

Foundations!

A Resource for Beginners.

by Bud Oggier

the Anvil's Ring/ Spring 1989 Part 12

Hi, Jean! Last time you said you were going to make a pair of tongs at home similar to the pair we made here, but a different size. Did you?"

"No I made three. Here they are."

"Say, they look fine. They look like they're 3/8", 1/2" and 5/8"."

"When I made the first pair I thought I might as well get started on a full set. I plan to make them up to 1" by 1/8" steps."

"Great, Jean. The work you're doing now tells me you've learned and can do all the basic forging skills. So it's time you learned a little about decorating.

One of the most common decorations is a twist. Many different effects can be made with one. Let's start out with a plain twist in a 1/2" square bar.

Get the bar hot, bright red, in the area you want to twist. When the piece is ready we'll put it in the vise, put this twisting wrench on it where we want the twist to end, and twist. This twisting wrench was made by welding a piece of 1/2" rod on the end of the fixed jaw of an old monkey wrench to give us another handle. It is adjustable to any size within its range. To make an even twist, the heat must be even throughout the length of the twist. If it isn't, the twist will be faster where it is hotter, and that doesn't look right.

Well, looks like the piece is hot enough, so here we go. Piece in the vise, put on the wrench and twist. I've twisted this one full turn now, so to straighten it, I'll put it in the vise across the corners of the straight sections and tighten up. Now turn it one quarter turn and tighten again. This will not mark or damage the piece because the dimension across the corners of the untwisted part is the same as the outside diameter of

the twisted part. In order to be sure that the untwisted parts are parallel with each other, put a short piece of flat stock on top of each end, and sight across them. If the flat pieces don't line up, tighten or loosen the twist to correct it.

OK, Jean, you try it. That looks pretty even, so straighten it, check it for being parallel, correct it. There, that looks great! I like my twists quite open, about one turn in 3". You might like them tighter or looser, it's up to you.

Jean, you could make this twist with any type of wrench that would fit, but if it has two handles so you can use one hand on each handle, you won't bend or distort it as much. If, while making a twist longer than this you see the twist getting more open as you progress, pour a little water on the section that is twisting too fast, to cool it off, and keep on going. The bar will twist the most where it is hottest.

Jean, these are nice looking twists, but in my opinion they are lacking something. They need a little more to make them look great. I rarely use a plain twist, so to me they look unfinished. Let's make another pair and see if we can't help them a little.

In the area we are going to twist, if we score a line in the middle of each face for the length of the twist, I think you'll be pleased. To do this, first mark the line on each face being sure they all start and finish at the same place on each end. Then score it with a cold chisel, not more than 1/8" deep. The chisel I use has one end of the cutting edge rounded. Now to start the cut, set the unrounded end of the chisel at the end of your marked line and make a cut. Raise the rounded end and slide the chisel forward and hit again. Continue this for the full length of the cut. By sliding the chisel toward you about half its length, the previous cut helps guide it and keeps the line straight.

Jean, my eyes have reached the point where I can no longer really see what is going on a hot piece. This job could all be done hot if you can see well enough. I normally put a rather shallow score in cold, and then recut it hot. The chisel I use hot has a radius on each

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end so that the start and finish of the groove doesn't end abruptly, but runs out gradually.

There, all four sides are scored. Do you think you can see well enough to do this hot? Why not try it! OK, now to heat the piece and recut it. See how I slide the chisel towards me after each cut?

Jean, when we put these grooves in we raised a small ridge along each edge of the cut. If you're fussy, this should be removed; I'm fussy! We can either remove it with a flatter or a file. I'm going to use the flatter. Don't hit too hard, just enough to knock down the bulge. Now to twist it, same method as before. OK, out of the fire, into the vise, twist, straighten, and check for parallel.

Jean, you can see how the twist is progressing better if you brush off the scale a couple of times during the twist; it only takes a stroke or two. This piece has cooled off enough now so we can see it, so let's take a look. There, see how much life the scores add to the twist? I think it is much nicer.

Go ahead with yours. Before you start, Jean, you better put a center punch mark where the groove is supposed to start and finish so you can see it. Fine, your piece is hot, go for it! Don't score too deeply, about 1/8" is good. Great, reheat and twist, straighten, check for parallel, and let's look. That looks good. See how much the twist did for the appearance of the flat bar and how much the score in the center of each side added?

