

Saltfork Craftsmen Artist-Blacksmith Association

September 2008



A look at the inside of Fort Gibson during
a recent blacksmithing meeting .

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Artist-Blacksmith Association
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The Saltfork Craftsmen Artist-Blacksmith Association, a non-profit organization of amateur and professional artist and craftsmen, publishes this newsletter monthly. Our purposes are the sharing of knowledge, education and to promote a more general appreciation of the fine craftsmanship everywhere. We are a chapter of the Artist-Blacksmith Association of North America.

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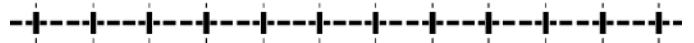
Visit our Saltfork Craftsmen Website:
www.saltforkcraftsmen.org

Trading Post

For Sale:
¾" round bar of 5160 (\$3.30 per foot plus shipping)
¾" and 1" round bar of 52100 (\$6.00 and \$9.45 per foot plus shipping) Contact Ray Kirk, ray@rakerknives.com or 1-918-456-1519

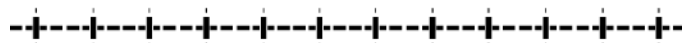


Army surplus round nosed pliers that make good scroll pliers for small items. They are 6" long \$5.00 each plus shipping. I also tie brooms on your handle or mine. \$20.00 plus shipping. Diana Davis 580-549-6824 or lazyassforge@tds.net



Due to health problems, I have decided not to rebuild any more Little Giant hammers. I have for sale: One decent used 100# hammer (\$3,500), one completely rebuilt 50# hammer (\$4,500). One good condition used 50# hammer (3,500). One early style rebuildable 50# hammer (\$1750), and one transition style rebuildable 50# hammer (\$2,250). I have some miscellaneous parts, dies, babbitt mandrels, and etc. for sale. Contact Mike George at 580-327-5235 (home), 580-829-1968 (cell) or Mike-marideth@sbcglobal.net

Wanted:
Advertising Coal Hammers, Contact Mike George at 1-580-327-5235 or o Mike-Marideth@sbcglobal.net



Complete blacksmith line-shaft. Good Running Condition with post drill, pedestal grinder/wire wheel and 40 lb Perfect Power Hammer, Lots of extras, Call for info. 817-329-5299 Jim White

Club Coal

Saltfork Craftsmen has Arkansas coal for sale. The coal is \$95/ton to members and \$145/33non-members.

Bring your own containers. Contact Tom Nelson at 1-580-862-7691 to make arrangements to pick up a load.

DO NOT CALL AFTER 9 P.M. If you make arrangement well in advance, Tom can load your truck or trailer with his skid steer loader. Otherwise you will need to bring a shovel. The coal can be weighed out at the Douglas Coop Elevator scales. The coal is in large chunks; bring something to break up the coal into manageable size pieces.

S/C Region coal location: Coal is in 1-2" size pieces. Bring your own container. The coal is at Max Scrudder's place in Mountain View. Contact Max for load out instructions.

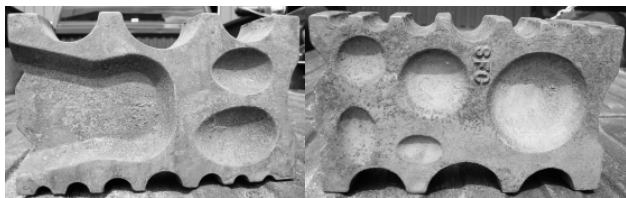
Cost for this coal is .06/pound or \$120.00/ton. NO SALES to non-members.

Max Scrudder can be contacted at (405) 226-9951

NE Region coal location: Dan Cowart also has coal to sell. He can be contacted at dacowart@dishmail.net or CowartPat@gmail.com

Saltfork Craftsmen Swage Blocks \$105.00 each plus shipping. SCABA members can purchase one block for a special members price of \$85.00

Contact Mike George at 1-580-327-5235 or mike-marideth@sbcglobal.net or Bill Kendall at 1-918-742-7836 or wwkendall@aol.com



Mail your ads to the editor or email them to lazyassforge@tds.net

Northwest regional September 27th Open

PUBLIC DEMO'S AND REQUEST

Sept 26-27 18th National Two Cylinder Show and Threshing Show, at Fairview, Ok. This is what they call a working show with games, plowing, baling, threshing, etc. Contact James @ 580-227-4985

Knife show

The annual Knife show held at the Holiday Inn at 2101 S. Meridian will be held on Sept 20, 21st. You can contact Ray Kirk for more information. ray@rakerknives.com

October 18-19 SCABA conference at Perry Ok.

You need to be making your plans for the SCABA Conference in October. **Don't forget that hotel rooms are in short supply.** Book your room early, you can always cancel it (according to hotel regulations) if something comes up and you can't attend.

Also start working on a nice item for the auction and collect items for the Iron-n-hat.

You can also make a tool to be donated to the tool box. Adam is putting final touches on the box and David Seigrist has tickets printed and for sale now.

SCABA TOOL BOX

Raffle tickets are now available for the tool box. If you would like to purchase tickets or get some to sell for the club please contact David Seigrist, tool box chairman. The tickets are \$2.00 each and come in booklets of 5 tickets or \$10.00 each booklet. The drawing for the box will be done during the conference in October. Check out the list of tools and pick out something to make and donate to the box. You can contact David Seigrist at **580-688-3555** if you want to make and donate a tool or if you need tickets for yourself or to sell. This is one of the best tool boxes so far.

Check the list on the following page, there are still a lot of tools that you can choose from to make for the tools box. If you can't make one but know someone else that can, talk them into making the tool for you and then donate it to the box in their name.

MEETING SCHEDULE

September

Southeast regional meeting. Sept. 4 Open

Northeast regional meeting. Sept. 13 will be hosted by Dan Cowart. The trade item is a tool for the tool box. Lunch is provided but bring a side dish.

South/Central regional meeting. Sept 20th.

Will be hosted by Terry Jenkins at the Sulphur Tractor show. Lunch on you own.

NORTHEAST REGIONAL MEETING

Omar Reed hosted the meeting for the NE Region at Fort Gibson Historical site. Omar had us set up our forges under the trees between the fort and some barracks that were built by the WPA when they were rebuilding the fort in the 20's and 30's. The fort was active from 1824-1890. They are still doing some excavating of the grounds and finding some interesting artifacts.

There only two forges at the meeting so everyone that wanted to forge were taking turns using Mike Sweany's mailbox forge.



Omar laid out a good lunch and afterwards he gave us all a tour of the fort.



The fort holds several events during the year to help visitors understand the role that forts played in Oklahoma History. The fort has a garden where they grow heritage vegetables that they use at these events. There are several events taking place at Fort Gibson left this year. I encourage you to attend an event , in not at Fort Gibson then at a historical site in your area.

By James Allcorn

I was asked to present the program at the Paris Founders Lions Club meeting on July 8, 2008. Civic organizations such as Rotary, Lions, Kiwanis, etc. are always looking for good programs and Saltfork members are encouraged to participate when asked. This is a good way to spread current news about blacksmithing, Saltfork in particular, and your business or hobby.

Today's column serves three purposes: 1) To provide information to the membership about one of a number of ways to prepare and present a successful civic program, 2) To give a general outline of some of the items that I chose to include in this particular presentation that might be pertinent to someone else's program preparation, and 3) To give a report of the meeting and bring attention to the fact that blacksmithing is gaining some public notice in this largely undeveloped Saltfork area.

As I was finishing lunch prior to my time at the podium, I was approached by Lion Dr. Bill George DDS, who advised that he cancelled a business trip to Dallas that morning just because he learned that I was to present the program on blacksmithing. He explained that his grandfather had been a full time blacksmith in Paris many years ago. I was surprised to learn this because I have known the good doctor casually for many years but was unaware of his ancestor's trade. It also points out that many members of the general public are keenly interested in our craft and its history by family ties or other association. Other members in attendance included Bill Strather, current member of the Paris City Council, and Lion president Thomas Hunt, City of Paris Municipal Judge.

My format for the meeting was to use a Power Point computer presentation. Since the meeting was held at Paris Junior College, they were kind enough to provide a laptop and projector and I provided a CD with my material. While not every meeting location will have access to a laptop and/or the required projector, there are many churches and industries that have them and may be willing to loan them for such a program. The power point format can also be used effectively by printing the information on transparency material and using an overhead projector. A personal note here: While I am familiar with Power Point and have used it for years to prepare programs, simply thinking through your information and noting important points on a piece of paper is, I think, a basic necessity if you plan to talk for more than a very short time. This program lasted approximately 35-40 minutes.

