FUN AND GAMES AT THE ABANA CONFERENCE
HAMMER’S BLOW

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NOTICES

ABANA Board Meeting
The ABANA Annual Board Meeting will be held November 16-18 in LaCrosse, Wisconsin. As always, member participation is encouraged. If you would like to address the board, contact the ABANA Central Office for information about this year’s agenda, or feel free to come and observe how your organization is governed.

ABANA Board Member Elections
By now the ABANA board member elections have occurred and the winners will be announced soon, if not already. Congratulations go to our five new board members, but more importantly, our thanks go to all thirteen candidates who volun-teered their time and energies to serve our organization. We would encourage those who didn’t make the board to please consider running again.

ON THE COVER: Sergiy Polobutko, demonstrator from the Ukraine, forges traditional scroll endings under the power hammer (WITHOUT safety glasses, by the way… never a good idea, no matter where you’re from. I gave him a pair shortly after I shot this photo — editor).

New ABANA Contacts
The address to send dues, change your address, request material and back issues, etc is
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Farmington, GA 30638
The email address is abana@abana.org
Phone is (706) 310-1030.

To send material to the Hammer’s Blow, the new address is
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For the Anvil’s Ring, the address is
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5821 Helias Dr.
Jefferson City, MO 65101
The phone number is (573) 395-3304 (after 5:30 pm CST)
Email is jimmac@socket.net
Check us out on the internet: http://www.abana.org
FROM THE EDITOR

AS I WRITE THIS, I have just returned from the ABANA 2000 conference. As expected, it was a terrific time, and an outstanding learning opportunity packed into much too short a period. The majority of this issue of the Hammer's Blow was written before the conference, but I'm working on several articles of conference info for the next issue.

At first, I worried about all the things I missed...for every one demo I attended, I had to miss six others, plus there were lectures that I couldn't get to. There's just no way to do it all.

But then I decided to adopt a different philosophy. It's somewhat like being let loose in Fort Knox, with instructions that I can keep all the gold I can carry. Where I used to fret over all that gold I'd left behind, I'd forget about the two gold bricks in my hands.

This conference was no different. There were lots of demonstrations that I really wanted to see, events, lectures, etc. that I just couldn't get to. But the ones I did manage to get to were absolutely fantastic. I'll be writing about them all in the coming year.

Another gold brick that I got to haul away was the opportunity to meet and talk with so much of the ABANA membership. I feel honored to have met so many fine people, some coming from as far away as Germany, Australia, England, and the Ukraine. At the last minute, I got to host the Newsletter Editors meeting, and it was especially nice to talk with the people whose work I've become so familiar with over the years. I've always felt that ABANA's newsletter editors are one of the cornerstones of this group, working many hours to "get the word out" to so many of us.

I don't know the official attendance of the conference, but the number 1075 has been tossed around...not as many folks as Asheville, but a very respectable number nonetheless. The total amount of money raised for ABANA won't be known for some time, since the bills are still coming in, but hopefully that will be a respectable number as well.

I'm also pleased to report that work is well underway for the 2002 conference in Lacrosse, Wisconsin. It is scheduled for June 5-9. The location has been confirmed, tents and equipment have been rented, and things are moving well along. Watch the Anvil's Ring for updates...I can't wait to do it all again!

BG

LETTERS

Oakdale, PA, April 28, 2000

Dear Editor:

I like your new format of the magazine. Your list of topics address all concerns but one and that is safety.

Fire, hot iron, fumes, sparks and a host of machinery can be a dangerous combination; mix that with a one-man shop, deadlines and a family to support and you have plenty of potential for an accident.

I feel an organization would be doing a real service to the members by reminding them of the ever-present hazards.

Be Safe, Enjoy,

Larry Albrecht

Safety Officer, Pittsburg Area Artist-Blacksmith Association.

Larry is absolutely correct. Safety has to be our #1 concern in the shop. The question is how best to present this information.

With this issue, we'll start a new column called "The Safe Shop", where we'll showcase hints and tips for keeping us all healthy. Where there's enough information, I'll do full page stories on the subject, but many cases will be short sidebars scattered throughout the Hammer's Blow. I hope everyone will share their experiences and close calls, so that we can all run safer shops. Thanks, Larry.

