

# HABA HABA HABA HABA HABA

# THE HABA LETTER

The Newsletter of the Houston Area Blacksmith's Association Inc.

To Preserve and Promote the Art and Craft of Blacksmithing  
Through Education.

HABA Web Site: [www.habairon.org](http://www.habairon.org)

March 2006 Edition

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# THE HABA LETTER

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## *LAST CALL FOR THE HABA LETTER*

This is HABA's annual heads-up for members who requested hard copies of the newsletter. This will be the last hard copy of the newsletter for people who have not renewed their 2006 HABA membership. If you do not have an 06 after your last name on the mailing label, please call Ed Malmgren at 832-752-7844.

## *NEW AND RENEWING HABA MEMBERS*

HABA welcomes the following renewing and new members to the organization.

Johnny Adicks  
David Bailey  
Jerry Baker  
Jeffery A. Boyer  
Richard Capehart  
Gregory Carrier  
Lawrence Childress  
Dave Cruely  
Christian Darce  
Gary Evensen  
Mark Finstad  
Harry Harris  
Tee Hines  
Rob Kirby

Vince Lusco  
Ed Malmgren  
George Marsden  
Ed McCann  
H. Earl McClellan  
Robert Ollerton  
Mickey Redus  
Phil Scott  
Charles Sherburne  
Lee Shull  
Greg Smith  
Fred Titera SR.  
Kevin Underhill

## *PREZ SEZ -March 2006*

The Chief asked, "Are we having fun yet?"

"Like a hot iron in a bucket of oil" said the other Chief.

We are having an abundance of fun! It is springtime again and every young smith's fancy lets him or her put more irons in the fire than there is time to forge. We are all busy with life and we appreciate your help more than ever. As always, we

need more of you to get behind the wagon and push or pull as the case may be. It makes the load easier for all of us.

We had a big turnout for knife making at Cowboy's shop in Bellville. All were glad it was indoors and a few of you even enjoyed the rain outdoors. Bowl making with Clint Jones was another dreary day outside, but we were under the roof again at Ed Malmgren's shop. I learned a lot

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from the demo and from the "show and tells" brought in by A.J. Garrett and Mark Finstad, Les Cook and Dave Koenig.

Our donated bowls were well received by the Empty Bowls Initiative. By the way,

Ed has been showing us how to welcome our guests and new members in his new role as Membership Chair. Good work Ed!

Texas Independence Day was special this year at Washington-on-the-Brazos State Park and the Barrington Living History Farm. Nearly 2,000 visitors came through the Farm

and stopped to visit us in the barn on Saturday and Sunday. This is always a fun place to work. The gates were not ready to hang with the new hinges we made, but we stayed busy. Les said he was like a tree in the fall with all the leaves he made and gave out. I made some shackles for the small hog hanger gambrels. Tee made a lot of everything. And I believe Dave may have even talked more than he made 'cause he always had a large crowd gathered around listening. The ad-hoc syncopated anvil serenades from the trio each day were inspiring. We also repaired the cultivator that broke a link pin right on schedule while we were there, and the oxen never had the day off!

We finally wore our new tee shirts for the HMAG meeting, and we showed our colors well (we like black!). The joint meeting with the jewelers was a most pleasant and rewarding day, because they

were so enthusiastic and happy to work with our Big Fire and Big Hammers, as they themed the event. Take a look at the photos on the meeting page to see some of the great work they did, and the happy

faces. We signed on several new members during the day, and several other new members attended their first meeting with us. We look forward to seeing each of them again soon.

HABA donated \$1,600 to the ABANA Relief Fund. This was on a portion of our bank account rather than a set amount, and we know it will

be put to good use. Our thanks extend to everyone who made this donation possible, and our best wishes to those who received it. Thanks go to ABANA for managing this relief effort.

HABA folk were very busy with the school demos and this is becoming a regular request. If you can help demonstrate please contact us.

Our bi-annual Oldenburg visit is coming up soon. We are changing the name of the spring rendezvous to **Blacksmith's Round-Up** to reflect what we are actually doing. Everyone is invited for the weekend. We have a covered pavilion now so it is a rain or shine opportunity. And it is usually breezy!

