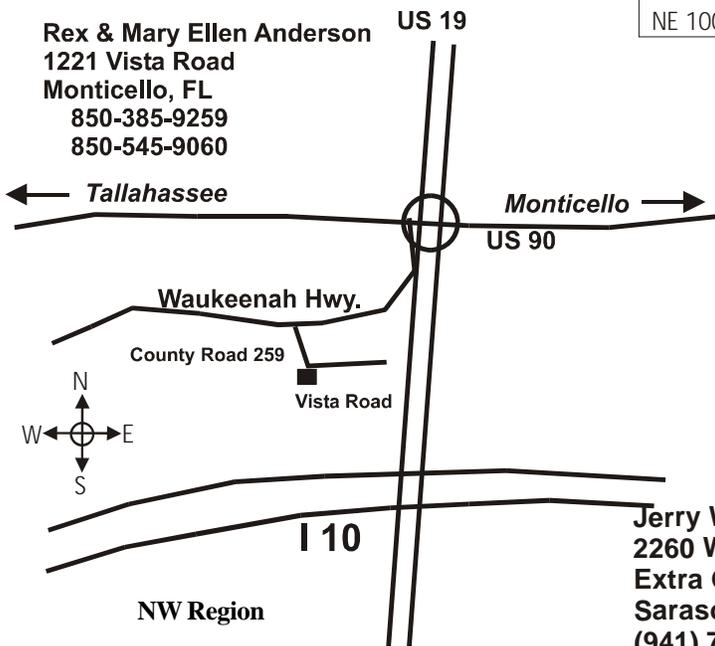
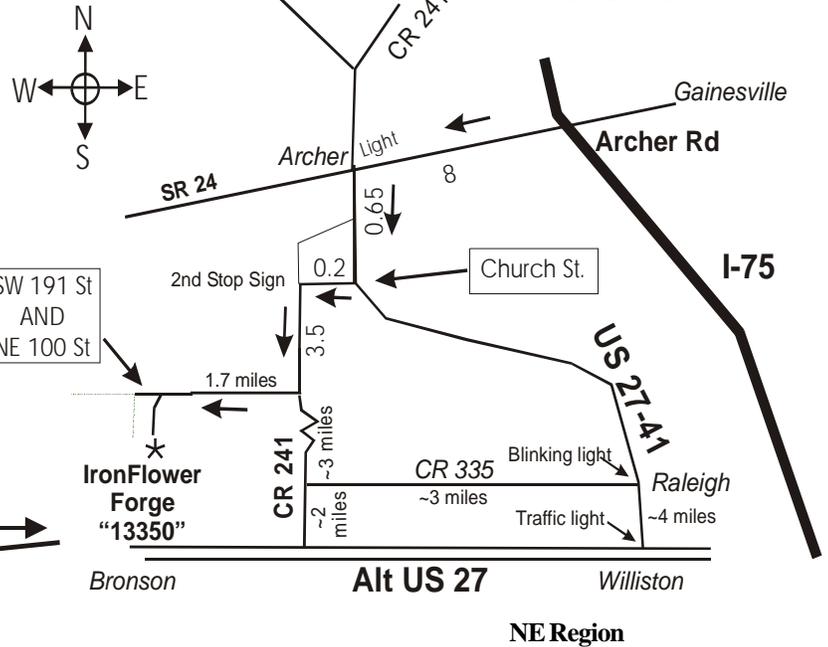
Northeast Region	Mitch Widham	386-673-0174	mwidham@cfl.rr.com
Northwest Region	Billy Christie	850-421-1386	chriswoodforge@embarqmail.com
Southeast Region	Ralph Nettles	561-747-5489	ralphnettles@msn.com
Southwest Region	Lisa Ann Connor	813-977-3743	MelisandeAubrey@hotmail.com