It is essential to remember that an audience's ability to interpret, understand and retain material presented in a civic club or similar setting increases significantly if visual aids are used. Not only does the audience hear what you are saying, they can read the prominent points on the screen as well as look at any pictures or diagrams you might include. The more technical the subject matter, the more important visual aids and/or audience participation become. And don't forget, the attention span of the audience "narrows" quickly if you run over your allotted time!

I began with a description of Bois D'Arc Forge Blacksmith Shop, our location and brief business history. This was followed with a segment on Saltfork with pictures of Saltfork meetings and members. (Mike George sweating while cranking his forge with Saltfork member Tom Hensel watching brought a chuckle from the audience!)

At this point, I went back in time to the dawn of civilization and quickly took the audience through the evolutionary development of metals, the Copper, Bronze and Iron Ages. These were compared to Biblical timelines with appropriate scriptural references, points that were of particular interest to several in the group. We delved into a short comparison of wrought iron versus steel. Pictures of the wrought iron making process were shown, including a "bloomery" furnace and an "iron bloom" (obtained from the Internet). Comparisons of the various smithing fuels; wood, charcoal, coal, coke and gas were presented and the history of the fuels were summarized, taking note of the impact of the use of each fuel type on world history during specific timeframes, i.e. deforestation, etc.

To close the meeting, projects currently under construction at Bois D'Arc Forge were reviewed with examples of scrolls and leaves passed around. Photos of recently completed projects were also viewed with brief explanations and a virtual "shop tour" showing various blacksmithing tools, forge welding, power hammer work and answering questions from the audience.

In review, the Lions club program was a success with positive advertisement for Saltfork and artist blacksmithing in general. It is hoped that someone can use a bit of the information in this column as a guide in preparing your own civic club presentation.

END

Saltfork Members:

I would like to share a few thoughts with all of you.

First: Our friend and mentor Tom Clark is doing well. I talked to Tom this evening (8-11-08). He has had the last surgery, finished the chemo treatments, and is well along with the radiation program. In talking with Tom, he sounded energetic and ready to be finished with all this medical work and ready to get on with all the projects in his life. He sounded just like the Energizer Tom we all know, and I expect we may see him at our Conference.

Next: I want to encourage as many of you as can to attend the September 13th meeting in Pawhuska. Dan Cowart has put a lot into organizing this meeting and I am sure that it will be one to remember. See your August newsletter for the full story on the Pawhuska Blacksmith's house and the foundry tour. It would be really good to let Dan know ahead of time if you are planning to be there. Your doing that will help greatly in his preparation for the facilities and the meal.

Next: You have all heard my speeches in the past concerning our Annual Conference. Please **register early** so that we can get an accurate meal count. The only reason the Conference Committee even does the meals, is to help you to use your time well at the event. Note that it is not required of you to spend \$\$ for the meals. It is possible to attend the Conference on a shoe string budget. Bring your own food, camp for free at the Fairgrounds, car pool with friends, etc. Come early and help us set up on Friday; stay late on Sunday and help us load out and clean up.

And: Make something for the Tool Box and for the Auction. These are the two major fund raisers for Saltfork. Bring some of your work to put in the Gallery. Many of us only make a few meetings outside of our Region; we'd like to see what you have been making.

Jim Carothers, President (2008)

Living History Day – Fletcher, OK

Gerald Franklin

On Thursday, August 28, I went to Fletcher, OK to help out with their Living History Day sponsored by the Poor Boys Antique Tractor Club. This is the day that school students from the area come in to see the "old stuff".

This year I was set up between two working farriers so we had a line of forges for the kids to see and marvel at. Of course, mine was the only forge making smoke as the farriers were using gassers. There was a great deal of antique equipment set up to look at. There was also a lady there (not necessarily an antique) making soap. She left her fire rake at home so I forged her one out of a piece of rebar that I had in the truck. It wasn't pretty, being rebar, but it worked.

As the school kids cycled by, I forged one or two nails for the group. If they were good about staying off the rope that I had around the forging area, I gave the teacher(s) a nail to take back to the classroom. Those of you who demonstrate regularly know that regardless of what kind of barrier you put up to keep folks away from the forge it is going to be at just the right height for some age group to want to swing on.

We had several groups come through the area from Fletcher, Geronimo, Cement, and Elgin schools. I know there were groups from other towns but I can't remember who they were. Weather was a little warm but it sure could have been worse. It was, after all, late August in SW Oklahoma.

The tractor club took care of us pretty well and fed us a good lunch. As you know, you can work the soul out of a man if you feed him!



12th Annual Saltfork Craftsmen ABA Conference

You should receive a brochure in the mail but here is the basic information.

The conference will be held on October 18-19 at the Noble County Fairgrounds in Perry, Okla. The demonstrators will be Bob Alexander, who specializes in colonial lighting and traditional hardware. He also does flowers. The second demonstrator is Allison Finn.

The cost for the conference is \$55.00 for Sat. and Sun. (per family)

\$35.00 for Sat. only

\$35.00 for Sun. only

\$6.50 for Sat. Lunch (per person)

\$10.00 for Sat. supper (per person)

\$7.25 for Sun. lunch (per person)

Family classes extra

Hotel rooms will be in short supply because of other activities going on around the area. It is suggested that you book a room ASAP.

- American Inn & Suites 580-336-2218
- Sooners Corner Motel & RV Park 580-336-2323
- Dan-D Motel 580-336-4463
- Regency Inn 580-336-2277
- Super 8 Motel 580-336-1600
- Tetik's Country Barn Bed & Breakfast 580-336-4996

* There is ample room at the fair grounds for RV parking, there are no hook ups. (Dry camping only) The arena can be left unlocked for availability of the restrooms.

Conference Schedule

- Friday, October 17th

Set up will start approximately 8:00 a.m. Everyone's help is appreciated. If you can, please come to the fair grounds ready to help unload equipment and get things set up.

- Saturday, October 18th

Registration opens at 8:00 a. m. *Please register early by mail.*

Demonstrations 8-noon

Lunch break noon-1:00 p.m.

Demonstrations 1-5:00 p.m.

Dinner 6:00 p.m.

Drawing for tool box 7:00 p.m.

Auction 7:00 p.m.

- Sunday, October 19th

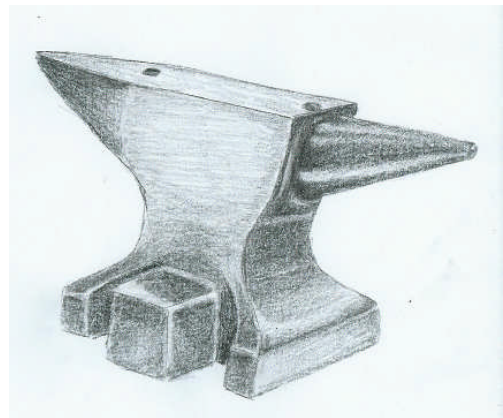
Registration opens 8:00 a.m.

Demonstrations 8:00-noon

Lunch Break noon-1:00 p.m.

Demonstrations 1:10-4:00p.m.

Cleanup and teardown 4:00 p.m.



Don't forget to bring an item for the auction and bring your work to show off in the Gallery.

12th Annual Saltfork Craftsmen Blacksmithing Conference

Registration

October 18 & 19, 2008

PLEASE PRINT CLEARLY

NAME: _____ SPOUSE NAME: _____

ADDRESS: _____

PHONE: _____

E-Mail: _____

Conference Registration Fee (One per family). <i>Membership required for attendance. Charge for non-members is \$10 for membership until March 31, 2008.</i>			
	Number	Cost Each	Total
Saturday & Sunday (per family)		\$55.00	
Saturday only (per family)		\$35.00	
Sunday only (per family)		\$35.00	
Membership until 3-31-08 for Non-Members		\$10.00	
Meals			
Saturday Lunch (per person)		\$6.25	
Saturday Supper (per person)		\$10.00	
Sunday Lunch (per person)		\$7.25	
Family Classes			
Advanced Scrapbooking (Sherill Carothers)		\$10.00	
Decorative Bulletin Board (Diana Davis)		\$5.00	
Build a multi-string necklace (Teresa Gabrish)		\$20.00	
Bookbinding with Hand Made Paper (Diana Davis)		\$10.00	
Total Payment Enclosed			

Only one Registration Fee required per family. (All meals and all material costs for Family Classes must be paid). Saltfork Craftsmen T-shirts will be available at the conference for \$15.00.

Payment Method (Check one): Check Money Order

Make checks payable to **Saltfork Craftsmen ABA**.

Mail this form with full payment to: Teresa Dyer
 1119 S. Birmingham Pl.
 Tulsa, OK 74104

All adults attending the conference must sign this Disclaimer. Parent or legal guardian must sign for minor children.

Disclaimer: I understand that blacksmithing can be a dangerous endeavor. I understand that my safety is my responsibility. I understand the need for eye and ear protection; I will provide and utilize the necessary safety equipment for all activities. The Saltfork Craftsmen ABA, its officers and members are not responsible for my well-being. Registration for the Conference indicates my agreement to these terms.