Attribution Errata in The Contemporary Blacksmith

Two captions were inadvertently reversed in The Contemporary Blacksmith by Dona Meilach. The top right photo on page 135 is the "Bouquet" (detail) by Dorothy Stiegler. The bottom right photo on page 136 is the "Seed Transportation Unit" by Erica Strecker. Please make a note of this in your book, and in the index reference. My apologies for this mix-up.

Dona Z. Meilach
Medieval Decorative Ironwork in England
Jane Geddes
411 pages, hardbound
Society of Antiquaries, $125
Reviewed by Brian Gilbert

This book is an amazing work. It is, first and foremost, an academic research book that examines the role of decorative ironwork in the medieval English culture. It's the most thorough treatment of this subject that I've ever read, covering church ironwork (most of the earliest examples of decorative iron are found in churches), door decoration, C hinges, the early development of "stamped" work, chest fittings, grilles and gates from the late Middle Ages, Romanesque grilles...there is literally tons of information here. (No swords or weaponry, though.)

It isn't exactly light reading. The book started out as Jane Geddes' PhD thesis, and its purpose is historical research. It isn't aimed at the backyard smith, though that same smith will find lots of value here, especially if historical reproduction ironwork is your thing. This book can make you an expert on the subject. You have to remember, though, that "old" in England isn't the same as "old" in America. Here we think of something as old if it was made in 1850. The examples in this book range from around 1050-1500.

The quality of this book is outstanding. All of the photos are of very high quality B&W, well reproduced and showing lots of detail. (I counted 578 photos and illustrations.) It's hardbound and printed on coated paper.

While I don't think this book is for everybody, if this subject interests you, then you should consider this book. It is quite expensive, but, considering the overall quality and the many, many years of research on the part of the author, worth the expense.

Samuel Yellin, Metalworker
written by Jack Andrews
144 pages, paperbound
Published by Skipjack Press
6 Laport Court, Ocean Pines
Berlin, MD 21811
skipjack@shore.intercom.net
Available through BookMasters, $19.95
(1-800-247-6553)
Reviewed by Brian Gilbert

Jack Andrews and Skipjack Press have done us all a favor by republishing this book in paperback. Samuel Yellin's work remains an important subject of study, not only for blacksmiths, but for artists, architects, interior designers, and anyone who works with or enjoys ironwork. Jack Andrews worked in the Yellin shops at Arch Street and is deeply familiar with his subject, and his expertise shows throughout this book.

Just the photographs of Yellin's amazing work is enough reason to add this book to your library. As usual, the scale of the works is sometimes overwhelming, and would require the labor of fifty smiths to execute. Those pieces are interesting to look at, but I like looking at the details. It's the details shown in these works, even the big ones, that can give you a myriad of ideas to try in your own shop. This alone make this book worthwhile.

But there's more than that. Yellin's business practices are a lesson to us all, especially the way he documented all of his work. In a sense, this practice of Yellin's made books like this and the study of his work possible. He used job cards and took photographs of every piece of ironwork that went out the door. We should all document our work so well.

Yellin's thoughts on design and the artistic nature of forged iron make great reading as well. I keep going back to Yellin's discussion of "Craftsmanship" again and again, each time finding a new and interesting point to consider.

When you add all this with the fact that this reissue costs twenty dollars, you've got a real bargain. This book should be required reading for anyone with an interest in metals.

"I am a staunch advocate of tradition in the matter of design. I think that we should follow the lead of the past masters and seek our inspiration from their wonderful work.... We should go back to them for our ideas in craftsmanship, to their simplicity and truthfulness."

Samuel Yellin, 1926
LITTLE-BITTY GIANT HAMMER

Ellis Burges, TABA Castroville, Texas

Some years ago several chapter newsletters ran an article on making salt spoons from horseshoe nails. Flatten the head to a disc, shape into a bowl, and twist the shank into a handle. Cute, fun, and possibly profitable. The tool the author made to shape the bowl was stously designed and beautifully made, but it struck me as overkill for the job it had to do. There ought to be a simpler way.