Jean, we could have put two scores on each side about 1/8" in from the edge and gotten another interesting effect. You are only limited by your imagination. Don't be afraid to experiment. No matter what surface treatment you use, the twisting technique is the same.

Let's try a different type of twist. This time let's use this 3/8" spring swage that fits in the hardie and see what happens. This spring swage is just a top and bottom swage hooked together with a flat loop of 1/4"

x 1" stock that keeps them in line and gives me a free hand.

Get the piece hot, slip it between the swages with a corner up. You strike, Jean, not too hard. Good, keep going, easy now, stop. Now to straighten a little. See, we now have what looks like a 3/8" diameter rod in the middle with a fin about 1/8" thick coming out of each side. If you do a good job of keeping the hits even, the edges of the fins will be pretty straight. I always clean them up a little with a file so they look more even. OK, let's heat it up and twist. If you want to use this twist again, use a pair of swages 1/8" smaller than the bar size and you'll come out OK.

If you are working with square stock, remember to put your piece in with a corner up before you start to hit on the swage. It works just as well on round stock, but the fins won't be as wide. OK, let's twist. Out of the fire, twist, straighten, check for parallel. There, look at that. I think it looks fine, and it certainly looks different.

Well, let's try another one and see what happens. This time, first we'll put in a plain twist, just like the first time. Ready, here we go. Heat, twist, straighten, check for level, and done.

Is yours ready yet? OK, now reheat and then forge it back to its original size. Be careful not to go below the original size and keep the sides square. Finish it off with the flatter. Good! Now I'll reheat it and untwist it one quarter turn less than the first time. Heat, twist, straighten, check for level, wire brush and look. See, the piece now has a series of points sticking up. It's called a thorn twist.

Your turn, Jean. Remember, when you forge down, all you want to do is get it back to its original size. Wherever there was a ridge on the twist, it gets forged flat, but the valleys are still there. The sharp edges on the sides become the points when you untwist. Remember, count how much you twist to start, and untwist one-quarter turn less.

Remember how much the score improved the plain

twist we made first? Let's see what a similar score would do for this thorn twist. Score it first, then twist, now to forge it down. Now rescore, untwist and look. Now you have a diamond pattern on all four sides. If we put two lines or scores on each side both times, we would have the same pattern, but there would be twice as many diamonds. In scoring for this diamond twist, it is important to the end result to keep the scores the same depth to get good looking diamonds.

See, Jean, all the variations we've been able to get by slight changes or additions to the plain twist we made first? Some other variations you could try is to weld a bundle of rods together like 1/4" square on each side in the center of a 1/4" x 1" bar and twist; or two 3/8" square and two 3/8" rounds welded together at the ends and twisted. Any combination of bars can be used, the edges scored or depressions put in them. It all depends on what you can dream up and what pleases you.

Well, Jean, I hope this session gave you some hints as to what can be done with twists. Don't be afraid to try something new; experiment!"

Author's note: My original assignment was to prepare a series of articles for someone who had never seen a blacksmith shop and take them through the steps of basic forging. I think I have done this. If I have not given enough detail to any phase, drop me a line and I'll try to cover them. Unless I hear from some of you, this will be the last article in this series. I'll miss Jean!

BUD OGGIER

Bud Oggier Passed away about 4 PM in the afternoon on Oct 25th, 2002. He died peacefully in his sleep at Penobscot Bay Medical Center. Many thanks for his permission to print this series. Heaven gets another fine smith. LB

This article was reprinted courtesy of the author Bud Oggier, The Anvil Ring and ABANA. It was originally published in the Summer Issue of the Anvil Ring 1988, Volume 16 Issue 1. Reprinting of this article must be cleared through the ABANA publishing committee

Scrap Corner

These are more tips from the Blacksmiths Association of Missouri Fine finishes

Black Iron Wax

Melt together:
1 part turpentine
2 parts boiled linseed oil
1/4 part beeswax
—Nol Putnam

Traditional Indoor finish

Melt together:
1 pound can Johnson's Paste Wax
1 cup turpentine
1/4 cup boiled linseed oil
1 tablespoon Japan drier
—Francis Whitaker

Demo Hint

For complex demo pieces, bring along a finished sample to show your audience what you are working towards. Remember that most visitors have an attention span of maybe 5 minutes. Those who are quite interested may stay for 15. You need to get your story across quickly.