Signed: _____ Date: _____
 Signed: _____ Date: _____
 Signed: _____ Date: _____

NORTH EAST REGIONAL MEETING DATES

January 12, 2008
Host: Bill Kendall 918-691-2173

February 9, 2008
Host: Gary Gloden Letter opener 918-321-5015

March 8, 2008
Host: Dan Cowart 918-534-0299
Trade item something for the grill
Lunch:

April 12, 2008
Host: Mark Coatney
Phone #: 918-476-6755

May 10, 2008
Host: *State meeting*
Phone #:

June 14, 2008
Host: Charlie McGee
Phone #:918-643-3299
Trade item: hat rack (wall or floor)

July 12, 2008
Host: Dwayne Moss
Phone #:918-260-3267

August 9, 2008
Host: Omar Reed
Phone# (918)478-4088

Sept. 13, 2008
Host: Dan Cowart
Phone #:918-534-0299
Trade item is a tool to be added to the tool box

October 11, 2008
Host:
Phone #:

November 8, 2008
Host: Mike Sweany
Phone #: 918-245-8460
Trade item is something for Christmas

December 13, 2008
Host: Charlie McGee
Phone #: 918-245-7279

NORTH WEST REGIONAL MEETING DATES

January 26, 2008
Host: Ron Lehenbauer :(580)758-1126
Trade item: spoon

February 23, 2008
Host: Ron Lehenbauer (580)758-1126
Trade item: fork

March 22, 2008
Host: Bob Kennemer (tool for cooking on a grill)
Phone #: 580-225-3361

April 26, 2008
Host: Mike George (pair of small Shelf brackets)
Phone #: 580-327-5235

May 2008
Host: State meeting –No regional meetings
Phone #:

June 28, 2008
Host: Charlie Todd
Phone #:580-242-0105

July 26, 2008
Host: Ron Lehenbauer
Phone #: 580-758-1126

August 23, 2008
Host:
Phone #:

Sept. 27, 2008
Host:
Phone #:

October 25, 2008
Host: Gary Seigrist @ Elk City
Phone# 580-225-3007

November 22, 2008
Host: Tom Nelson
Phone #: 580-862-7691

December 27, 2008
Host:
Phone #:

SOUTH CENTRAL REGIONAL MEETING DATES

January 19, 2008
Host: JC Banks
Phone #(580)482-3209
Scroll jig workshop

February 16, 2008
Host: Gerald Franklin
Phone #: 580-467-8667
Scroll ends workshop

March 15, 2008
Host: Byron Donor
Phone #(405)650-7520

April 19, 2008
Host: Terry Jenkins
Phone #(580)485-2394

May 2008
Host: State meeting no regional meetings
Phone #:

June 21, 2008
Host: Larry Morefield
Phone #: 580-529-3081
Trade item: Punch or Chisel

July 19, 2008
Host: Max Scudder
Phone #: 580-654-2229
Trade items is a wall hanging

August 16, 2008
Host: Richard Simpson
Phone #: 405-344-7413

Sept. 20, 2008
Host: Terry Jenkins (Sulphur Tractor Show)
Phone #: 405-485-2394

October 18, 2008
Host: : SCABA Conference Perry, Okla.

November 15, 2008
Host: Bill and Diana Davis
Phone #: 580-549-6824

December 20, 2008
Host: Aniela Hadick
Phone #:405-869-2043
Trade item: some kind of vessel

SOUTH EAST REGIONAL MEETING DATES

January 5, 2008
Host: Bois D'Arc Forge
Phone #:

February 2, 2008
Host:
Phone #:

March 1, 2008
Host: Gerald Franklin Durant Stockyards
Phone #: 580-467-8667

April 5, 2008
Host:
Phone #:

May 2008
Host: State meeting in Norman Ok
Phone #:May 10 ..Info in newsletter

June 7, 2008
Host:
Phone #:

July 5, 2008
Host:
Phone #:

August 2, 2008
Host:
Phone #:

Sept. 6, 2008
Host:
Phone

October 4, 2008
Host:
Phone #:

November 1, 2008
Host:
Phone #:

December 6, 2008
Host: Cindy and James Allcorn
Phone #903-785-2608

SCABA TOOL BOX AND TOOLS for 2008

Tool/Item	Maker/Buyer	Cost/Value
Box	Adam Hall	\$300
Hardware for toolbox	Mike George	
Cross peen hammer		
Straight peen hammer		
Rounding hammer	Bill Davis	
Tongs:		
¼ v-bit		
3/8 v-bit		
½ v-bit		
¾ v-bit		
¼ flat		
3/8 flat		
½ flat		
¾ flat		
Scrolling		
Side grip		
Pick up tongs	Maurice Hamburger	\$45
Fire tools (Shovel, rake, poker)	Mark Carter	\$75
Hot cut hardie		
Cold cut hardie	Tommy Dean	\$25
Twisting wrench		
Treadle/Hand Hammer Tooling	JC Banks	\$200
Set of punches and holder		
Center punch		
Chisel, large		
Chisel, small		
Chisel, hot slit	JC Banks	\$25
Slitting chisel	Mike Sweany	\$15
Hold Down		
Flat wire brush w/handle	Tommy Dean	\$30
File, flat bastard cut w/handle		
File, half round w/handle		
Set of monkey tools	Gerald Franklin	\$30.
Rivet backing tool		
Rivet setting tool		
Hacksaw	Maurice Hamburger	\$100
Bolster plate	Gerald Franklin	\$30.
Square	Maurice Hamburger	\$35
Dividers/Compass	Maurice Hamburger	\$75
Scribe	Bill Kendall	\$30
Bending forks	JC Banks	\$50

Spring swage (necking down)		
Flux spoon	Diana Davis	\$5.00
Metal folding ruler 24" or 72"		
Soapstone	Diana Davis	\$2.00
Ball tool (round blunt nose punch)		
Hook Ruler	Gerald Franklin	\$30
Iron Mountain Flux	Diana Davis	\$22
Finishing Wax	Linda Bliss	\$5.00
Nail Header	Diana Davis	\$20.00
Dual Caliper	David Seigrist	\$35
Total value to date:		\$ 1,277

SOUTH CENTRAL REGION

The meeting for the South/Central region was hosted by Richard Simpson at his home south of Blanchard.



There was a good turn out for the meeting. Gerald started his forge and Richard had a forge going soon afterwards. Jim Carothers had asked Bill to show him how to make a tomahawk from a hoof rasp so as soon as the forge was ready, Bill did the demo and as soon as he was finished Jim talked



David into helping him try his hand at making one. Because they didn't have access to a power hammer, David was striking for Jim.

Richard and his wife had a nice lunch for All of us to enjoy. As soon as lunch was over we had the drawing for the trade Items. The trade items was something to use over a campfire. There were several nice squirrel roasters, a spoon, fork and a campfire set.

David brought the tools for the tool box. It would be nice to have the box to put it in but it isn't finished yet. There are still several tool needed for the box and anyone is welcome to make a tool. Contact David Seigrist (580-688-3555) and let him know what tool you are going to make. The tools are needed no later than Saturday at the conference (if you are attending) or if you can't attend the conference please make arrangements with another member to get the item to the conference.



Decorative Punch Workshop

Gerald Franklin

On August 30th, Saltfork sponsored a Decorative Punch Workshop at my shop near Duncan, OK. There were eight Saltfork members present (See the class “graduation” photo). Folks were good about getting to the shop early enough to unload and set up their equipment so we were ready to go to work at our posted 9AM-start time.

We kicked off with a safety briefing because, even though most of the attendees are used to working around power tools and hot stuff, they aren’t necessarily used to doing it in a shop with several other folks around. After the safety briefing, we took care of a few administrative announcements such as paying for the class, buying toolbox raffle tickets, door prizes (ask Doug Bliss), etc. I might add that the workshop had a \$20 per head fee most of which went into the Saltfork treasury, so the club made a buck or two from the effort. David Seigrist is our workshop coordinator and he can give you a run down on the money end of things.

With the safety and admin items taken care of, we were able to get down to the business of making decorative punches. We answered the question, “What is a decorative punch?” by agreeing that it could be anything. We saw a piece of flat strap decorated with designs made with scraps of 5/8” round and 1/2” square stock as well as designs made using a simple cold chisel and center punch. We saw that, really, the tool doesn’t have to be complicated, or even what we normally call a “tool” since just about anything lying around the shop can be used to make decorations in a forged piece.