I found it — half of a door hinge, welded to a bit of angle to hold it in the vise. The hinge I found at the home center had a plug at the bottom, which made a perfect anvil when turned over — all dished out and ready to go. The pin needed to be rounded a little on the end, and the top inch or so had to be filed down for a sliding fit. That’s it. The sexy curve at the top is just to remove a hazardous sharp corner. A rubber band around the pin keeps it from getting lost. The relief cut by the anvil is helpful. Motive power is a small hammer.

The other half of the hinge, with two loops, is trimmed top and bottom and welded to the apex of another piece of angle to hold a center punch. The open legs of the angle sit square on a flat surface, or straddle a round bar when a punch mark is needed there. Purpose: less Blacksmith’s Blue Thumb Syndrome.

Variations suggest themselves. There are other sizes of hinges; a larger one might hold the stamp for your touch mark. Or a chisel. Maybe a magnetized base to hold it in place while you swat it. Maybe something of the sort to fit the hardy hole. Something to think about.

TWO FROM ROBB GUNTER

Here are two neat ideas from Robb Gunter, from the “I really wish I’d have thought of this” department. The first is for Golden Ratio dividers, which automatically gives the 1.618 ratio that those really old guys (Pythagoras supposedly discovered the golden ratio) thought was most beautiful. It’s so simple that it defies description.

The second idea is from Robb’s Flagstaff demo. (More on this subject to come, I promise!) It’s a simple method of making a spring swage to forge ball shapes in the middle of a bar. Cut a section from a roller bearing race, flatten it with a solid bar that’s the same diameter as the bearing balls. Cut this in two, and weld onto a flat bar handle. Anneal the whole thing, since you’ll be hitting this with a hammer...remember, hardened steel shouldn’t strike hardened steel.
Making a Hofi Slide Bolt

By Brian Gilbert

While attending the SE Regional conference in Madison last year, I happened to be hanging around the barn one night when Uri Hofi gave an unscheduled demonstration. Since our chapter hosted the conference that year, I volunteered to run around, gather materials, etc., but while I was doing this, I managed to surreptitiously trace Hofi's layout for his two-piece slide bolt.

When I interviewed him the next day, I confessed and asked his permission to publish his design in an article. He looked at me quizzically and boomed, "Do with this whatever you want..." in his typical, larger-than-life style.

It's this style that turns some people off, but you've got to admit... his designs are pretty neat — Editor

Uri Hofi's late-night demo at the SE regional conference gave me a chance to finally see this blacksmith that I'd heard so much about. His demo at Asheville was so crowded that I couldn't see a thing, but at Madison, if I were any closer I'd have been striking. (And after watching Amit Har-Lev, Hofi's striker, hit for a while I knew that I wouldn't be able to come close to hitting that hard.)

I watched carefully, but there are many details that I missed. So rather than writing an article on Hofi himself, I decided to try and remake his design of a slide bolt at home. He definitely makes it look easy, but his instructions were clear enough that I came up with a pretty good slide bolt on the first try.

Start with the layout. You'll need a piece of 1/4" x 2" mild steel. I didn't measure the exact length, so I added up the measurements I had and took a guess, and came up with 9". This gives a slide bolt with a two inch travel. Centerpunch and drill the holes, hacksaw and file the tabs as indicated in the drawing.

Next comes the border. Hofi cut a deep border around the edge of the piece hot, but as a precaution, I cut a shallow borderline with a cold chisel and then deepened it hot with a handled hot set. Be sure to use one with a curved cutting edge as it's much easier to follow a line smoothly.

Now you can make the depressions for the mounting screws and stops. Use a small ball-peen hammer as a fuller and sink the seven locations shown.

Be sure to do the chiseled border first, then fuller the mounting depressions. That way, the borders will curve to follow the metal as it is displaced, resulting in some nice, flowing lines.

An important note. Whenever you use a hammer as a top tool, make sure that the head is dead soft. I have a cheap ball-peen that I annealed just for this purpose. If you use a hammer straight off the rack, the hardened steel faces of the hammer and tool could chip or shatter. Two pieces of hardened steel should never be struck together.

I had access to a treadle hammer, but it can be done at the anvil as well...just use a holdfast to keep the backplate in one place, and work quickly. The anvil will suck the heat out of your work.

Now you will need to cut the bands that hold the sliding bolt in place. Accuracy is important here. Hofi told me to be sure to mark and cut the lines to the inside edge of the holes.