May 2010

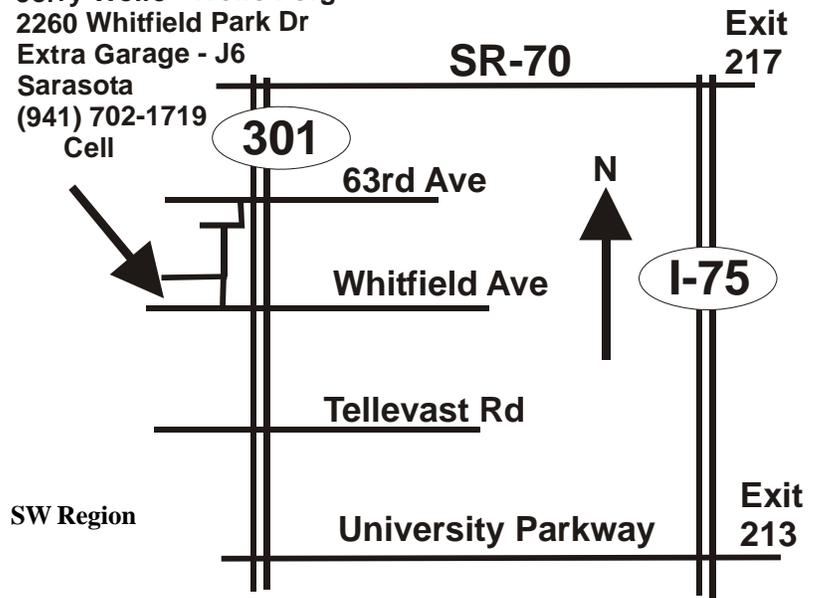
- NE 01** Steve Bloom's shop, near Archer (see Pg.3-Current Events for details)
- NW 08** Rex & Mary Ellen Anderson's Shop outside Monticello, FL
- SE 15** contact Ralph
- SW 22** -Wolfe Forge - See Pg.3 Current Events for details

Bloom; (352) 528-6508; 13350 NE 100 St

82.552 W x 29.476 N



Jerry Wolfe - Wolfe Forge
 2260 Whitfield Park Dr
 Extra Garage - J6
 Sarasota
 (941) 702-1719
 Cell



Boy Scout Camp: from I-95 exit go east onto Indiantown Rd, go north (left) onto Island Way (1st traffic light). Stay on it until it ends at Country Club Dr. Go left—it ends at the entrance to Boy Scout Camp.

SE Region

SW Region

Current Events

NE 01 -Demos on mokume production and primitive folders. Your opportunity to see the stuff written up in the previous issues. We'll provide chilli but contributions to lunch are welcome. Bring material for Buck-in-the-Bucket. Bring \$3.00 or more in quarters and some 1/8" copper rod if you want to make your own moke.

SW 22 -at Wolfe Forge (2260 Whitfield Park Drive J6, Sarasota). We'll gather between 8 am and 9 am for coffee and camaraderie, with the demo starting at 9 am. Lisa Anne Conner and Henry Kuczvara will demonstrate forged implements they find useful in various re-enactment organizations, along with further tales from our traveling blacksmith, Jerry Wolfe!
- **Lisa Anne Conner**

Future Events

If you want some know what is scheduled beyond this month, , volunteer to host a meeting and tell your coordinator!

Report from the Northwest

John Watson & Billy Christie

The Northwest March 13, 2010, meeting of FABA was held at Clyde & Vi Payton's Forge, Monticello, Florida. There is only one word to sum up this meeting, Wow! The attendance was over 120 persons, with 91 signing in. Clyde surprised Skeeter with a birthday cake & we sang Happy 80th Birthday.

The feature demonstrator was blacksmith Trenton Tye of Albany, Georgia. Trent presented a well structured, heartfelt special program tying in his relationship with the late Jay Reakeirt's safety issues, along with forging. At the start of the presentation Clyde read a letter he had received from Jay Reakirt a number of years ago, which Trent had no knowledge of. Trent showed his true heartfelt love for Jay. As a note here, it should be noted that Jay Reakirt was a master blacksmith located at the Old Andersonville Smithy in Andersonville, Georgia, and Trent was his under study.

Trent conducted his demonstration making an "S" hook with a twist, a leaf, and a spoon. While he was heating and shaping, he told stories from the heart about Jay, with a favorite statement of mine ("is there any questions?"). There were a few to which his response were very detailed for the best understanding.

Through out the demonstration he brought in safety issues, one that stood out to me was leaving the cutter in the hearty hole as you continue to work and how this mistake can have some terrible results. Just think about it!

As I said, the attendance was great. We had handmade jewelry, knitting, tailgate sales, table sales, Show and Tell Table along with an outstanding Iron in the Hat that brought in \$344.00. A delicious lunch was enjoyed by all. Thanks to

Clyde and Vi Payton along with all the members who brought covered dishes.

Also, the NW May 8th meeting will be at Rex and Mary Ellen Anderson's in Monticello, FL. We look forward to seeing all of you!