We talked about materials commonly used for decorative punches such as mild steel, store bought tool steel, and junkyard steels such as sucker rod, truck spring, etc. Finally we agreed that a commonly overlooked source of useful tool steels is often right under our noses, that being old punches and chisels. Many of us have several of these lying around that we don’t use since they are broken, the wrong size from a set that we bought a while back, found by the side of the road, etc. A very good place to be on the look out for old punches and chisels is at the local flea market. They can often be bought for less than a buck each, brought home and re-worked in the desire shape for decoration.

We discussed steel types and hopefully shed some light on the very common question: “What’s this 5160 (4140, A-36, S-7, etc) business all about anyway?” After a discussion of steel types we went over heat treating and why it varied for different materials and uses of those materials.

By now, everybody was getting tired of hearing me talk and were ready to make some noise of their own. We got to work making a set of three punches: an eye punch from an annealed hay rake tooth (oil quenched), a heart punch from 1/2” round A-36 (quenched in Super-Quench), and a “star-burst” punch made from 3/4” sucker rod that was not heat treated. Folks were also given the opportunity to make an “elective” punch or chisel from sucker rod that would be heat treated if needed. Smiths tested their designs on clay and/or lead blocks as they progressed so that they could better gauge how the finished design would look when applied to hot work. Everybody completed the basic set of three and got an appreciation for Dremel tools and the heat treating process. Several smiths completed an elective piece of their own design using 3/4” sucker rod. I saw hot cuts, curved chisels, and teardrop punches forged, finished and oil quenched. There were probably more electives done, but I missed seeing them.

We had a couple of welcome visitors, Bill and Diana Davis dropped by fresh in from a trip to Alaska. We didn’t get to visit much. About all I could get out of Bill was how much food there was on the cruise ship. They couldn’t stay with us though; they hadn’t been back in Oklahoma very long and had a ton of chores to catch up on (like mowing grass).

We ate well, too. Frankie whipped up a good lunch of chili with cornbread. Dessert was some pretty good peach cobbler and some of her famous chocolate chip cookies. We didn’t really need the cobbler and cookies because Gary Seigrist brought donuts and Richard Simpson brought enough Oreo cookies to feed a rifle platoon. Anyway, as I said, we ate well. Thanks to all who brought eats.



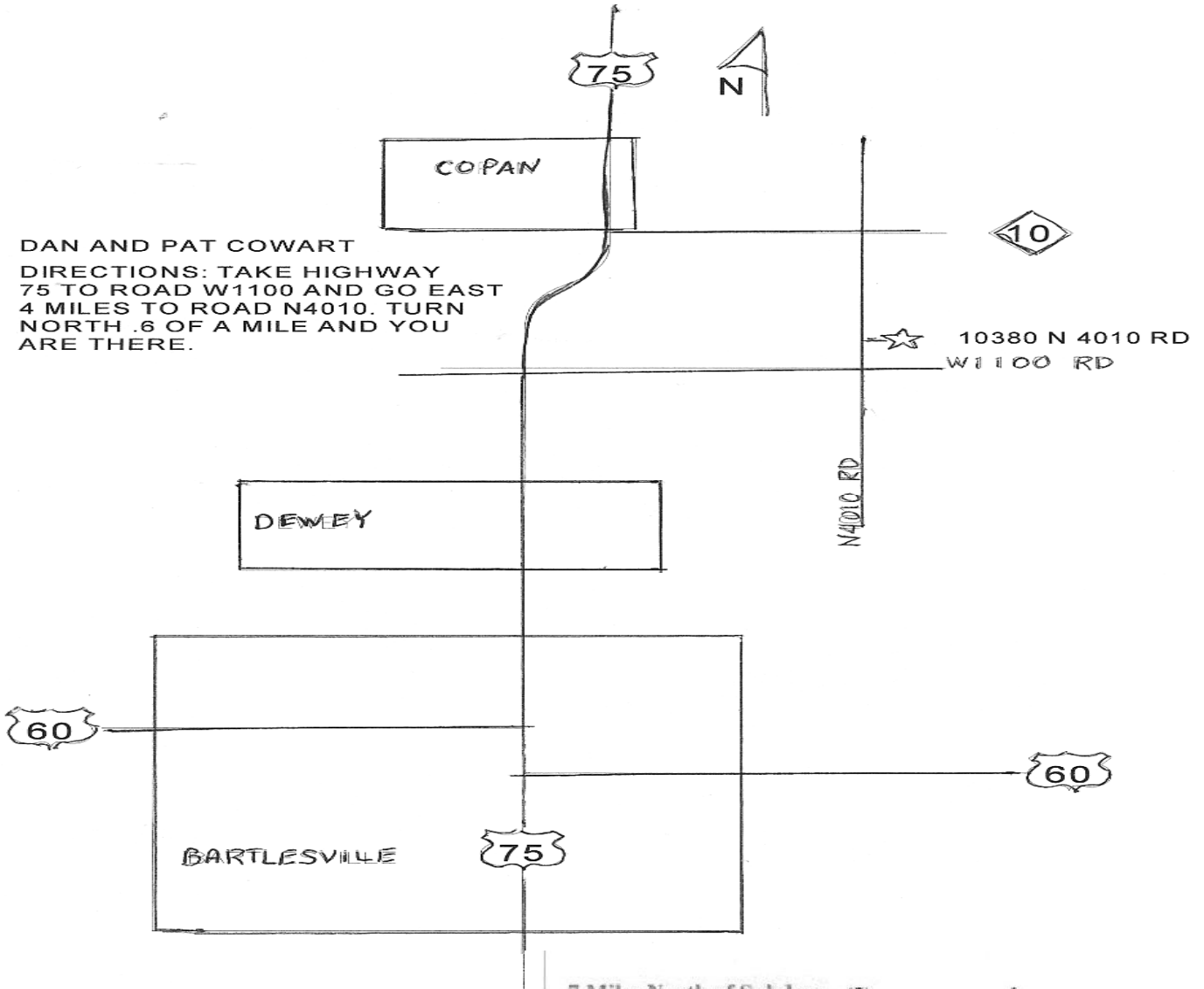


Scenes from decorative punch workshop.



DAN AND PAT COWART

DIRECTIONS: TAKE HIGHWAY 75 TO ROAD W1100 AND GO EAST 4 MILES TO ROAD N4010. TURN NORTH .6 OF A MILE AND YOU ARE THERE.



Here are two maps to help you find your way to either the meeting at Dan Cowart's or the meeting at the Sulphur Tractor show hosted by Terry Jenkins.

7 Miles North of Sulphur on Hwy 177, then 3/4 Mile East on Tractor Road

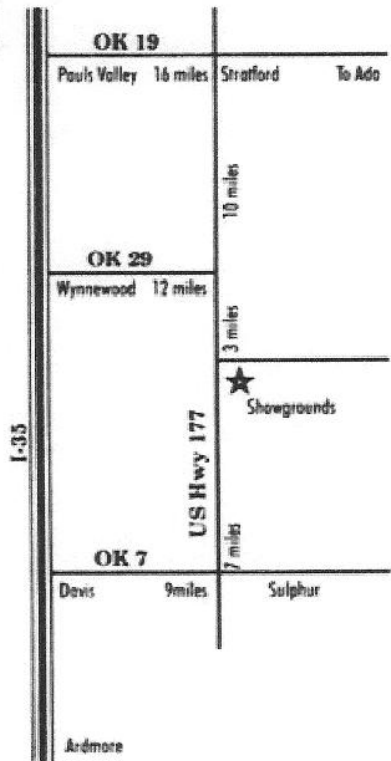
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WHAT IS WROUGHT IRON?

Wrought iron is best described as a two-component metal consisting of high purity iron and iron silicate – a particular type of glass-like slag. The iron and the slag are in physical association, as contrasted to the chemical alloy relationship that generally exists between the constituents of other metals. Wrought iron is the only ferrous metal that contains siliceous slag.

There are essentially two types of wrought iron – that used from the Iron Age to 1800, known as charcoal iron which was made in a charcoal fire and the wrought iron of the industrial revolution called puddled iron which was made from cast iron in an indirect coal fired furnace.

Today the term wrought iron has become debased and can be interpreted to cover most types of metalwork and methods of working. For those involved in conservation work it is therefore necessary to ensure that *both* the material and the working methods are properly specified in order to ensure accurate repairs and like for like quotations. This task is made difficult for specifiers as there is no BS standard available. A specification can be copied and pasted (free of charge) into tender documents from the Internet on www.realwroughtiron.com.

HOW TO IDENTIFY WROUGHT IRON

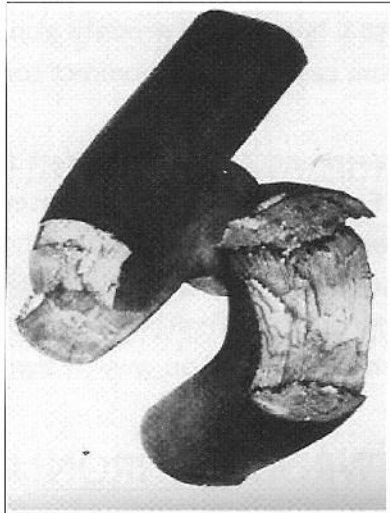
Wrought iron is unlike cast, in that it is not brittle, and seldom breaks. For this reason, wrought ironwork is frequently far more delicate, although years of paint can obscure this. Cast iron is most frequently identified by its repetitive nature, and forms, which could be carved in a wooden pattern, but not made by hammer and anvil.

