

THE HABA LETTER

May- August, 2004

FROM THE PREZ

February was a double header plus. **Bill Epps** gave a great two day demo at **Charlie and Sharon Heathcock's** shop in Dobin. The food was excellent thanks to our great cooking duo **Robert Killbuck** and **Robert Scott**. Leftovers Sunday were almost even better.

Then we had our first Art Show and **Dave Koenig** was a wonderful organizer and demonstrator. The submittals are excellent representations of HABA work. Please see the photos on the web site and enjoy a little pride in our HABA work. We met a lot of people and have several new Members.

Dave Koenig also had a big demo day at Washington on the Brazos Park, and we will schedule a meeting there this Fall.

March was another double treat starting at **Mark Finstad's** shop in town and this was a perfect follow-up to our art show. His admirable skills and patience in preparation and execution were enjoyed by all. Please see that web page page for the photos of the joinery and flower project. Then many went to the museum and toured the incredible gun exhibit featuring old and contemporary examples of rifle making.

The next week we were setup at our Oldenburg Hammerfest hosted by **Kennie and Susan Hall** who invited us for the bbq supper that night. The wind was blustery that day but many forges were busy and we enjoyed a very comfortable Spring Day visiting and especially enjoyed seeing the treasures picked up in the antique markets nearby.

April started early with the Katy Folk Life Festival. Board Member **Frank Walters** was featured in the Red Barn Shop and was assisted by **Dave Koenig**, **James Porter** and I stayed busy all day outside with our coal forges. The visitors were nonstop all day at all three forges and we made a lot of new friends again! They loved those nails that James made and gave away and I will have to do better to keep up next time.

Here we are now already in May, and we have another great program lined up. But first our Board Members **Les Cook** and **James Porter** will be our representatives at Armand Bayou for their big fund raiser evening on May 8. On May 16 Dave Koenig will be at Bayou Bend representing us for their Family Day. See the web pages for more info. Forgot what it is? Start at www.habairon.org and stay awhile.

May 15 we are **Robert Killbuck's** AFAB shop in Magnolia and we will feature his very talented knifemaking friend **Mitch Wilkins** making billets of Damascus Pattern welded steel, using the anvil, treadle hammer, and power hammer. While the iron is heating, we will learn more about knife making. Does it get any better than this? Yes! We will again have great bbq brisket with red beans and rice with andouille served up by the team of **Killbuck** and **Scott**.

June 19 is still being planned but looks like an indoor "get of the sun" meet featuring expert metallurgist explaining heat treatments, metal, and welding along with bbq and choice blacksmithing videos. Stay tuned for details.

And this brings us to July and Richmond, Kentucky for the annual ABANA Conference which **Dave Koenig** has been working his tail off for the past year. He has a great program planned and you really want to be there.

So what's next? Send your suggestions and check back often.
Thanks, and send me your feedback.

Ready to Roll and Hammer,
Richard Boswell

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DAMASCUS BILLET DEMO WITH MITCH WILKINS



Conroe knife maker and jeweler [Mitch Wilkins](#) will demo how he makes damascus billets for his knives at Robert Killbuck's shop in Magnolia on Saturday May 15. Robert has a newly painted 50 Lb power hammer that he has been renovating and is eager to put it to work. He invited his friend Mitch Wilkins to show us how to do this. Mitch will also work on the anvil and treadle hammer.

We will have special billet kits for sale which include a combination of 1084 and 15N20 steel, a rebar handle, and a bag of flux material.

While the billet is heating in the forge, Mitch will demo various knife forging and shaping techniques.

When the billet is finished Mitch will continue with completing the knife.

Bring your coal or gas forge and anvil and you can work on your billet while Mitch can help out. He has a hand-held thermocouple unit to check the forge temperature. This is a HABA meeting you do not want to miss!

Please visit our web site for more details at [Making Damascus Billets](#).

When & Where :

Saturday, May 15

10727 Crestwater Circle in Magnolia

Here is the Agenda:

- 8:00 Sign In and Setup**
- 9:00 HABA Meeting**
- 9:30 Begin Demo**
- Noon Lunch available on site**
- Noon Thirty Special Auction**
- 1:00 Demos continue**
- 5:00 or later Pack and clean up**

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Notes from Mitch Wilkins on How to Make Damascus Billets

I've been asked by several of you for some sort of work sheet for the pattern welded steel demo and rightfully so... First I'll tell you that you mustn't take what I say for Gospel.



"DAMASCUS".... or Pattern Welded Steel

First of all pattern welded steel isn't magic, it is however a process involving several critical steps which must be accomplished in proper order so as to achieve the desired results.

(1) Selection of steel.