As before, we continue to appreciate the time everyone puts in to this endeavor. I especially want to thank Dave Koenig again for being the instigator and active



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contributor he is. Tee Hines is always an inspiration, and he and Les Cook are solidly in motion supporting our efforts. The entire Board and our Advisory Committee are running on ten cylinders this year. Yes sir. Yes ma'am. This is

fun. We learn a lot, and we share a lot! Have some fun with us!

Thanks as always,

Richard Boswell

*April 7 9, 2006 HABA MEETING*

## ***BLACKSMITHS ROUNDUP***

**APRIL 8 & 9, 2006**

**OLDENBURG, TX**

**BUY - SELL - TRADE**

**SMITHING TOOLS - EQUIPMENT - HAND WORK**

Everyone is invited to Oldenburg to buy, sell and forge. Our hosts are Kennie and Susan Hall. People are invited to sell any kind of crafts or antiques. There is no cost. A hat is passed on Sunday to defray the expenses for power, water and portajons. Camping is available on-site with a hot and cold running water shower!

Remember that the **Blacksmiths Roundup** weekend is the same weekend as the Round Top Antique Show.

Thousands of vendors and thousands and thousands of buyers are roaming the countryside between Round Top, Warrenton, Oldenburg, Fayetteville and Shelby during this event.

The **Blacksmiths Roundup** site in Oldenburg, TX is located at the intersection of highway 237 and Bauer Road. The site is on the north end of town on the east side of highway 237.

Oldenburg is located about eleven miles

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north of La Grange and about 5 miles south of Warrenton.

HINT: To avoid very heavy traffic between Round Top and Oldenburg, come to Oldenburg via LaGrange or Fayetteville.

## May 20, 2006 HABA MEETING

HABA board member, Mark Finstad will be the featured demonstrator for the May meeting. HABA's host and Mark's helper for the demo is HABA member Troy Morgan. The meeting will be held at 2215 County Road 391, Pearland, TX.

Mark has three separate demos planned, forging a cablemascus billet, demonstrating air chisel chasing and forging one of his cleverly designed bottle openers.

Troy will provide lunch. If you plan to stay for lunch, please leave a message to that effect at 281-855-2869 or send an e-mail to [tudorforge@sbcglobal.net](mailto:tudorforge@sbcglobal.net). You can also pack a lunch or drive to a local eatery.

Setup will begin around 8:00 AM and the demonstration will begin at 9:00. Be sure to bring your safety glasses with side shields and hearing protection. To bring a chair is a good idea too.



Directions to the demonstration site are as follows:

Go south on I-45. Immediately after you get outside Beltway 8 take the Dixie Farm Road exit.

Go through two traffic lights and at the intersection of Dixie Farm Road and 518 you will see a Home Depot and a Wal-Mart.

Proceed through this light, travel 3/4 of a mile further, and take a LEFT at Westfield St.

Go down until the first stop sign and take a RIGHT on County Road 391.

Come down six mailboxes and we are on the right. Look for the big black pipe fence and our pipe mailbox painted like a Texas flag (only pipe fence and pipe mailbox on the street).

Drive down our driveway all the way into the back and you will see the shop.

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## *June 17, 2006 HABA MEETING*

The featured demonstrator for the June meeting will be William Bastas. William is Professor, Art Metals at Austin Community College (ACC).

**This will be a ten-hour demonstration!** William will bring completed work and will demonstrate architectural details including scrollwork and joinery. He will also talk about and forge hardware and tools. Heat-treating is included. Overriding themes of the demonstration will be illustrating the system of moving metal William teaches in his class at ACC and incorporating skills expected of a journeyman.

William is a fantastic demonstrator and teacher. There will not be a dull minute!

Here is what the day should look like:

Start at 8:00 and take a mid morning break about 10:00

Take a lunch break from noon to 12:30. Pack a lunch if you do not want to miss anything.

Resume the demo at 12:30 and break around 2:30.

Complete the afternoon demo at 4:30 and auction the finished demo pieces.

About 5:00, serve a catered meal for those who ordered a meal. The cost per

meal will be about \$8.00. An RSVP for the meal is required! Please leave a message to that effect at 281-855-2869 or send an e-mail to [tudorforge@sbcglobal.net](mailto:tudorforge@sbcglobal.net).

Resume demo at 6:00.

Auction any additional demo pieces and conclude the demo at 8:00.

Have an informal social hour from 8:00 to 9:00 PM.