—Fay LeCompte, Blacksmiths Guild of the Potomac

Gunter quench

Rob Gunter, the proprietor of the Forgery at Tijeras, New Mexico, has developed an experimental quenching solution to replace a 10 percent Sodium Hydroxide solution. It consists of:

5 gallons water
5 pounds table salt
32 ounces "Dawn" dishwashing liquid
8 ounces Shaklee Basic I

Quench at 1550 degrees F. Use care with any quenching material. Do it outside or with good ventilation to save your lungs.

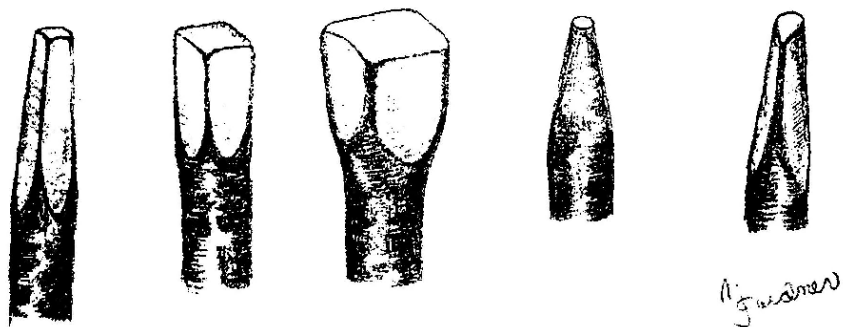
—Indiana Forge Fire

Treadle Hammer Repousse'

Do not put your hand under the treadle hammer! My treadle hammer has a safety chain therefore I do, If your treadle hammer does not have a safety chain do not do as I do!
Practice making straight lines. To do this do not pick up the chisel or fuller but rock and drag it to follow your line. Make a couple of passes to achieve the depth of the line you are making, it will look much neater. The first things I made were leaves. The techniques used for making the leaves are basically the same as for everything else that I do.

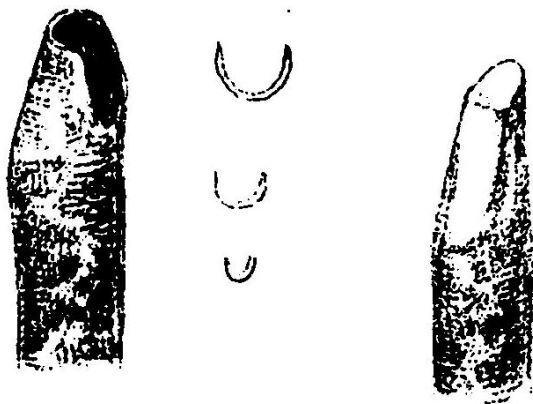
Do not be afraid of failures or to experiment. Steel is cheap---we have a big scrap pile!

To make leaves get your design from a real leaf. To do this I trace the out line of a leaf on a piece of paper and cut it out. Or you can put a real leaf in a copy machine and print it. Then cut out the design that you have printed.



To transfer the design to the metal, lay the paper cut out on the metal and draw around the edges of the pattern. Remove the paper pattern from the metal and cut out with a plasma cutter or chisel out the design. Look at the leaf or your copy of it and draw the veins on the metal leaf. Just draw the main ones or you will have visual over load!

Put a disk of lead on the treadle hammer anvil and use a fuller to hammer in the veins working from the front side of the leaf. Do a couple of passes or you will get a sloppy looking vein. Do the center vein first then the side ones. Do not have the side veins touching the center one just come close.



Turn the leaf over and work from the back using a punch to raise the metal on either side of the veins. You may have to turn the leaf over again and go over the veins again to make them appear deeper.

To give the leaf more depth use a ball pein hammer under the treadle hammer with a lead backing or if working the metal hot use a wood block.

Experiment using a scrolling tongs and other tools you have to bend and twist the leaf to give it life. Look at real leaves in the fall to see how they curl when the

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dry. This really helps with this part of making leaves.

To make other things, such as switch plates, you first draw out your design in a sketch book and then trace it on tracing paper. Then glue the tracing paper to the metal. (rubber cement works well for this)

I then use a chisel and follow the lines that I have drawn on the tracing paper. I also do all of the detail work at this point, for example the lines in the grass. The paper is then removed and you can see all of the chisel lines that you have made. You now use the butcher and go around the outside lines of the design. When you are finished doing this you can see the outline of the design from the back of the metal.