(See Pg.6 for more about this meeting-Editor)

Report from the Southeast

Ralph Nettles

We had a good meeting at Pete & Carolyn Yockey's home in West Palm Beach. There were sixteen people in attendance with four new members signing up. The project for the day was grinding and mounting handles on the knife blades that were forged at the February meeting. With a lot of help from Pete (the local knife expert) and his crew the beginners turned out some nice blades. There was more food than we could eat for lunch all thou we did our best to finish it off. The April and May meetings will be at the Boy Scout Camp in Tequesta with open forges, we will have projects for the beginners to work on. May thanks to Ed, John, and Sue for representing us at Riverbed Park see Ed's report for details. Happy hammering!

Ed Aaron

The Southeast Area provided a blacksmith demonstration March 27th at Riverbend Park in Jupiter. The park holds an annual event featuring old tools, autos, music and operation of a sawmill. The sawmill usually runs once a month. The park plans to add an old farmstead, so Ralph Nettles and I have planted a seed that there should be a blacksmith shop on site also. If things go to plan, the sawmill is willing to saw the lumber for the shop. We will have to provide labor and other materials. Will update as we go.



Susan Lampert



John Struthers



Ed & Susan

Report from the Southwest

Jerry Wolfe

Our SW region meeting March 27th was at Bethany's forge and was attended by 16 folks. Our Iron in the Hat resulted in \$57 for FABA. Bethany Allen-Ford and her husband Patrick opened their home and barn for our meeting and all had a great time out in the Myakka City country side.

The demonstration for the day was making the elements for a garden sculpture designed by Jerry Wolfe. The design came from an ICON in Lithuania which resembles a stylized cross. A picture of the completed piece will be



Jerry & Plant Stand

on

we

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the piece will reside. Jerry's caption for the picture of Michael was" .. making a knife with his NEW hammer - Michael: Why don't you like safety glasses?"

Thank you Bethany and Patrick for hosting a great meeting. We all had "plenty to eat" and enjoyed your hospitality.



Michael Willman

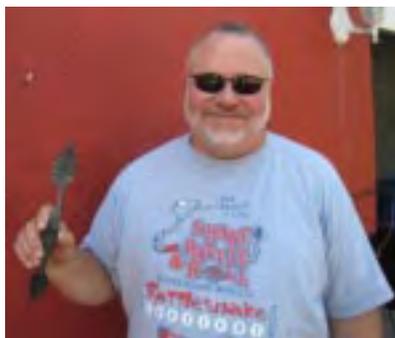


Bethany Allen-Ford & leaf



Jerry working & Steven Berglund assisting

a future issue. There are multiple leaf elements in the design, so several participants were requested to make leaves to contribute to the piece. It remains to be determined where



Gary Kemp with leaf

Notices, For Sales & Want-Ads

BLACKSMITH COAL

\$35 per 100 lb bag (Pickup only) & details - Pioneer Settlement, contact the Settlement at 386-749-2959 or 386-749-2087 or mail your order with payment to PSCA/COAL, P.O. Box 6, Barberville, FL 32105. Accepted forms of payment: cash, money orders, checks, MasterCard and Visa.

50-lb Little Giant power hammer.

Combination die set, fairly new motor. In excellent condition-price \$3,500. Contact Patty Draper at 850-668-2876 or applecrossforge@nettally.com.

Pistol For Sale

Freedom Arms Model 555 (caliber 50AE) with SS unfluted cylinder in perfect shape. Gun includes 3/10/50 scope (satin nickel). Sale includes 100 factory rounds, 100 or more brass, 100 300 gr heads, a box of a 1000 primers plus a new set of 50 dies and a new single stage press. \$1700.00 STIFFSILVERSMITH@aol.com (Tampa,FL)

Touchstone Center for Crafts 2010 Schedule

Touchstone is a unique three-season crafts school in the beautiful Laurel Highlands, only 60 miles southeast of Pittsburgh, Pennsylvania. Founded in 1972 as Pioneer Crafts Council, Touchstone's original mission was to foster interest in the preservation of traditional mountain crafts. Today, this unique craft school has expanded to include contemporary and experimental techniques in addition to traditional and

historic methods in disciplines such as blacksmithing, ceramics, metals, textiles, glass, oil and watercolor painting, photography, printmaking, and sculpture. Touchstone offers both aspiring and established artists more than one hundred week-long and weekend courses taught by some of North America's finest artists and artisans. Phone: (724) 329-1370 info@touchstonecrafts.org ; www.touchstonecrafts.org