**Demo Fee** -In lieu of charging for this event, HABA will ask everyone to pay for what he or she thinks the demo is worth in terms of what is affordable. This will be done by passing a hand made ice pick. Just affix cash or check to the pick and pass it to the next person. A drawing will decide who goes home with the pick...without the money of course! Be sure to pack a lunch, bring safety glasses with side shields and maybe a chair. The bleachers may get a little hard!

### **Directions to Robert Killbuck's Shop.**

Robert and Betty Killbuck graciously offered to host this unique demonstration. Thank you both very much.

Here is a Google map link to the demo site:  
<http://local.google.com/local?f=q&hl=en&q=10727+Crestwater+Circle,+Magnolia>

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,+TX&ll=30.216058,-  
95.611267&spn=0.155755,0.340576

## From Magnolia, TX

Go East on FM 1488 at the intersection of 1488 and 1774 in Magnolia. Follow 1488 East six miles or so.

Go past the first entrance to the second Lake Windcrest entrance on the south side of the road.

Continue 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 2 is Crestlake Boulevard.

Turn right at the first stop sign, about 100 feet into the subdivision. Continue about a quarter mile or so down the road to 10727 Crestwater Circle.

## 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.

Turn right at the first stop sign, about 100 feet into the subdivision. Continue about a quarter mile or so down the road to 10727 Crestwater Circle.

## *HABA Meeting Suggestions*

Here are opportunities HABA has for future programs. What are your favorites? Leave a message at 281-855-2869 or send an e-mail to [tudorforge@sbcglobal.net](mailto:tudorforge@sbcglobal.net).

- A. Mindy and Mark Gardner demo...treadle hammer chasing and tool making. See [www.floodplaineforge.com](http://www.floodplaineforge.com). Mindy does chasing and Mark demos tool making.
- B. Little Giant hammer repair workshop with Sid Suedmeier.
- C. Hydraulic press workshop.
- D. A joint HABA/LAMA meeting in March of 2007 to coincide with the 27th annual iron pour at Lamar University. The smiths are invited to the iron pour and then the founders will attend the joint HABA/LAMA meeting.
- E. Marideth "Butch" Jack has offered to host a HABA meeting at his studio here in Houston. He would demonstrate iron casting from start to finish using a small

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- copula. Butch heads the art department at Lamar University and is an industrial casting consultant.
- F. Richard Wilson is willing to talk to HABA about some specific metallurgy topic of our choosing.
- G. David Furlow is willing to talk about the archeometallurgy work he and his son are involved with.... Europe 2000 years ago. This could be a large gathering of smiths, knife makers, jewelers, archeology groups, etc. at the Brown Theater at the Museum of Fine Arts.
- H. An English wheel demonstration by Preston Engebretson.
- I. A farrier demonstration by Charlie Williamson.
- J. A wheelwright demo my Melvin Pitchford.
- K. A joint meeting with potters and glass blowers.
- L. A presentation by Don Mitzenmayer about the history of and viewing of his ring bit collection.
- M. Harvey Dean had offered to do a knife-making demo. He is a well-known Master Blade smith (ABS) and his demo would be beyond the basic level.
- N. Gary Evensen still has one he did not get to from last Fall Forge Fest, about how to hang a gate. He has the basics already prepared for that swan project he did last spring at Oldenburg.
- O. Mark Finstad Design Demo that was rained out last year.
- P. A hands-on workshop about patina and surface finishes.
- Q. Brent Bailey is ready to come back to demo more tool making and other forms he learned during a recent stay in Africa.

This is quite a suite of topics!

## Steels Useful for Tools

by Dave Smucker

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This is Part 1 of 2.

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The article will be reprinted in its entirety.

I call this article Steels useful for Tools, rather than just calling it "Tool Steel" because there are a number of very useful steels for the blacksmith that fall outside of the Tool Steel classification.

## **Purchase of Steels vs. used, scrapped, recycled, or found steels.**

Well, it all comes down to time and money. What is your time worth? Do you have the money? I have heard many professional / full time blacksmiths strongly tell folks that they should only be using new, high quality special tool steels when making tools. For them this is 100 percent correct – look at it this way, their time is worth at least a dollar a minute. So, spending 15 minutes heating, straightening and prepping, a piece of old auto spring to make a tool is a real waste of money and their limited time. They may even finish the tool and find it cracks. If this happens, they have really wasted their money. However, the part time hobby blacksmith may just not have the money to spend on new tool steel. Time might be limited, but money is even more limited and the idea of making something useful out of nearly free material is just too good to pass up. Blacksmiths will want to do what best fits them and their personal needs.