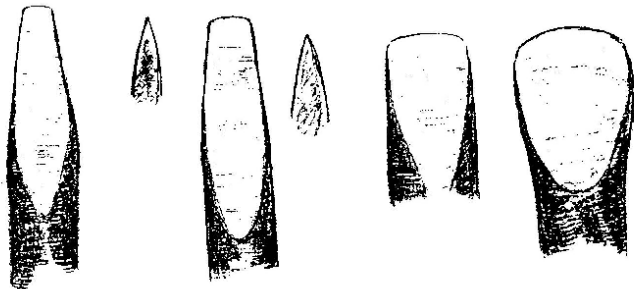
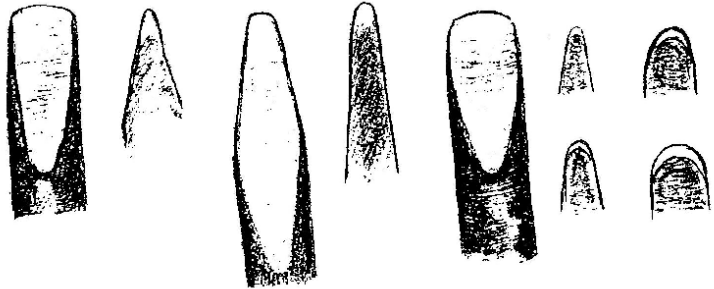
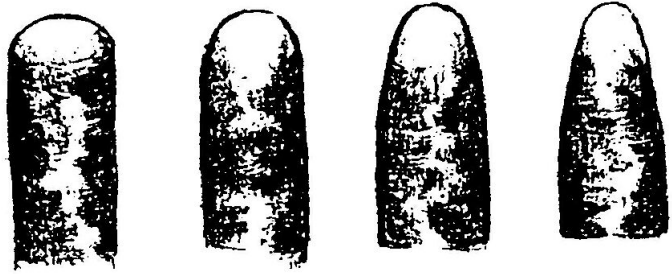
Put a lead disk on the anvil of the treadle hammer and put the metal on which you are working face down on the lead. With a punch or flatter or whatever tool works best for what you are doing push the metal from the back to raise the design. The lead will support the areas that you do not want raised and the areas that you hit the lead will give.

If you wish to raise a section higher than you can with the lead, use a piece of wood on the treadle hammer anvil and work the metal hot.

Now turn the metal over and work it from the front using a butcher and a flatter to push the metal down around the edges of the design. You can do this directly on the anvil or a piece of wood or lead depending on the effect you want. I do this on the anvil because I think that it gives a sharper outline. Use the flatter to blend in the ridge that the butcher creates and to even out any uneven areas.

The coloring on my work is from polishing it with a wire brush to remove the scale. If I only want to remove certain areas I use a Dremel tool, this way I have more control. I then use a torch to get the tempering colors. For the leaves I use a brass brush and a torch. Keep trying different things and different methods for your finishes or to get colors. For a finish I use 60% boiled linseed oil, 40% turpentine, and a little Japan Dryer. After this has dried I paint it with spar varnish, and after that has dried I coat the piece with 3 coats of Johnson's Paste Wax, and buff with a clean soft shoe brush between coats. The maintenance is to periodically wax and buff it.

From The IVBA Newsletter



Repousse' Tooling : The Basics

by Wendel Broussard

From Hammer Notes, the newsletter for the Mid Atlantic Smiths association

Acquiring the correct tooling is important for a proper repousse. This is not a suggestion for "toolamania", but rather a scope of tools needed for getting started on the road to being a repousseur.

You can obtain most shapes and designs with seven basic repousse' hammers. Two of these hammers can be different size ball-peen hammers used for embossing. The remaining five hammers being 2 veining hammers (one for thin and one for thick veins), 2 plannishing hammers and embossing hammer with small radi-uses, are difficult to find on the market and are either adapted from other hammers or made from scratch (a material well suited for this task is jackhammer bits).

The veining hammers should have a straight area in the center of the face equaling half of the face and the shoulder of the face radiused slightly leaving the remaining two quarters. (fig.1)

The progression of the radius allows smooth lines to be made almost as if accomplished with a single blow due to the fact the hammer can be cocked over and only the required radius is to be used. A continuous radius of the face causes dips in the material and an undesirable vein and should be avoided. Jig. 1

The opposite of the veining hammer can have a straight face with slight radiuses on the shoulders to avoid "dinging" the surface of the material. (fig.2) This side is for creating straight veins.