2010 Course Schedule

B- Beginner; I- Intermediate; A- Advanced; E- All Levels

May 6 - 9 Tools for the Woodcrafter Bob Rupert - (E) - \$300

May 14 - 16 Forge Welding David Tucciarone - (B) - \$225

Jun 6 - 12 Campfire Cookware & Utensils Wayne Apgar & Ken Carter - (E) - \$460

Jun 13 - 19 Small & Large Scale Joinery Mark Aspery - (I) - \$500

Jun 20 - 26 Sculpting Animals in Iron Darryl Nelson - (I/A) - \$460

Jun 27 - July 3 Treadle Hammer Techniques Richard Sheppard - (E) - \$460

Jul 4 - 10 Advanced Door Hardware Fred Crist - (E) - \$470

Jul 11 - 17 Constructing Compasses & Calipers Peter Ross - (I/A) - \$495

Jul 18 - 24 Trefoils, Trivets, & Traditional Joinery Dale Morse - (I) - \$460

Jul 25 - 31 Irons in the Fire Glenn Horr - (B) - \$460

Aug 1 - 7 Intro to Door Hardware Lucian Avery - (I) - \$460

Aug 8 - 14 Locksmithing: Hasp-lock for a Chest Tom Latané - (I/A) - \$500

August 15 - 21 Blacksmithing Fundamentals Susan Hutchinson - (B) - \$460

August 22 - 28 Chasing Tools & Techniques Bill Robertson - (I) - \$460

Sep 10 - 12 Get Your Iron in the Fire Nigel Tudor - (B) - \$195

Sep 17 - 19 Cooking Utensils Richard Sheppard - (E) - \$195

Oct 1 - 3 Colonial Lighting Kim Thomas - (E) - \$250

need and commerce if it meets fads of fashion.

So we see that function, form, and fashion have been the common path of all art endeavors since that first cave woman chipped out her first flint knife.

Now, I would like to be so bold as to add another dimension. The art also has spirituality! This is a dimension which cannot be quantified by measurement nor weight – by color nor texture. Instead it is a dimension that calms the mind and sobers the soul. This dimension mends the tears of daily aggravations. Comfort and tranquility are experienced when we pause to enjoy the company of a work.

This lead-up brings me to the purpose of this letter. We of the Florida Artist Blacksmith Association (www.blacksmithing.org) appreciate your undertaking the Memorial Demonstration in honor of the late Jay Reakirt at PAYTON FORGE on Saturday, March 13, 2010. Your forging demonstrations were captivating. Your accompanying explanations of what you were doing and how and why left no questions unanswered. Your accompanying antidotes about Mr. Reakirt were informative and respectful, as well as amusing.

It is often said:

“There are good BLACKSMITHS,
and there are good DEMONSTRATORS –
But seldom does one see both in the ONE!”

Well, I'm here to assert that I have seen in Mr. Trenton Tye “both in the one”!

Yes, I saw the seldom seen in your demonstration – the embodiment of Function, Form, Fashion, and Spirit. Your demonstration was most eloquently delivered to a full house both morning and afternoon!

Mr. Tye – we appreciate you and we would certainly relish your return to one of our Annual Conferences.

At the NW Meeting in March , Trent Tye demonstrated. Clyde sent Tye the following letter and wanted to share Hello Trent,

Not a new “trend” or “fad” by any means – but today blacksmithing leans most heavily in the direction of Art Expressions. And quickly this realization leads me to the age old – and widely accepted – quantities of any Art, but namely the Blacksmith's Art.

Legends of the art have it that first blacksmithing must have function. This is to say that it must produce something practical so that a necessary and useful purpose is served.

Secondly, the art must have form. This is to say that it must be beautiful – pleasing and restful to the eye.

Thirdly, this art flows more swiftly through the corridors of



If you think your job stinks.....

**North Carolina Drift* - A Walt Anderson
Scholarship Report**
Jordon Thomas

I had been told that I would enjoy John C. Campbell and everyone who said so was right. Thanks to all the FABA members who contributed to help make my trip possible.

Sunday, February 28th was my first day at the school. I toured the campus and looked through windows, as most of the buildings were closed. That was the most I saw of the grounds, I spent the rest of the week blacksmithing.

Everyone had orientation in the early evening, which was important for those who were staying on campus, not so much for those of who were staying off campus. Dinner was held in the dining hall afterwards, and then we met with our instructors.