Since in my case, I'm making a tool (a knife...) I'm first of all concerned that it will do its task. So without question, it must be high carbon (thus, hardenable) steel

that I'm to use. That said, there are many many carbon steels to choose from so what are we to use? Well, for a first effort, and in pursuit of some sort of success, we will use "contrasting steels". That means steels which have similar carbon contents for the most part but some chemically different contents so as to look different when "etched" with acid. So I've selected 1084 and 15N20 for our use here. The "1084" in steel talk means a "10" series steel with ".80" percent of carbon. And yes that's 80 *hundredths of a percent* not "8" percent!! Steels with even a whole 1% of carbon are rare, it just doesn't take all that much to do the job.

The 15N20 is a specialty steel used primarily in BIG band saw and circular saw blade applications and is HIGH IN NICKEL CONTENT. Acid attacks nickel much more slowly than ferrite so a nice pattern is almost always assured. You see, some of the earliest examples of "Damascus" steel started out looking like anything else. It took years of use, stains, rust and its subsequent removal, time and time again over many years, to have a design emerge. When I finish a blade, and take it down to 320 grit paper or even finer, it looks like any other piece of knife steel you've ever seen; smooth, shiny, and even colored. It must be dipped in an etchant to have the pattern emerge. Depending on the steels used and the etchant, you might leave it submerged 20 minutes or maybe only 5!

(2) A proper weld.

This is hard to convey. If you've ever heat welded mild steel or wrought iron, try and erase that from your memory: those are forgiving, carbon steel is not. Remember we're making a knife: a tool. This tool must possess integrity for its intended use so in the case of carbon steel... we cannot afford to burn or compromise the steel in any way! That's a mouthful but necessary: temperature is critical. Forging temp for carbon steels is generally 1500 to 1800 oF but to weld, you've got to come up with at least 2400 oF. When I first started welding up billets, I would get lots of "cold shuts". That's where you only get a partial

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weld and latter, when you least expect it, a place shows up that didn't take... oh what misery. That is inexcusable in good bladesmithing so let me tell you the single most common mistake in welding up a pretty good chunk of steel: it is trying to weld to "early"!!!

When you have a forge up, running, and "at temp" (i.e. 2400 oF) and you throw a big piece of steel in side, you IMMEDIATELY drop the temp several hundred degrees. That steel acts as a heat sink and a good one at that. Now, additionally, once the forge has recovered from the shock and begins to ascend on temp again, you start to watch your billet and when it is the same color of the forge interior you weld right?? No; a BIG NO. Steel is a very poor conductor of heat so in reality, the center of that billet is still cool and so, will simply not weld properly. It is behaving much like an apple pie does in the oven; brown and crispy on the outside but a toothpick plunged into the center reveals it is still "un-cooked" there. You have to let the billet "soak" and for a good 15 minutes to have good results. I know several bladesmiths that soak for 20 minutes before attempting a weld and truthfully, that first weld is the most critical for without it, all subsequent welds are compromised as well.

Some people can weld a whole billet in one heat. Well, that's nice. Not everyone can do so, I more often than not have to do the first weld in "halves". Better safe than

sorry I say. Once I've accomplished this first weld, I will many times let it cool off and grind into the sides a bit to see how well it has taken. If I don't like what I see in one place or another, I can reheat and weld again in a particular place that looks "iffy". All this accomplished ("sigh...") we can move to folding.

(3) Fold and weld.

It's just like it sounds. Note that of course when you hear people expostulate of how many "folds" their "Damast" (as it's called in Germany) has, that the numbers increase exponentially. We will start off with a stack of 5 pieces of steel for our billet. One fold (the first fold after the initial weld) will give us 10 layers, a second fold 20, a third 40, the forth 80, (now for the magic of multiples!!) the fifth 160 and the sixth 320 layers! one more fold and you've 640!! and by just 8 folds you have!!!... uh... a homogenous steel that appears to have no pattern at all. That's right, you can actually blend two steels until it's almost unrecognizable. when etched. That's not our aim of course. There is a trick (a critical step...) to folding: ***you always want to fold the "bottom" of the billet, forward toward the top.*** This I will show you at the demo and there are a few tips to remember in order to do this...

(4) Form the final stock.

Oh... did I forget to mention that while doing all the above that you have to keep in mind what the heck your going to make out of this stuff??? Well, you do. For the purpose of the demo, we will be making a knife but you may wish for something different. The aim is to end up with a piece of "stock" in the shape you

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would normally use for that same purpose in say, mild steel or in our case here, flat stock with which to make a blade. There's many different ways to come up with great patterns in pattern welded steel and we will discuss these at the hammerin. At this point we "should" be able to treat this piece of stock as we would any other as far as forging, hardening, and tempering. I will assume you all know something of these processes and if you don't or need help there, we ("I") will gladly go over the basics with you at the demo.