THE FINER THE VEIN THE THICKER THE FACE OF THE HAMMER.

That just sounds backwards I know, but a THIN face creates a line by pushing the material down, abruptly causing a trough. The wider face hammer pushes the material down in a more subtle fashion causing the stake underneath to create the material to a pristine line. The general veining hammer should have a thickness of approximately 3/16". As for the finer veining hammers, they can vary from 3/8" - 1/2" in thickness. (fig.3)

A word to the wise. Keep your hammers relatively light (11-12 oz.). The integrity of the work requires a series of blows,

PROPORTIONS

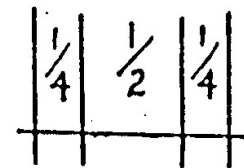


fig. 1

STRAIGHT

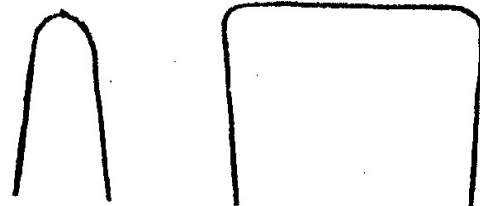


fig. 2

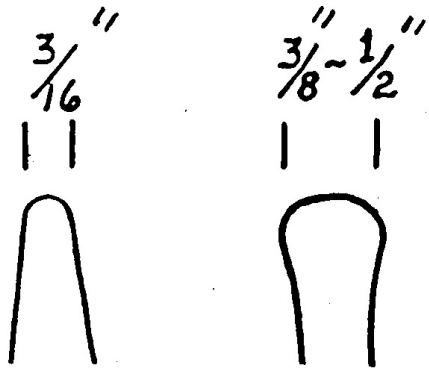


fig. 3

so a heavy hammer can fatigue an arm in short order.

The two plannishing hammers should have a convex face on one side for plannishing inside radiuses of embossing and the edge of the face needs to be radiused a bit to prevent those "dings" that occur on those not so controlled strikes. The opposite side of the plannishing hammer is concaved for the outside radius of the embossing. This concaved face makes good use of the striking surface of the hammer covering more area with each blow. Sounds like splitting hairs, but with the number of blows plannishing takes, you need all the help you can get. (fig. 4)

One plannishing hammer, can have a face approximately 3/4" dia. The other hammer is a smaller 3/8" for those hard to reach places. Embossing hammers can vary in styles.

As I mentioned before a ball peen hammer can be used. These hammers create volume in your repousse' so the sizes of the faces need to progress from smaller face to larger face hammers depending on the design and size of repousse' at hand. The material used for embossing into can be either lead, wood, or a steel form. Steel forms are typically used on hot work. The lead and wood need to have an indentation either hammered in or carved to accommodate the portion of the work to be embossed.

Veining stakes need to reflect the shapes of the veining hammers, radiused and straight, because the same theory is being used but on the underside of the work. In a nut shell you're working with a top and bottom die here. One difference is the stake needs to be sharp, about the sharpness of a butter knife. This allows the edge of the stake to bite into the material, but not cut through, preventing the piece from slipping off the stake and keeping the vein flowing and graceful.

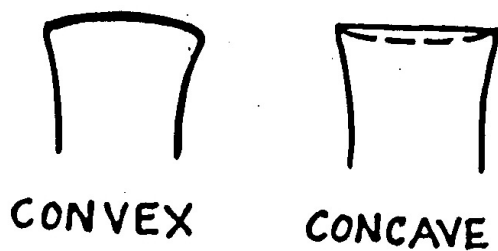


fig. 4

Plannishing stakes need to echo the shape of the embossing. These stakes can be made from any tool steel as long as it does not acquire flat spots during long periods of use. By putting an embossing hammer face up in a vise, "bingo", you have a plannishing stake. Another way to acquire a plannishing stake is to weld different size ball-bearings on a piece of mild steel bar stock and you have a perfectly round surface for plannishing. Be sure to pre-heat the ball-bearing before welding to prevent the weld from crystallizing the hard material of the ball-bearing.

As far as the care and feeding of repousse tools one should always keep the working surface of the tools smooth and semi-polished. A nick in a tool can cause die printing in the surface of the piece.