Daniel Miller was the blacksmithing instructor for the week. For those of you who may be unfamiliar with his work, he is one of a handful of smiths whose work is distinctly recognizable as his. He deals mainly in unique forms of joinery, striving to show with each shape the story that led to it being created. His challenge for the week was to find a thought or concept important to us and build a form that expressed it.

On Monday the entire class went to Daniel's shop to see how he worked at home. Some of what he did was familiar, as he had demonstrated it at the conference in October. Being in his own shop he was able to utilize a larger range of tools in his fly press than what he brought to the conference, and he showed some things new to me. We discussed design during lunch and how some forms are universally recognized. He pointed out how the more recognizable the form, the easier to express the idea. We loaded Daniel's fly press into his truck after he finished with the afternoon session. Most of the students were planning pieces that utilized it, me included.

As a side note, Daniel had the most incredible rope swing. When you reached the peak of the swing, you were over the side of the mountain looking out over the valley. It was a thrilling experience that every guy there had to try, repeatedly.

Tuesday morning found me sketching and scribbling trying to finalize my shapes. I succeeded by lunch, took some much needed sustenance, and began work on my piece in the afternoon. Wednesday and Thursday were early mornings, short lunches, and late nights as the class put their all into their pieces.

Friday was our last day working and it ended with me about halfway done with my piece. Fortunately, I had completed all the parts that required the fly press and it was to a point that I could finish it at home. Campbell has a student Show and Tell at the end of each week where everyone gets to see

everyone else's work from the week. Not that we were biased or anything, but we blacksmiths all agreed that we had the best Show and Tell. I was especially pleased, while conversing with some people who stopped by our table, to find that my piece made sense to them even in its half finished state.

We had dinner afterwards and then went back to clean up the shop and load Daniel's fly press back into his truck. Phone numbers and emails were exchanged, so longs were said and we all went our separate ways.

Saturday found me on the long ride home, tired but happy, with a piece to look forward to finishing and new tips and techniques to try.

I'm better with a hammer than with a pen, hopefully y'all can get something useful from the sketch and tips that follow.

1 is the prow, made from 5/8" x 1 1/2". # 2 is the wing, made from 1/4" x 1 1/2". # 3 is the pin, it was forged and fabricated from 1/4" x 3/4" to create a 3/4" square bar with slots. # 4 is the wedge, of which there are two. They were forged from 1/4" x 3/4" also. The pin passes thru the prow and the wing, which were punched with a 3/4" square hole. The wedges are then tapped into the slots in the pin and it is all held by friction.

The foremost thing that I learned while at Campbell is that a fly press is an incredible tool. It's powerful, quiet, precise, and capable of infinite variety, provided you can think up the tooling. Unfortunately, that little piece of information does me no good until I sock away some money.

So, here are some tips I put to use that might come in handy in the more immediate future. When wanting to put a square hole in a bar with minimal to no swelling on the sides, it is a good idea to drill it out first. I drilled a 5/8" hole in the prow, which I then drifted to 3/4" square under the fly press. (Yes it could have been done by hand, but did I mention how much fun a fly press is?) The swelling was minimal and was dealt with by sliding a 3/4" drift into the hole and gently forging the sides over the horn.

Also, if you have a bolster plate under your piece with the exact size hole that you are drifting, it will virtually eliminate that annoying dip that occurs when you try and drift something over your hardy or swage block and the holes don't match. Flipping your piece over and drifting from both sides helps too.