## **"Spring Steel is NOT TOOL STEEL"**

This is one of Francis Whitaker's famous comments. Well, my reply "YES IT IS". Spring steel works damn well for many tools. Blacksmiths 100 years ago would have loved to have it for many tools so let's not be so fast to turn our nose up at some very good steel. Not all springs are the same spring steel, for example 5160, because the end user of the spring is always trying to find a balance between cost and life. Used in normal service, most springs will fail at some point. Not knowing for sure what steel is what, leads us to using the "Break Test" discussed elsewhere in this issue of the AACB Newsletter.

There are other "engineering steels" that are also very useful for any number of tools and we will look at some of the important ones. This is especially true if you can find

spring steel or engineering steels as new material in the form of drops, off cuts etc. We will talk more about scrap steels vs. junk steels in this article.

## **My Tool Steel is Better Than Your Tool Steel**

Oh, the wonderful world of marketing. Before we get into the classification of different steels, I would like to say a little about the marketing of Engineering and Tool Steels. Yes, there can be a difference between Company ABC's S7 tool steel and Company XYZ's S7 tools steel but for our crude uses in blacksmithing. I don't think any of us can tell the difference. In my aluminum work we purchased most of our steels to generic specifications. It was only for some very special applications such as high service, high expense items such as "forged hot mill rolls" that we could measure one supplier's performance as better than another's.

I will even give a little insider information here. For a number of our customers we might help them with their end product by taking one of the standard aluminum alloys and make small adjustments in the composition and process so that it worked well in the customer's forming and finishing operations. We would give these special alloys a "C Number" rather than the standard Aluminum Association Alloy Number. It was special and required special handling, casting, rolling and processing. The customer paid more and got what they paid for. For some other customers, marketing would assign a special alloy "C Number" but the product would be just the same as the standard alloy product except it would be a bit higher priced. The customer was happy because he thought he was getting something special – but in fact, all he was paying for was the name – not the product. Buyers beware.

My example in the blacksmithing world is "Atlantic-33", also known as Flutagon. Hey, this is good stuff and a very good tool steel. I believe it to be either S1 or S6 or very close to one of these standard tool steels. Today I think S7 is a better material. (If I can get a small sample of Flutagon for testing, I will report on what it really is – besides good marketing.)

## **Steel classification and naming**

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Many of us have become comfortable with much of the naming systems used in the USA for steels but for others it is a very confusing world. Our systems can be confusing, but if you add in the other international systems, it gets real confusing. I am always learning something new in this area.

We have a number of common systems in use in the USA plus various steel manufacturers give their steels their own proprietary names or grades. On top of all of this we have purchasing specifications developed by the American

Society for Testing and Materials (ASTM) that cover a number of important steels for industrial use.

The basic system of steel classification developed by American Iron and Steel Institute (AISI) and the Society of Automotive Engineers (SAE) uses a 4 number system to identify various plain carbon and alloy steels. This classification system considers steels with less than 4 percent alloy content to be alloy and / or plain carbon steels and steels with 4 percent or greater alloy content to be special types of alloy steel, namely stainless steels and tool steels.