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USING THE NJBA DEMONSTRATION TRAILER: BLACKSMITH DEMONSTRATION AT DELAWARE VALLEY COLLEGE'S A-DAY AND AT LENAPE DISTRICT BSA SPRING CAMPOREE

By Doug Learn

One of the unique features of NJBA is the demonstration trailer that we have. Put together with the efforts of Marshall, David, Bruce and others, this is a resource that is a great tool for spreading the blacksmithing word to the general public. Doing public demonstrations was part of my blacksmithing experience in Memphis, both at the National Ornamental Metal Museum and various festivals and events throughout the Mid-South area, and I always enjoy working for the public. Late last year I approached Delaware Valley College to see if they were interested in a blacksmithing demonstration at A-Days. A-Day is a fund-raising event for the student organizations at DVC that has been held the last week of April for longer than anyone I talked to can remember (over 60 years). Organized and run completely by the students, this is a celebration of the agricultural heritage of the school, with all the large animal, small animal, agriculture and horticulture clubs taking place. I talked to the faculty advisor and presented a formal proposal in February that was accepted. I then worked with David and the NJBA Board to ensure support from NJBA and addressed all the various bureaucratic steps that are necessary to make such an event possible. I also requested and received support from PABA, who came through with money to purchase coal and other supplies. Brent Reeb, owner of E&S Metal Fabricators in Ivyland, PA donated the steel.

All the work by everyone paid off. On 26 and 27 April several PABA and NJBA members, my sons and I demonstrated at A-Days. We were all busy both days making leaves, nails, fire-place tools, simple hooks, ghost faces, 'art', one small horse-shoe and throughout both days, smiles on the faces of the young and young at heart. My wife Fawn brought many of her fine pieces of work on Sunday to emphasize what the modern artist-blacksmith is capable of, and copies of the Anvils Ring to emphasize this work. Also displayed both days were brochures for NJBA, PABA and ABANA and information on the metalwork merit badge and Boy Scouts. Allman Hall, where we set up, was the former blacksmith shop up to the late 1950's. The former college president Dr. Feldstein, taught blacksmithing during that time and I had a very nice conversation with him regarding this piece of college history. He thanked me for bringing this back to campus.

The next weekend I took the trailer to the Spring Camporee for Lenape District, Buck County Boy Scout Council held at the Moravian Tile Works in Doylestown. This was a much different venue, because I wanted to not only demonstrate but to also allow some scouts to participate in the forging. My older son Japh and I helped about 12 scouts throughout the day get a first-hand taste for blacksmithing. For crowd control I asked the adult leader of each troop to choose 1 scout to participate, allowing me to concentrate on the tasks at hand and keeping me out of the process for choosing who would participate. I had the scouts make a simple fire poker from 3/8 inch stock, forging a square taper at one end and a round taper on the other. The round taper end was then scrolled and a loop handle turned over the horn then centered. The design was simple and not beyond this beginning level, preventing the scouts from being frustrated with the process. This took anywhere from 30 to 45 minutes to accomplish, and some needed more help than others. The scouts had a good time and took home a nice piece to show their troop and families.

My feedback from the student organizers, the faculty advisors, staff and the attendees at Delaware Valley was all very positive and an invitation has been extended to us to participate next year on the last weekend of April. I look at this as the first in a long collaboration with the college that will benefit the blacksmith community and the college. My thanks to Mike Awckland, Wayne Marieler, Jeff Morelli, Brent Reeb, Japh and Calum Learn, and of course Fawn (the most patient woman in the world) for all their help and contributions in time, effort, supplies and equipment. For the Camporee event, I hope that this brief exposure to blacksmithing will make some of the scouts continue their interest in the future. The exposure that blacksmithing got over these two weekends was immeasurable. My thanks to NJBA for the generous loan of the demonstration trailer and equipment and to PABA for the generous financial support for these demonstrations. And I encourage all members to demonstrate for the public. The experience is lots of fun.

Doug was hoping that he might be able to persuade the College to host an ABANA conference, wanting to bring a conference to our area. The Delaware Valley College unfortunately is not interested in hosting the 2008 ABANA Conference, so he is looking for a venue that can handle 1000+ attendees. In all reality we need a school that has at least 3000 enrollment; this ensures a level of facility support for the kind of commitment that we need. Anyone who has ideas for such a location and/or who is interested in planning this conference please contact Doug Learn.

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DVC report by
Doug Learn

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Please make your check out to: "NJBA"

Please mail checks to:

NJBA, P.O. Box 195, Howell, N.J. 07731

Please include payment with the information listed below. You will receive a postcard confirmation of your membership, and will receive a newsletter within a month.

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