Once the bands are cut through, make yourself a tool from 1/2" square. Tom Clark used S-7 at Madison, but I made one out of a short piece of mild steel and it worked fine. Grind one end to a radiused edge 1/2" in diameter. Use this tool to sink the bands from the back of the backplate. This is done over an open vise.

![Diagram of Hofi Slide Bolt](image)

The starting layout — a piece of 1/4" x 2" x 9"

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CONTEMPORARY BLACKSMITHING

Sinking the bands that will hold the bolt

that is set to about one inch. I believe that it’s better to work over a vise that’s opened too wide than not wide enough. I set mine too tight for the first band, and I pinched the metal a bit. It might also work over a correctly-sized hardy hole, but I didn’t try this. You will be moving and stretching quite a bit of metal, so work the rather quite hot. You will also find that as you do this, the sides will suck in a bit as the bands are forced outward. Don’t worry about it...this gives the backplate some nice curves.

All that remains on the backplate is to fuller the grooves on the keeper tabs and bend the top and bottom ones up. The center tab is bent after the slide bolt is in place.

Now make the slide bolt. Hofi said that you can make these any number of different ways, incorporating hasps for padlocks, etc. I made mine slightly different from his, but the principle is basically the same.

Finishing the bolt

Once your 1/2” tool can slide freely through the backplate, draw a nice taper on the other end. Scroll this up until the outside edge of the scroll is about 1 1/2” away from the centerpunched mark. (You may need to adjust this measurement depending on how big your vise is.) Clamp it in the vise and bend it over 90°.

It’s a good idea to wire-brush the piece now, because you won’t be able to get to the back once it’s assembled.

Run the slide bolt through the bands and make one final check for smooth operation. If it’s satisfactory, take one last heat and bend the center tab up, locking the slide bolt into the bands.

Finish with your favorite...I used paste wax on the first one.

There are several variations you could try. Perhaps a different handle shape to accommodate a padlock, or a separate keeper to receive the slide. Have fun!

Starting layout for the bolt

Cut a piece of 1/2” round stock 13” long. Reduce one end down a bit, say to 3/8”. Centerpunch a mark 8” from this end. Use this as a tool to align and stretch the bands on the backplate. Keep working it through the bands until the round stock slides smoothly. This may take a bit of fiddling, since the bands will shrink and tighten as they cool. I had to make some final adjustments cold, and my bolt still binds a little. If you are going to make several of these, it might be a good idea to invest in a short piece of drill rod or other steel that’s a 64th or 32nd oversized to stretch the bands hot. Or you could try a hot-rolled tool followed by a cold-rolled slide.... Or you can just fiddle with it awhile like I did.

The finished slide bolt by BG

SUMMER 2000
A Holly Candleholder

Designed by Gary Scasbrick, written by Brian Gilbert

Here's a simple project that I wrote about a couple of years back in the Appalachian Area Chapter newsletter. Even though it's been around the chapter newsletters for awhile and you may have already seen it, it's such a neat little design that I couldn't resist printing it again. Christmas will be here sooner than you think, and this would make the perfect gift for someone special!

A good friend Gary Scasbrick designed these neat little holly candleholders a few years ago. It's made mostly from sheet steel, cut with curved chisels he forged from jackhammer bits. (For more on curved chisels, see the Spring issue of the *Hammer's Blow*, Vol 8 #2.) Note that the pattern below is reduced a bit. Enlarge it about 20% on a xerox machine for best results.

The candle cup is made from a piece of 3/4" pipe, fullered down. Leave a long stem on the base of the pipe to use as a rivet to hold the piece together, and please don't use galvanized pipe... nasty fumes! The unique double-finger ring is made from a piece of 1/8" x 1/2", split, tapered, and twisted, and riveted to the large leaf. Dish the leaves in a swedge block or over a stump, then heat and brush with a brass brush to give it a golden color.
Creative Iron Design

By Brian Gilbert

I decided to tackle a rather slippery subject this issue...the concept of design can be a tough topic to handle. Similar to defining art, your design process for ironwork will be unique and individual. Still, I can't help but think that many smiths would like to expand their abilities, and that's the reason for this article. If you have any good tips or techniques that work well for you, send them in! — Editor

I would guess that the most artistic approach to design would be to close one's eyes and begin dreaming up something never seen before. Go into the shop, start hammering, and see what happens. This kind of approach may work for some people, but I'm not one of them. I need to plan out my time at the forge. This usually means working to a fairly fixed design. I'll work out most of the details ahead of time through drawings and sketches, and then adjust my design as necessary at the forge. While this method may seem a little rigid to some, I find I can get better results in less time when I work to a predetermined design.