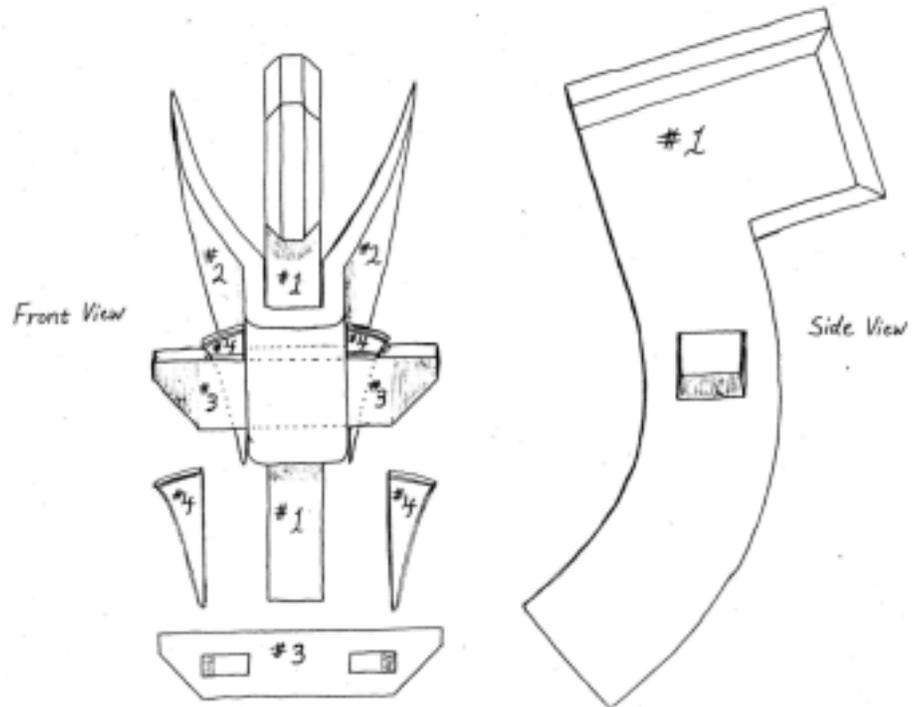
When drifting, an excellent lubricant is finely powdered graphite mixed with water to form slurry. It also helps prevent galling on the corners of the drift. I found it very handy.

I upset the heads of the wedges in a bench vise. If you put some scrap pieces under the tip of the wedges on the flat part of the vise, it keeps them from sliding down. Thus making sure that all of the force from your hammering goes into the

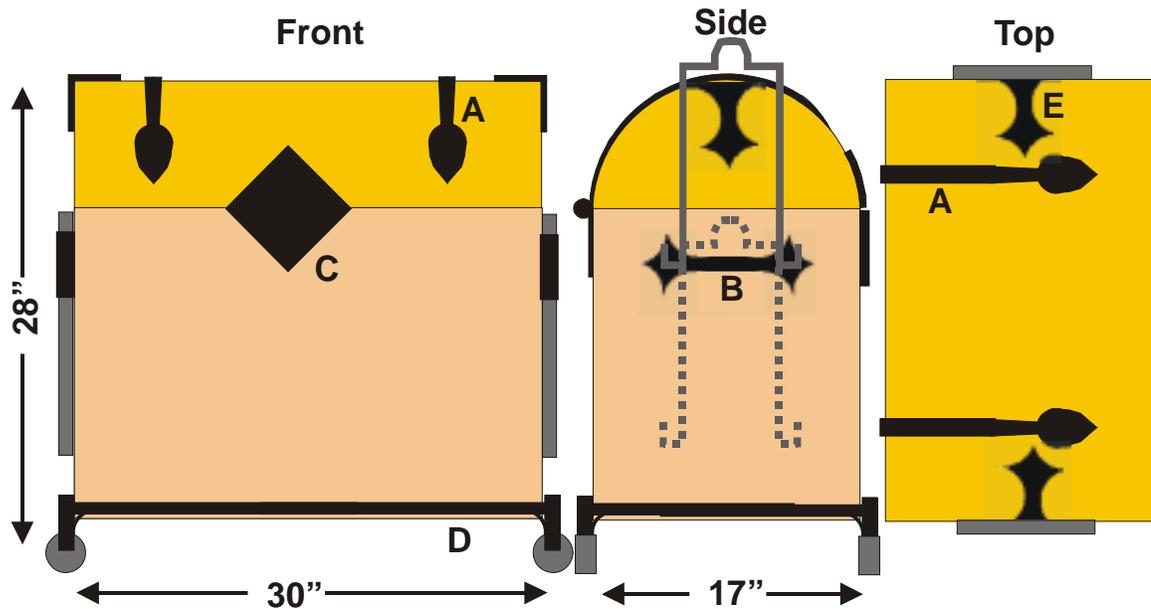
upsetting process and not into beating the wedge farther down into the vise. I have found that upsetting is much easier when the piece isn't sliding down in the vise.

Finally, when using wedges it is important to design them so that they don't bottom out, i.e. the top of the wedge being even with the top of whatever you're wedging. If they do, there is no room for adjustment and you're in the position of making new ones.

**Title was not created by the author but by the Editor who just can resist puns.*



NE Chest Project? - Steve Bloom



I have a large Florida live oak dome top chest (aromatic cedar floor) that I would be willing to donate as a NE project for the auction (see above). What it needs are (A) hinges, (B) handles (pictured here as Japanese-style tansu handles that allow a pole carry), (C) clasp, (D) base (hopefully with casters), (E) corner protectors/enhancements, etc., and (F) a lift-out tray.