Telling wrought iron from mild steel is often more difficult for the layman, as both will bend, and not break. Frequently, however, work in mild steel is readily identified by the lower standards of workmanship often used. Look for evidence of electric welding, mild steel is often given away by more active corrosion, which tends to run out of the joints and stain the paintwork, where this is seldom the case with wrought iron.

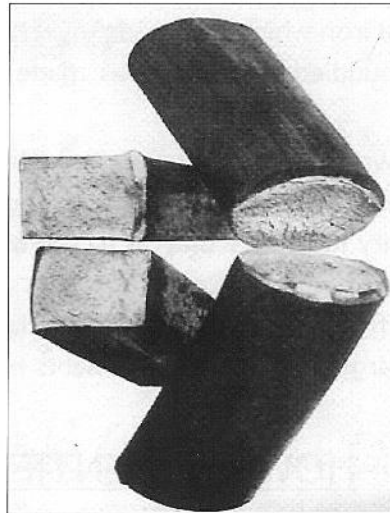
Wrought iron may also be dated, approximately by its texture. Until the very end of the eighteenth century, sections of wrought iron were derived by forging of billets by hand or waterpower; this resulted in a more or less uneven surface texture, and very sharp corners. A foreshortened view of a bar displays well the irregularities of the surface. Rolled bars, on the other hand, produced from the beginning of the nineteenth century, are perfectly smooth, and the corners can display a small radius. Nineteenth century wrought iron is known as puddled iron.

One of the quick tests for iron is a spark test with a grinder –puddled iron gives a dull orange spark whereas mild steel gives off carbon bursters. This test however does not work with pre 1800 iron as it sparks like mild steel – although other indications such as age, sharp corners, knick bend, etc can be used in conjunction with the spark test to differentiate puddled iron from charcoal iron.

A knick–bend test (when possible) is an accurate test, you saw 2/3 rd's through a section and then bend back – this will open up and display the distinctive grain structure.



WROUGHT IRON



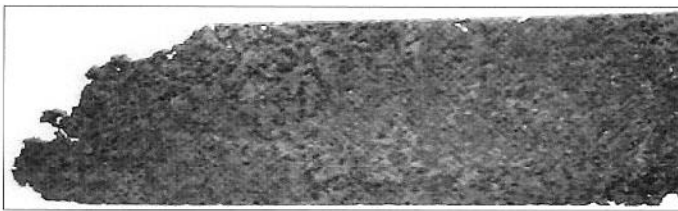
MILD STEEL

WHY WROUGHT IRON

The weathering properties of wrought iron are well known. While it does of course rust in time; with reasonable maintenance this can indeed by a very long time. The fact that so much ornamental work survives from three hundred years this can indeed by a very long time. The fact that so much ornamental work survives from three hundred years ago says a lot for the material. On the other hand, steel is well known for its corrodibility, and the intricate forms and water traps of 'wrought ironwork", only encourage corrosion. Hence it is normal practice to coat steelwork with zinc, which does indeed delay corrosion, but neither galvanising nor zinc spraying can effectively be applied to complex forms. Wrought iron contains up to 5% slag, which of course is what gives wrought iron its fibrous structure. Slag consists of carbides and silicates – essentially glass; approximately 250,000 siliceous fibres appear in each cross–sectional square inch of good quality wrought iron.

Problems with the corrosion of mild steel at the beginning of the twentieth century led Matthew VERITY to investigate the differences between iron and steel. His conclusion was that the carbon in steel is responsible for its corrodibility by setting up cells of electrolysis within the structure of the material surface and a pure iron industry (ARMCO) was set up on this false premise, pure iron subsequently was used in the deep pressing & electrical industry. However, it must follow from this argument, that removing the carbon removes the problem of corrosion. How so then that our very rich heritage of 18th Century ironwork, which in the main is in good condition after some 300 years is composed of wrought iron (charcoal iron), which has a very high carbon content?

VERITY'S analysis of puddled wrought irons (with a low carbon content) overlooked this (as a chemical analysis does not show the impurities and a specific slag analysis test is required to discover them). It is the slag however, which gives wrought iron its properties.



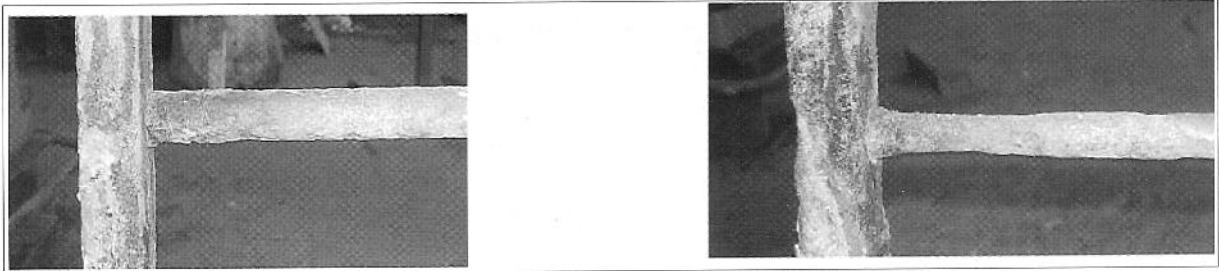
Pure Iron Sheet left exposed to the elements for approximately seven years

The slags present in the structure of wrought iron inhibit corrosion in a number of ways:

1. The slags themselves are non-corrodible and serve as an effective mechanical barrier against the progress of corrosion
- 2 The structure of the iron gives rise to a very rough – microscopically speaking – surface texture, which interlocks with the oxide layer – be it rust or mill scale – preventing it from flaking off the surface, and thus protecting it.
- 3 Wrought iron has the ability to develop a dense uniform and adherent skin or film, the characteristics of this film are influenced primarily by the siliceous fibres embedded in the iron base metal, the beneficial effect of the slag component is accentuated by the presence of compounds in the corroding medium that become occluded in the film and add to its effectiveness in protecting the underlying metal.
4. Electrically speaking, the slags, where they appear on the surface, act as insulators between the areas of reactive iron, retarding electrolytic action.

To go further, the slags have another effect of interest to the smith. When heated to a high temperature the slags melt and cover the surface of the iron in a rather similar manner to a flux. This glassy layer retards oxidation to the extent that the iron can be heated rather more than purer metal. This is the reason why wrought iron is so beautiful to forge weld. But of course in this top temperature range, the metal is so soft as to be almost liquid and moves very quickly under the hammer. This is why wrought iron is regarded as softer to forge than any other iron or steel – pure or otherwise, because the more refined irons can never be heated in air into this ideal temperature range for forging. In fact wrought iron depends for all its virtues on its impurities in the form of slags and can never be matched.

Modern conservation practice insists on the replacement of materials with like materials. (BS791 3: 1 998 7.3.2.4) When wrought iron is available for the repair and replication of wrought ironwork, it is not appropriate to use mild steel or pure iron.



Wrought Iron bottom stile & rail: 1858

*Arc welded insert–mild steel
bottom stile & rail: circ 1950's*

*Photographs showing differential levels of corrosion
in adjoining sections of a gate*

The craft of the ornamental blacksmith, as previously practised to a high degree of skill was virtually eradicated by the shift to mild steel, with its ready application to 'high tech' techniques such as electric welding. As mentioned above, some of the blacksmiths are learning again the old skills. Only by use of the traditional methods and materials can work of an appropriate standard be produced.

This is a picture of a metal finish/metal prep that Jim Carothers has been using on some of his forge work. He thought that you might want to try it yourselves.

It seals the metal and prepares it well for further painting, clear coating, or you can leave the work as is with just the Rust Treatment coating.

This is Permatex item No 81849 Rust Treatment.

I've gotten what I have used from the local O'Reilly Auto parts store.

The label says it contains acetone among other things.

It smells a lot like phosphoric acid to me and leaves the metal with a black finish.

The hook in this photo was power wire brushed and given a light coat of the Rust Treatment.



BLACKSMITHING IN ALASKA



As many of you may know, Bill and I took a few days off to go on a little trip/cruise. I had been to Ketchikan Alaska several years ago and met a Lady Blacksmith set up in tent just outside the Lumberjack demo. I made a point to go back and see if she was still around and sure enough she was still in the same location, same tent forging Ulu knives.