The process of designing new and original works in iron can sometimes be difficult. It can for me, at least. Here's a typical scenario: I need a new design for a client or a competition...well, let's say, for a glass-topped table. (It doesn't have to be a grill, though...it could be a panel for the back of a chair, or a frame for a mirror...these techniques would still work.)

Often I'll sit down, grab a favorite pen or pencil and start to draw. I don't think of it as designing at this point. This is just doodling, playing around...a sort of, "thinking to myself in images rather than words."

I doodle until I've filled up a page or two. Some doodles "work", others don't. I'm looking for pieces and elements I can incorporate into a finished design. I don't spend much time on each one. For example:

A round table with four legs starts off as a circle divided into four quadrants. A three-legged table would have it's frame divided into three sections. Sometimes I'll play around with the divisions.

Now I'll add some scrollwork to go along with the divisions. Sometimes four identical shapes can be rotated around the circle and intertwined, and that's a nice effect. Offset and asymmetrical designs can be neat, too...but they're harder to get balanced.

One of the tricks I learned from Jerry Hoffman's Blacksmith's Journal involves the use of repeating forms that link together using a large element that supports a smaller one. This can result in a form that looks complex, but is remarkably simple...for example:

I usually continue this process until I get a couple of rough layouts that I like. Sometimes, though, this approach yields results that are somewhat predictable...and a little boring. When I'm really stuck, I'll go to the library, check out a book on art, and start flipping through it. I often find forms, shapes, or patterns that are interesting...for example, I found this design in a book called Art Nouveau. Pieces of this pattern might make a nice table design.

Design by Max Elskamp, circa 1900
I don’t consider this kind of use copying, and neither does the Federal Government. I’m using bits and pieces of a design, mixing them up and applying them in a wholly new way, and doing this in an entirely different material. Artists have been doing this for a very long time. Now, I’m not suggesting that it’s OK to duplicate someone else’s design in iron rather than some other material... that’s a debate I’d rather not get into. And supposing I found a design in a book on iron tables... that WOULD be copying, or at the very least wouldn’t be original. Historical reproduction is another story, but that’s not what we’re after in this case. The goal is a new, original design.

Usually by going through this process, I end up with something I can use, or at least an idea of where I want to go with a work. This article isn’t intended to be an exhaustive treatment on the design process, but an individual example of how I like to design things to make. There are other ways to approach designing (see sidebar below) and your way of designing may be radically different. The objective is not to show the “best” method, or how I think design should be done, but to get folks to start thinking “outside the box” so to speak. “Any creative act involves some risk on the part of the creator,” but, with a little practice and effort, can result in some really new and beautiful works.

3. The Artist’s Way, by Julia Cameron and Mark Bryan, GP Putnam’s Sons, copyright 1992

“When do you do when you’re ‘stuck’ for a good design idea?”

Back off, do something else, or put off working on it for a day. You’ll see it in a new way when you get back to it.

Work backwards, removing some of the layers of the design, then start rebuilding it in a new way.

Start over using a new approach, but incorporate some elements of the original idea.

Jerry Hoffman

Here is something I do with my students. Get a piece of paper, and make lines. At first, there are only scribbles, but then...a rabbit or perhaps a candlestick.

I call this the “school of looking.” Most people run around with closed eyes, but designs are everywhere. Sometimes the designs are very small... once I did a piece for a doctor, so I found pictures of cells through an electron microscope, and designed from there. It wasn’t my idea...God made it.

Get out and look... work with open eyes.

Manfred Bredohl

When stuck for a good design idea, my advice is above all, be persistent, keep trying for the “right” idea. Alternatively, give it a break and relax, then try again later. Look to nature, to history, to whatever inspires you. Sometimes that muse is just plain hard to find, keep looking.