**TABLE # 1**

Type of Steel	Number	Comments
<u>Carbon Steel</u>		
Plain Carbon Steel	10XX	1020 is a mild steel, 1045 medium carbon, 1095 high carbon. 1095 is the similar to W1 tool steel, a very good steel for woodworking tools. 1060 steels have been used for many hammers.
Re sulphurized Steel	11XX	Steel to which sulfur has been added in controlled amounts after refining. The sulfur is added to improve machinability. It may give you problems in forging
<u>Manganese Alloy Steel</u>	13XX 15XX	1541 is a high manganese alloy steel now being used in auto axles. (In other words, not all axles are 4140 anymore.)
<u>Nickel Alloy Steel</u>		
3 – 1/2 % Ni	23XX	2317 Some times used for case hardened gears under 8 inch dia.
5 % Ni	25XX	
<u>Nickel-Chromium Alloy Steel</u>		
1 – 1/4 % Ni 0.6 % Cr	31XX	
<u>Molybdenum Alloy Steel</u>		
Molybdenum	40XX	Used in some case hardening application and for some screw products
Chromium-Molybdenum	41XX	4140 and 4150 widely used engineering steels. 4119 is a special Timken steel used for roller bearings that have a very deep case hardening.
Nickel-Chromium-Molybdenum	43XX	4340 another important engineering steel. This steel along with 4140 is very useful for tools
1 - 3/4% Ni - Molybdenum	46XX	
3 – 1/2% Ni - Molybdenum	48XX	Used for case hardening applications especially for gears.
<u>Chromium Alloy Steel</u>		
1/2% Cr	50XX	
1 % Cr	51XX	5160 has 1% Cr 0.6% Carbon (60 points) it is a widely used spring steel. Very useful for blacksmithing tools and woodworking tools.
1 – 1/2% Cr	52XXX	52100 has 1 – 1/2% Cr and 1% Carbon (100) points. This is the most common ball bearing steel. We use a similar steel for making rolls for cold rolling mills.
<u>Chromium-Vanadium Alloy Steel</u>	61XX	6150 also a useful steel for some tools. It is used in piston rods pins and spline shafts
<u>Chromium-Nickel-Molybdenum Alloy Steel</u>	86XX	8620 a widely used case hardening steel used for gears and other parts
<u>Silicon-Manganese Alloy Steel</u>	92XX	9255 another steel used for springs subjected to high shock loads.

Notes: 1.) The last 2 (or 3) digits "XX" are the "points of carbon" in the steel

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2.) Case hardening is the process where carbon is added to the surface of a part during the heat-treating process. This "case" allows the surface layers to be heat treated to a very high hardness and yet retain a very tough but softer "core" to the part being made.

## **What about Steels like A36 or A514 they are not in your list?**

A steel like A36 is not listed in the AISI/SAE system because it is a purchasing specification from the ASTM. The American Society for Testing and Materials issues a large series of purchasing specifications covering many materials. Ferrous materials happen to start with the letter A (B is for nonferrous, C for ceramic, concrete and masonry materials etc.) The number in the identification is just a number assigned in sequence; the number 36 in A36 does not mean anything special. (There is a lot of confusion on this since one requirement of A36 is for it to have minimum yield strength of 36,000 psi.) Some ASTM specifications match up with steels in the AISI/SAE classification system but many do not.

For the record, A36 is a hot rolled structural steel suitable for welding. It can have up to 0.29 percent carbon and manganese that ranges from 0.60 to 1.20 percent. Blacksmiths used a great deal of this steel for making things and seem to love to hate it.

## **Real Tool Steels** (Francis would like that.)

Tool Steels have greater than 4 % alloy content.

One of the difficulties we used to have in getting good information about tool steels is that they are made by a small group of specialty steel producers using special metallurgical processes and have generally be made available with proprietary names or grades. In more recent years, better clarification has come through the development of a classification system now widely accepted throughout the industry. You will still find the proprietary names when working with various suppliers and for critical industrial applications, there can be a real difference between suppliers for a given grade. I don't think that this is something that is of any concern to most blacksmithing applications. In addition, two important tool steel types, namely W and O, really don't fit the greater than 4 % alloy definition but are basic to tools blacksmiths find useful.

Unlike the "standard steels" (low carbon and alloy steels) the common classification system for "tool steels" uses a letter and number identifier. The source of the letter can be tied to alloy, quenching media, or common end use. This can be very confusing at times. Table # 2, Tool Steel, on the following page lists the common types.

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## *HABA CALENDAR - Revised*

HABA Meetings	Other Meetings
April 7-9, Blacksmiths Roundup at Oldenburg, TX	
May 20, Mark Finstad Demonstration, Friendswood, TX	
June 17, William Bastas Demonstration, Magnolia, TX	
July 15 - Tentative - Bill and Clint Jones Refractory Workshop, Houston, TX	July 5-8 <u>ABANA Conference</u> in Seattle

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August 15, Tentative - Joint meeting with Houston Metal Arts Guild (HMAG), University of Houston.	
September 16 - Metallurgy discussion and workday at Martyn Farm, Armand Bayou Nature Center, Pasadena, TX	
October 6-8, <b>ForgeFest</b> at Oldenburg	October 28 and 29, HABA Workday at Barrington Farm.
November 18, To be Determined	November - Spanish Tracks and Trails at <u>Goliad State Park</u>
December, Happy Hammer Holidays	
January 20, 2007 - Annual Knifemaking Workshop	

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