Krystle DeCourcey said that she would like to come down to the lower 48 for a conference. She goes to Europe to do Medieval reenactments so travel distance wasn't the problem. It was getting the time to go.

She spends her winter months forging up enough stock to carry her through the tourist season.

The day we stopped by she was working on a couple Ulu knives that a assistant had left unfinished. As he hadn't showed up for work the past few days she decided that she would see if she could save them. She has a good location, being just outside the Lumber jack show, with hundreds of people coming to see that event daily.

She gets the same kind of lookers that the rest of us do. They OHH and AHH until you tell them the price and then they comment that they can go inside the nearest store and buy a Ulu (from china) for only \$3.00 so why are yours so high??? She says she doesn't even bother any more trying to explain the concept of quality of materials and workmanship.

Drawing Down- Part One

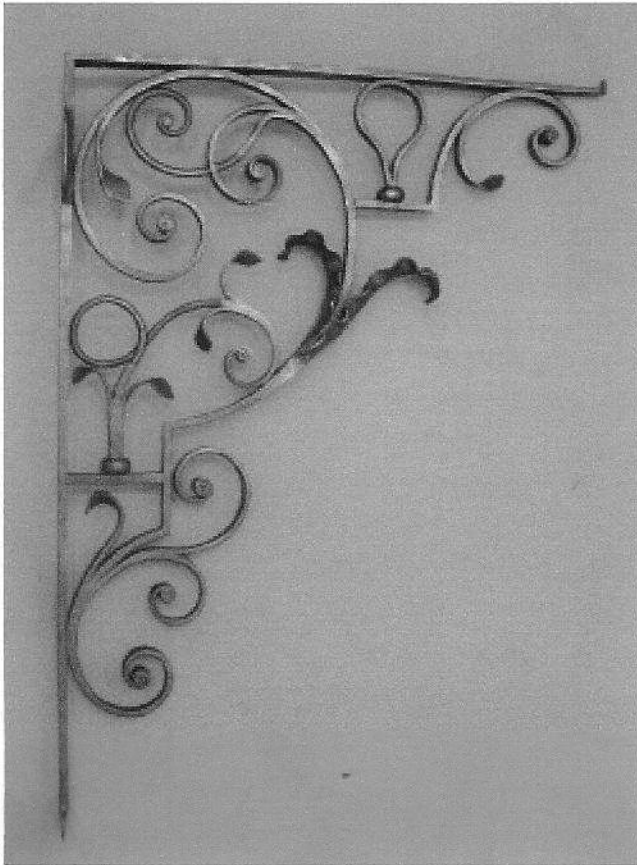


Table bracket by Jay Close. Every bar was resized from larger stock.

by Jay Close

Illustrations by Tom Latané, photos by Jay Close and Jane Gulden

Lesson # 11- Drawing Down- Part One

Definition: Reducing the cross-sectional area of a bar.

Lesson: Resizing a 1/2-inch square bar into a 1/4 by 5/8-inch rectangular bar by hitting the bar "on the flat."

Intent: This lesson is a first practical experience in hand forging.

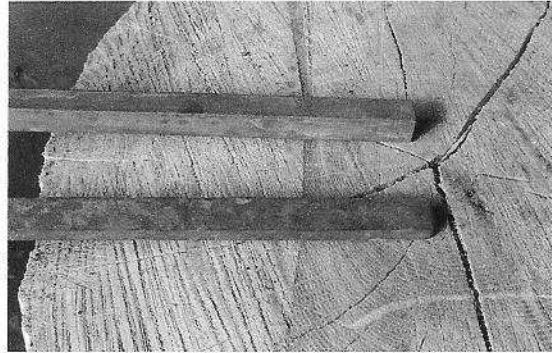
The student's primary mission is to strive for good technique: proper fire maintenance, good heat selection and use, and relaxed and effective hammering.

After familiarity with the process, the student should be comfortable working a bar linearly, from one end to the other, with minimal reheating of finished sections.

The student will also practice correcting twist and crookedness in the bar and gain experience working to given dimensions.

Tools: Basic tools are needed. Include a straight edge and a double caliper. Lacking a double caliper, two outside calipers can be substituted. Set one caliper to 1/4 inch, the other caliper to 5/8 inch.

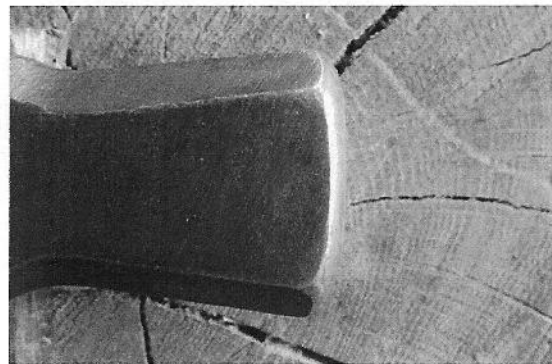
Hint: An easy way to repeatedly set your calipers accurately is to set them to an unworked bar of the target dimension. Collect an array of short bar sections that become your shop's standards for setting caliper dimensions.



1. The starting bar and the resized bar.

Make certain your hammer face is properly ground, without sharp corners.

Prepare two "winding sticks" from 1/4 by 3/4-inch bar as described below. Feeler gauges will be helpful in evaluating the work, as will a dial caliper, if available.



2. Properly ground hammer face

Material: 1/2-inch square mild steel about 24 inches long.

Method: The bar is heated in sections and each section resized by hammering flat on the bar face. Each section is finished before moving to the next. Corrections to the bar are carried out as needed. When half of the bar is resized, it is turned end-for-end and the resizing continued from the middle where the work left off.

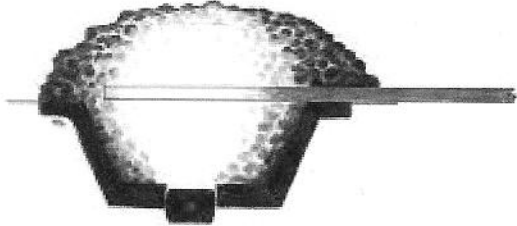
CONTROLLED HAND FORGING

Step One

Review the earlier discussions on hammer selection, the ergonomics of forging, fire maintenance and shop safety.

Place the bar horizontally in the neutral part of the fire.

The tip of the bar will heat more quickly. Place it beyond the fire's hot spot and let the heat of the bar radiate to the end.



3. Bar placed in the fire horizontally, with the tip beyond the hottest part of the fire

To speed heating, keep the fire built up on the sides and keep the bar covered with loose coke. You should still be able to monitor the heat of the bar through this coke layer.

Heat no more of the bar than you can work at any given hammering session, perhaps three or four inches of the bar.

At a yellow or light welding heat, get the bar to the anvil where your hammer is waiting. The bar will never be hotter and never be softer than when you first take it from the fire. **DO NOT WASTE TIME GETTING TO WORK.**

Hint. Set your hammer in the same place on the anvil and in the same orientation, ready for each heat. This minimizes confusion and wasted time.

With the bar held horizontally and flat on the anvil, with the hot part in the middle of the anvil face, hit **FLAT, HARD, and RHYTHMICALLY.**

Hint: Regardless of the length of the heated section of the bar, only work on as much of the bar as you are able to completely resize in one or two heats—probably no more than two or three inches.

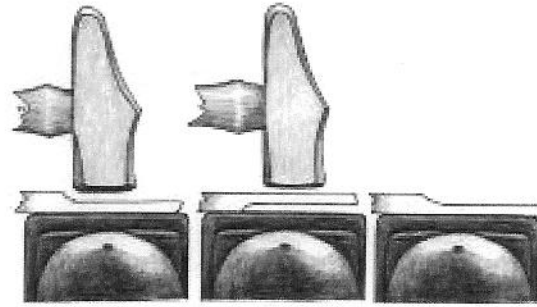
The first blow inevitably creates an offset or step in the bar on one side. Keep the bar horizontal.

Hit **HARD** four or five times on the top, then roll the bar 180 degrees to work the surface that had been against the anvil.

Try to roll between hammer blows with no interruption of the rhythm. Keep the holding hand relaxed to help you quickly and assuredly manipulate the bar.

When you flip the bar 180 degrees, the offset created by your work on the first face keeps the bar from sitting flat on the anvil. This is unavoidable, but your first blows on the new side will push the metal down to contact the anvil.

Hold the bar horizontally. Resist any tendency to raise or lower the holding hand.



4. Step created by drawing part of the bar down. Bar is rotated 180° and kept horizontal as drawing continues.

As the re-forged section lengthens you can sometimes hang the unworked section of the bar off the anvil face and still be working toward the middle of the anvil. This will help you keep the bar horizontal.

Take four or five blows on the new face, then work the edges of the bar. Smooth them and note the effect of your hammer blows. You may need to adjust the strength of the blow because you are hitting a narrower surface. On the other hand, if these edge blows become too light, you risk the development of an I-beam cross-section to the bar. See the discussion in Part Two of this article under "Forging Dynamics," in the next issue.