I could say "well, that's about it for pattern welded steel" but that would be the proverbial band-aid for the machine gun victim. There is just no end to discussing this form of steel "blending"!! The possibilities are substantial and varied to say the least. The above is just a bare bones outline for what we will be doing so be prepared with questions and I'll try and answer. Remember, I'm not afraid to say "I don't know"!!! In the event I've left something important out here, (like the salt from bread dough!!) please email me and say so! I am happily a flawed person in a flawed world, help me out a little here won't ya??

With compliments and regards,
Mitch Wilkins

mitchwilkins@flex.net

Directions to Robert Killbuck' Shop :

Robert Killbuck's Shop in Magnolia : 10727 Crestwater Circle ; 281-252-6061

From Magnolia, TX:

Go East on FM 1488 at the intersection of 1488 and 1774 in Magnolia. Follow 1488 East six miles or so. Look for a Phillips 66 station on the right. Just after that you will see a brick fence along the road. Continue to follow the brick fence on past a Chevron station on the right. About there you will see the first entrance into a subdivision called Lake Windcrest.

Continue on for about another mile and turn right at the second Lake Windcrest entrance. (On a Key Map the second entrance is right across from Superior Oil Road on the North side of 1488.) Entrance two is Crestlake Boulevard. At the first stop sign, about a 100 feet into the subdivision, turn right onto Crestwood Circle. Continue about a quarter mile or so down the road to 10727 Crestwood Circle. The house will be on the left. We will probably have a small HABA sign out too.

This is a new subdivision and the address may not come up on MapQuest.

From Interstate 45:

Exit I 45 at the FM 1488 exit and go West about 10 miles. Keep an eye out for the first Lake Windcrest subdivision entrance on the South side of the road. Pass this exit and turn south into the second entrance. On a Key Map the second entrance is right across from Superior Oil Road on the North side of 1488.

Look for the Deanco dirt and rock yard prior to the entrance.

The second entrance is Crestlake Boulevard. At the first stop sign, about a 100 feet into the subdivision, turn right onto Crestwood Circle. Continue about a quarter mile or so down the road to 10727 Crestwood Circle.

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June is an Indoor Metallurgy Meeting

Our June 19 meeting will be indoors out of the heat at Stress Engineering Services Conference Center and will feature two metallurgist discussing heat treatments, welding, and metals with some select videos and BBQ in between. The page will be posted soon. Mark your calendar now.

2004 ABANA Conference Richmond, Kentucky **July 7-11, 2004**

The 2004 ABANA "Design and Build" Conference plans are coming along nicely, thanks to our hard-working volunteers and board committee chairpersons! Conference Chairperson Dave Koenig is continuously working hard to produce an informative and exciting conference filled with plenty of activities for the whole family!

The conference is being held on the campus of [Eastern Kentucky University](#) (EKU), in Richmond, Kentucky. The Opening Ceremony, featuring our keynote speaker Melvin Rose of Melvin Rose Industries, will launch the five day event on Wednesday evening, July 7, 2004. [Albert Paley](#) will present a slide lecture at 8 p.m. that same evening in the brand-new 400 seat Student Center Auditorium. He will also present a second lecture Thursday evening, July 8, at 6:30 p.m. Also on that Thursday evening will be the formal opening of the Members' Galleries which will begin at 7:00 p.m. and end at 10 p.m. Thursday, Friday and Saturday will be jam-packed with presentations by our [demonstrators](#), shows in our members' galleries, vendor and tailgating sales, auctions, Iron-in-the-Hat, and a general membership meeting. There will also be [craft classes](#) including metalwork, jewelry, appliqué, and stained glass, self defense and martial arts classes, computer-aided design classes, and [charter tours of the Bluegrass Region](#). Sunday morning after breakfast will be open for everyone to leisurely round up the troops and make their way back home.

The EKU conference site offers options for "[cold-tent camping](#)" or [RV parking](#), if you prefer it to the campus' dormitory-style lodging, and the area provides nearby campgrounds with [RV dump stations](#). And yes, your [pets](#) are welcome as per our simple guidelines! Please also see our list of [hotel accommodations](#) in Richmond and note that any persons with special needs in terms of ADA compliant accommodations can contact [Michele Devine](#) for assistance. The EKU food service schedule provides breakfast from 7:00-9:00a.m., lunch from 11:00-1:30p.m., and dinner from 4:30-6:30 p.m.

THE FINE PRINT

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