Wood work wise it needs finishing (final sanding, coat of urethane). Any of you out there willing to volunteer labor to do this? I'll finish the chest but would want somebody else to fabricate the ironwork (any design, of course). What I see

is volunteers doing the building in their own shops and then we all get together at my shop before the conference for a meeting to assemble the elements into the final project. I'll provide any measurements as needed and the chest can be checked out during my May meeting. We will have a sign-up sheet at that meeting, so if you're interested, think about what you might like to do and bring some drawings to share.

If you need some inspiration, do a search for 'chest' (any word option) on the website's How-To-Do it index (at least 5 articles have appeared in past issues).

Mokume Gane - One Quarter at a Time

Steve Bloom

Mokume gane is Japanese for 'wood grain' and is, essentially, non-ferric Damascus forge-welded material. If you can get a slab of the material with multiple layers, you can use pattern manipulation to generate pleasing patterns and to dress up a knife.

A common mix is fine silver and pure copper. The traditional (and probably the best way) to make the stuff is to slip a stack of alternating and absolutely clean material into a torque plate (think two slabs of steel that bolt together around the stack), stick the torque plate into a stainless steel bag, and shove the assembly into a temperature controlled oven (think Paragon) at a temperature just under the melt temperature of the lowest melting material. Wait for a day or so and hope the material has bonded. A detailed explanation can be found in Ferguson (2002) or Midgett (2000).

Being smiths (impatient, cheap, clever....), somebody realized that US coinage might represent an alternative. The material in "silver" coins is actually a layer of copper between two layers of cupronickel (70% copper, 30% nickel). If a stack of coins can be brought to the correct temperature, they can be welded together to make a source of mokume gane substantially less expensive than working with fine silver.

In the demo I saw at a FABA conference a few years back, the demonstrator used a pair of tongs to hold the stack in the forge. When they began to 'sweat', they were quickly hammered and fused together. Recently, I started playing with this idea - after all, how hard could it be?

I started by altering a set of tongs to hold a stack of 12 quarters (\$3.00 or approximately 0.75"). The jaws have to be set parallel to one another so that the stack stays aligned. The jaws also have to be coated with an anti-flux (like yellow ochre powder) so that the coins won't stick to the jaws of the tongs. What I discovered is that if the stack is not perfectly aligned and/or the tongs are not held perfectly during what seems like an interminable time while waiting for the sweat to appear, there will be a tendency for some of the coins to partially slip out. When that happens, the stack may not fuse correctly and some mangled quarters get to join the scale around the power hammer. You also have to reset the tongs each time since they get whacked by the hammer during the process.

It took only a couple of trials before I realized that there was a better way (the black mark on the forehead of a smith isn't about Ash Wednesday - it comes from slapping yourself in the head and saying "DUH!"). Drill a hole in the center of the coins and rivet them with a copper rivet. The coins stay aligned, the tongs do not need to be readjusted since they are never hammered and the time in the forge drops consider-

ably since the tongs are not there sucking up heat.

The problem then was - how to make the hole? You can drill each one (use a center-finder or use a template to position the center punch, then hold it while drilling). You can also find a convenient copper pipe (ID less than 0.95", the diameter of a quarter), cut it to the length of the stack-to-be, slit the side, and stack the quarters in it. Clamp the assembly in a drill press vise and drill the stack. Obviously, the first process involves a lot of repetitive steps and the second (depending on the drill press and the diameter of the rivet) may result in the hole "wandering" such that the riveted stack leans a bit.

There is an alternative. At a recent FABA meeting, an old Whitney punch (a 7A - henceforth referred to as the 'tool') was contributed to the Iron-in-the-Hat. I acquired it, cleaned



Figure 1: The punch

it up and painted it as well as ordering some new dies and punches (1/8") (Figure 1). The way these guys work is that the die is installed in the upper section while the punch threads into the lower section. Typically, the punch has to extend a bit above the lower section to allow the die to penetrate sufficiently to actually punch the hole. In this particular tool, the punch thread is 3/4x16 and I happened to find a nut to match (that's why you keep all of those odd-and-ends, isn't it?).

The nut was tossed onto the lathe and a recess the size of a quarter was cut into it. The nut was sawed in two, the cut cleaned up, and what you get is shown in Figure 2.



Figure 2: The nut and recess

The nut is threaded onto the top of the punch and a quarter is slipped into the recess (Figure 3). A slap of the hand and the hole is made - centered and no need to deburr. Punching enough quarters to make a stack is now accomplished in a fraction of the time compared to drilling.