Work all sides of the bar. Alternate heavy flattening blows on the faces of the bar with blows needed to refine the edges.

Develop a rhythm. For example:

five hard blows on one face.

roll the bar 180 degrees and hit five hard blows on the opposite face.

roll the bar 90 degrees, work the edge.

roll the bar 180 degrees, work the other edge, and repeat.

Hint. The tip of the bar heats fastest and reshapes easiest. There is danger of over-thinning the end. Forge the tip when the bar is slightly cooler and offers more resistance.

If you reach an orange heat and are far from the target dimensions, put the bar back in the fire. Keep it soft.

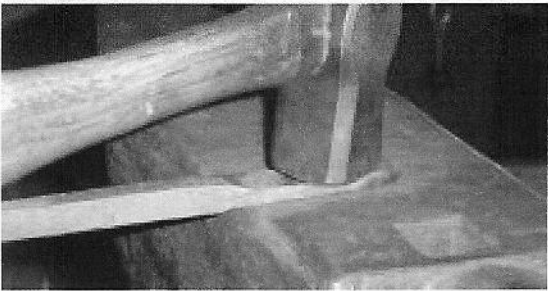
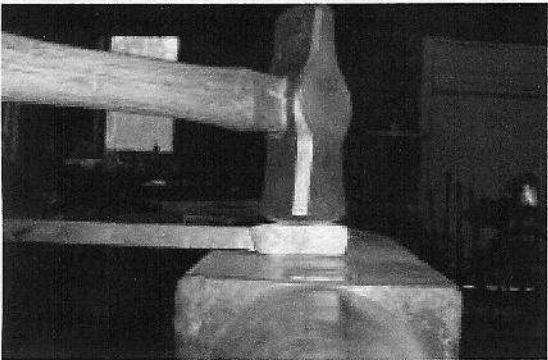
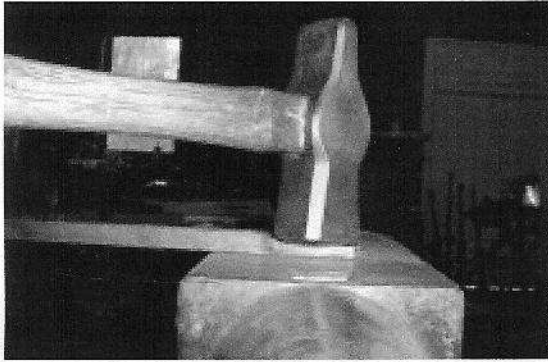
Take a second heat on this section and continue forging.

Note: If you have been unable to complete a section of the bar by the end of the second heat, think about why this is the case. Are you not hitting hard enough? Perhaps you are spreading your efforts over too much bar? Did you start at a yellow heat to maximize softness and available time? Are you wasting time through ineffective hammering or taking too long to get to the anvil?

Intelligent analysis and self-correction are the foundations of progress as a blacksmith.

If you near finished dimensions at an orange heat, make a check with the calipers and continue working to a dull red. The bar is much stiffer now and resists shape change. That is fine for lighter, smoothing blows.

CONTROLLED HAND FORGING



5-7. Working the face of the bar in the middle of the anvil, working the edge of the bar, and working the face with the unforged bar off the anvil.

The calipers should just slip onto the bar and glide over the surfaces without rattle or feeling sprung open. With practice you get a sensitive feel for dimension by use of these simple tools.

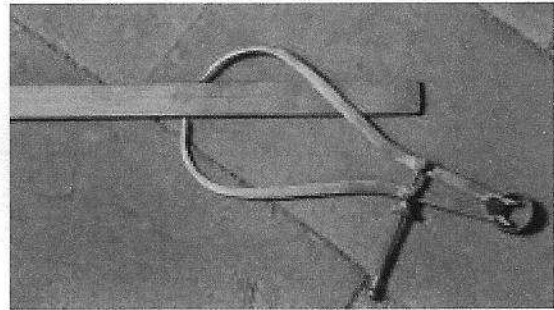
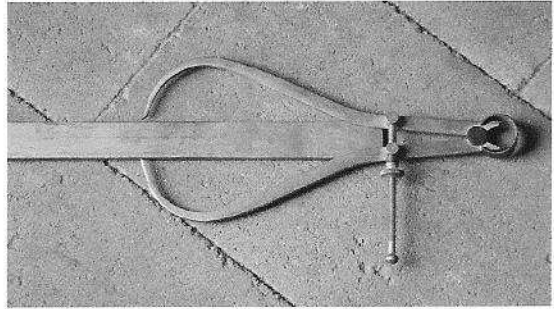
Remember, unless the caliper points are opposite each other on the bar, they will not measure accurately.

As you smooth, pay more attention to the texture your hammer leaves. If you:

- a) Maintain a clean, scale-free anvil face
- b) Do not overheat the bar
- c) Work all sides of the bar, and
- d) Work all sides down to a dull red heat,

You can achieve a clean, hammered surface.

Often it is convenient when forging a long area to keep the hammer hitting in one spot on the anvil and work the bar back and



8-9. Top— proper use of the caliper with points opposite each other. Bottom photo shows a false reading.

forth beneath it. This can be particularly effective when working toward a smoothly hammered surface.

Hint. You may notice that the side of the work held against the anvil (if the anvil surface is clean) often appears smoother than the flat you are hammering. The broad flat of the anvil naturally creates a smoother finish than the hammer. Use this to your advantage, working each flat equally against the anvil as the bar approaches dull red.

Use the available heat wisely. The first part of the heat when the bar is softest is for the major shape change, the latter part of the heat is to refine the shape, smooth the surface, straighten the bar and get it ready to put back in the fire.

If this is your first experience at the anvil, the actual dimensions you achieve are almost irrelevant. You have been focusing on and learning much else. If on your first try you have resized a section to an even rectangular shape with straight sides, this is a significant achievement, but it is only the beginning.

After one or two repetitions of this lesson, set goals for yourself. Check each section as you complete it with the calipers and hold yourself to their target dimensions before considering a section complete. This is mostly a matter of self-discipline.

Final evaluation will wait until after the bar is cold.

If you have completed the first section, you can now heat the next area. Work in a linear fashion, one section complete before moving to the next. This is a key to efficient forging.

In preparation for another hammering session, before the bar goes back in the fire, straighten it as best as you can. Put your hammer in its "ready position," put the bar back in the fire and finally wipe the anvil surface clean of scale.

CONTROLLED HAND FORGING

Step Two

When reheating, push the finished bar section through the fire into a cooler part of the coals. Concentrate the heat on the area you will be working.

With another yellow or light welding heat on the bar, continue forging the next heated section. Remember your rhythm:

hit **HARD** on the bar face four or five times.

roll the bar and hit **HARD** on the opposite face.

forge the edge, dressing it straight.

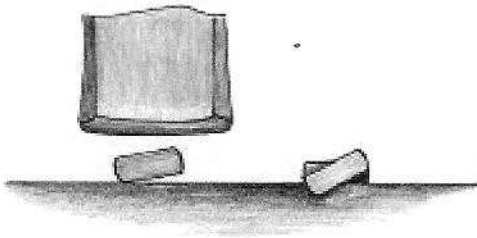
roll the bar and forge the opposite edge, and repeat as needed.

After each session at the anvil, check dimensions. If oversize, keep forging. If undersize the bar can be upset to thicken it, but that is another technique and another lesson. For now, take note of your mistake and resolve to do better on the next section.

Keep the bar straight as you work. It makes manipulating the bar less awkward.

As you feel more comfortable with the reshaping, set some goals as you work. Determine how much of the bar you can complete to final dimensions in one or two heats. Once you can do that consistently, push your limits and see if by hitting harder or faster or using a higher heat you can get more done. Discipline yourself; challenge yourself.

As more of the bar is reshaped, watch for twist.



10. Development of a twist as the result of not keeping entire bar flat to the anvil face.

Note: Twist is the result of not holding the work flat on the anvil. The holding hand (left hand for the right-handed smith) rotates, raising the edge of the bar slightly off the anvil. When this slightly raised edge is struck, the bar twists. If not corrected, multiple, small repetitive errors create a major deviation from flat. Knowing how twist develops allows you to correct it as you forge: compensate with a purposeful cant to the opposite side.

Step Three

When half (or a bit more) of the bar has been resized, the end that you started on will be at a black heat. Further cool that end in the slack tub.

Hint: If you find that the end you hold gets uncomfortably hot as you work, cool it periodically in the slack tub. If this problem is chronic, you are taking too long to reheat the bar, allowing

more time for heat transfer. Remember:

- Heat in the hottest, neutral part of the fire.
- Keep the fire built up around the work.
- Cover the bar with loose pieces of coke; and
- Do not let the fire grow bigger than necessary.