The rest of the process is straightforward. Wire brush the

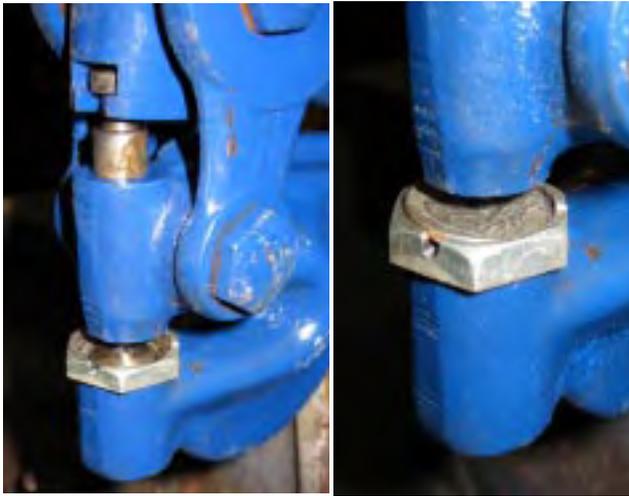


Figure 3: Die & quarter in place

coins and take care not to touch the surfaces with your greasy paws. If you are truly anal, use examination gloves and wipe the coins with acetone. I haven't seen any real difference in results with and without acetone. You can use silver brazing flux between coins but, like the acetone, I'm not convinced that it is really needed. Rivet the stack (I'm using an 1/8" copper from the K&N box in my local Ace Hardware store). Place the stack in a gas forge and watch it like a hawk! You do not want it melting in the forge. Keep turning it over to get the most even heat possible. Eventually it will start to sweat, i.e., you'll see something begin to appear between the layers. That's the signal to get it out and hammer it. Copper melts at 1983 F while cupronickel starts down at 2140 - 2260 F, so the copper will be the first to go. Remember the color when it comes out = you'll need that information later.

The stack starts as a cylinder 0.95" across and probably 0.75" tall (= \$3.00). In terms of volume, that's 0.53 in³. If you mash it flat initially, you won't be able to develop much of a pattern. If you don't hit it sufficiently, it might not fuse. Decisions..Decisions. I usually drive it down to about a 1/2" to 3/8" thick or about 22 to 41 %

Height <i>inches</i>	Diameter <i>inches</i>	Increase <i>percent</i>
0.500	1.16	22.47
0.375	1.34	41.42
0.250	1.65	73.21
0.125	2.33	144.95

Table 1: Stack sizes

wider than it started (Table 1). It's then over to the drill press to drill a matrix of shallow holes into one face of the stack. The size and depth of the holes is also a balancing act. Deep holes means more complexity in the pattern but a thinner final disk. It all depends on what you intend to use the material for. If it's being used for bolsters on a thin folder, then thin is okay. If you need 3/8" material for bolsters on a non-folder, then you need to preserve as much thickness as you can.

There is no reason to fixate on 12 coins (the \$3 stack). If you need more thickness, start with more coins. Of course, the taller the stack, the more likely there is going to be incomplete fusions due to side-slips, so increase stack size gradually as your experience and confidence increases.

Once the stack has been drilled (or chiseled or milled or...), run it back up to temperature (see why you need to remember the color?) and hammer it out until the material is once again reasonably flat.

If you need more thickness, you can (theoretically) stack stacks on stacks and fuse them (something I haven't tried yet) or you can solder stacks to filler material, like brass or copper or other stacks. If you do this, be conscious of the final thickness needed so you don't end up grinding off all the mokume gane to get the handle the size you want.

Quarters appear to be the sweet spot. You can get a wider stack initially by using half-dollars. The problem with that is that the cost doubles but the area grows by only 25%. Making mokume gane from quarters does mean that there will be some unavoidable waste. The stuff does not like to be edge forged, so you'll be dealing with ovals to circles. The material saws easily and a touch of ferric chloride pops the pattern out.

The picture at the bottom of the page will give you an idea why the stuff is addictive and is of a 624-layer random pattern Damascus full-tang blade with mokume gane bolsters and pommel plates flanking water buffalo horn scales.

References

Ferguson, Ian. 2002. Mokume Gane. Krause Publ. 128 pp.
 Midgett, Steve. 2000. Mokume Gane - A Comprehensive Study. Earthshine Press. 157 pp.



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