Flip the bar end-for-end so that you are now holding the resized end in your hand. Continue to work down the length of the bar starting where you left off in the middle, reforging section by section until complete.

Targets

Shape targets

The bar must be straight. Without experience it is difficult to judge this by eye. Use the straightedge as an eye-training tool.

Put the bar in the vise with one flat up. Hold the straightedge on the flat of the bar and peer along the contact edge backlit by a strong light source, like a window. In even the best work you will not notice full, light-blocking contact. What you should see is an even pattern of contact from one end of the bar to the next.

Sometimes the straightedge rocks or pivots on a high spot. If a corresponding low spot exists opposite, then you have identified a bend in the bar.

If the straightedge pivots on one flat and at the same relative place on the opposite flat, you have identified a bulge in the bar. This is more of a dimensional issue than a straightness one.

Take note of the width of any gaps between the straightedge and the bar. The eye can see light through an opening as small as a thousandth of an inch. A gap that is more than 4 or 5 thou-



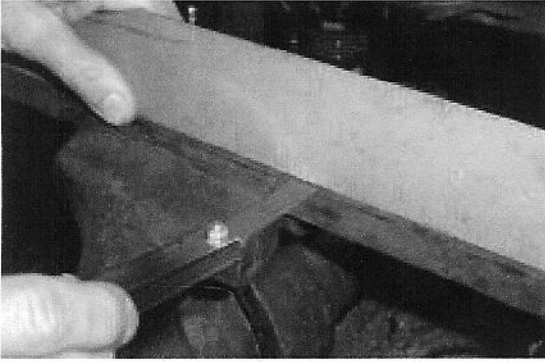
11. Checking with a straightedge—dramatic deviation on left, close approximation on right.



12. Deviation from straight on left because of bend, on right because of narrow portion in the bar.



13. Wide and narrow portions of a bar averaged along its axis.



14. Testing with the feeler gauge.

sandths can appear huge. We want to keep overall dimensional tolerance to plus or minus 1/64 of an inch. Use the feeler gauge to check the gaps. How small a problem can your eye easily see?

If you have such a large gap, check the area with your calipers. Does the gap exist because of a bend in the bar? Or does the gap exist because the bar is too thin at that spot? The bend can be corrected easily. The thin spot will need to be upset. For now it is best to "split the difference," thinking about straightening the bar along an imaginary axis line so the mass is equally distributed around that axis, regardless of "thicks and thins."

Before doing any corrections, sight down the length of the bar and test your eye judgment. Can you see the problems that the straightedge picked up? If not, keep looking, using the straightedge to guide you. Occasionally turn the bar and look from the other end.

Hint Changes in thickness, a twist or an uneven edge of the bar can cause the eye to see a bend where none exists. Addressing these problems is rarely a neat, step-by-step process. You will often work back and forth among bends, twists and dimensional problems.



15. Sighting down the bar to locate bends and help keep it straight.

Do not become wedded to the straightedge and feeler gauges. Use them to train your eye so that you do not rely on them any more, but the straightedge, in particular, will never be completely discarded.

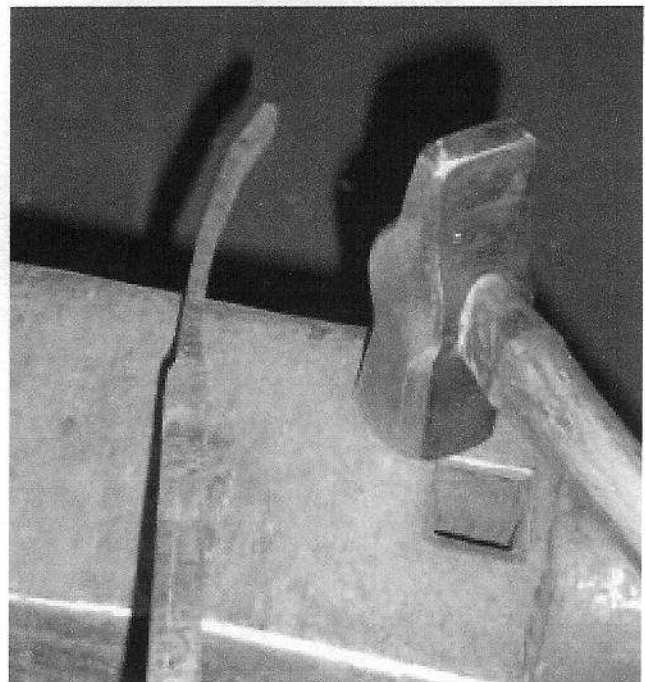
Test all four flats of the reshaped bar. The bar must be free of twist.

Bends and twists are first cousins. Some bends are localized twists and a twist in the bar can easily deceive the eye into "seeing" a bend. Eliminate twist before doing your final corrections for straightness. The goal is to learn to see twist without aids, but until that time make use of a pair of "winding sticks." A couple of straight sections of bars 1/4" by 3/4" and 8 or 10 inches long will suffice.

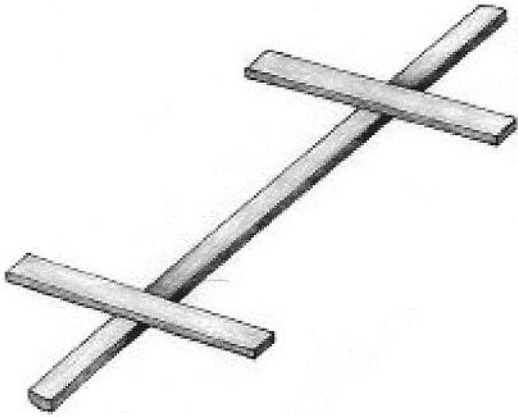
Lock the workpiece in the vise, grabbing it on the edges with the face of the bar above the vise jaws. Balance one winding stick on the upper face at one end of the bar and the other on the other end. Sight over these sticks. Are they parallel to each other? If not, the two areas where they lie on the bar are not in the same plane, i.e., the bar twists. Move the stick at the far end of the bar a couple of inches toward you and sight the sticks again. Continue testing the whole length of the bar. Without the winding sticks can you see these twisted areas? Test yourself— it is the only way to learn.

Dimension targets

In a simple resizing exercise such as this, you should be able to work to plus or minus 1/64" in width and thickness of the bar. In other words, there could be as much as 1/32" of an inch dif-

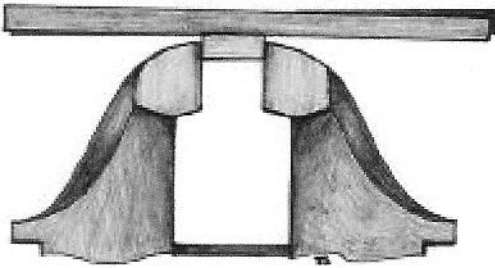


16. Major problems like this are easy to see sighting down the bar, but more subtle ones become evident too. Can you see the 2 sharper bends in this bar?



17. Winding sticks placed on a bar.

ference between the thickest part of your bar and the thinnest. Use the calipers as your standard. Feel how they fit on the bar. Can you rattle the tips back and forth? If so, you are undersize. Perhaps you are evenly undersize. Compare the rattle at different



18. Sighting winding sticks to locate twist.

points along the bar. At the loosest spot, how thick a feeler gauge can you readily slip between the bar and the point of the caliper?

Perhaps you have thick spots. The calipers slip over the bar but you can feel them sprung open. Test along the bar. Get a sense for the amount of spring necessary to use the caliper. This tells you in a relative way how much oversize you are.

If you have a dial caliper, use it to take measurements at several places along the bar. What is the difference between your largest and smallest measurement? Is it greater than 1/32 of an inch?

On a cold bar use your fingers to feel for thick and thin areas. They can be more sensitive than your eyes.

The calipers, feeler gauges, straightedges and winding sticks are training tools. Can you see where the major problems lie without them? Work to identify these problem areas as you forge.

As an experiment, forge the first 3 or 4 inches of the bar carefully to dimension, using the calipers as a reference. Then forge the next section just trying to match the first by eye. Cool the bar and check your dimensions. You will be surprised at how close you can get.

Texture targets

One of the hallmarks of skilled work is the quality of the hammered finish. On your resized bar you want a smooth, even texture. No one hammer blow should jump out as distinct from the rest. Likewise, the surface should be free of loose scale and from evidence of overheating. Comparing your work to the photos will be the best initial guide to evaluating its texture.

Time targets

For your first efforts, time is largely irrelevant. Going through this exercise a few times, you ought to be able to reforge two inches of the original bar to final size in two heats.

This article will continue with Part Two- Straightening- in the next issue of the *Hammer's Blow*.

Saltfork Craftsmen

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April 2008 thru March 2009

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