And draw. Draw and draw and draw. I use a cheap fax/ copy machine to “freeze” drawings before I change them and tracing paper to make changes, etc. Though its true that the first idea is often the best, it often needs a lot of evolution to make it work at a specific site.

Scott Lankton

When I’m stuck on a design, I stop what I’m doing and go on to something else. Then I come back later, sometimes the same day, or it may be several days. Regardless, I just wait until I feel the urge to finish the design work. Good designs flow, they can’t be forced.

Enrique Vega

When I am stuck for a good design idea, I go to Francis Whitaker’s books, the Schmueller books, Yellin’s stuff and I look at the examples. I always find something that will be fun, different and fill the bill. I never stay stuck long...ever.

Dorothy Stiegler

I often ask my students to consider certain design exercises by requiring them to write down the design criteria before drafting an idea: How must it function and how should it relate to a given piece of architecture or a specific site? Dozens of details, not yet considered, quickly stack up on the paper. Carefully noting all the functional and aesthetic requirements clears the mind of superfluous ornament, allowing room for essential expression. This process results in details that enliven the piece and, due to their necessity, are inexplicably missed when they are not present at all. When this list is drawn up, often an appropriate design unfolds almost miraculously.

Tom Joyce, from an interview by Rob Edwards, Anvil Magazine, October 1999

I start by clearing my desk for action, getting rid of extraneous material, sharpening my pencils, getting my favorite pens all laid out and ready to use. I make myself a nice cup of tea. I play music that inspires me.

I may get out some books and just spend some time looking through them. I doodle, write notes to myself on rolls of architects tracing paper (cheap).

I lay out the pictures that I have taken of the site. With my new digital camera I can tape a blow-up picture to my desk, cover it with tracing paper and doodle designs imposed upon the building, or inside in the kitchen, fireplace, etc.

Finally, I trust my dreams. If I go to sleep thinking about the design problem for several nights, I will surely dream some answers in the early morning. Then after doing step number one above, the rest is a cinch....

Nol Putnam
Dressing A Hammer

By Brian Gilbert

One of the first things that every blacksmith should learn is how to dress tools. It’s almost impossible to do good work without properly dressed tools, especially your hammers. The hammer is one of the most important and basic tools in the shop, and most are not ready to use as soon as they’re bought. New hammers are almost always crudely ground and too sharp, and used hammers are more often abused and/or rusted.

Many blacksmiths have developed their own personal preferences for dressing their tools, and that’s the way it should be…they should be dressed in a way that works best for you. I’m going to explain the way I like my tools. Use this as a starting point and develop your own style.

As an example, I recently dressed a two pound cross-peen hammer...one of the cheap Chinese variety. Not my first choice for tools, but until I make my first million by blacksmithing, they’ll do. It’s a fairly low quality tool, but perfectly serviceable with a little attention. The price is right...around four bucks from Harbor Freight Tools.

If you look carefully at a new hammer, you’ll notice a couple of things. The peen end is often ground sharp and square, and the hammer face is usually flat or slightly crowned, with a sharp 45 degree bevel ground around the edge.

You may have heard me say this before, but in blacksmithing there should be NO SHARP EDGES. Except maybe on your chisels, hardies, punches, and your pocketknife, but that’s about it. Everything else should have some kind of radius ground or sanded into its edge, even if only a slight one. Even a set hammer (which is not really a hammer at all, but a square block of steel punched for a handle used to set shoulders) should have a very small radius ground into the corners.

Check the angles with the handle in before you start

If the hammer you’re planning to dress still has the handle in it, take a moment to look at the working surfaces in relation to the handle. The peen should be perpendicular to the handle, and the face should be parallel. If either of these surfaces are out, it’ll be easier to correctly grind the hammer with the handle in place, but otherwise I like to remove the handle.

OK, back to our Chinese two-pounder. First we need to decide what this tool will be used for. I usually grind hammers one of two ways, either for roughing or for finishing. A roughing hammer is more rounded...its radiused surfaces are designed to penetrate deeply into the steel and move as much metal as possible. It tends to leave a lot of hammer marks, though.

To get rid of the marks left by a roughing hammer, I’ll switch to a smoothing or finishing hammer. All the edges are radiused like a roughing hammer, but the curves on the face and the peen are generally flatter.
Soften the edge of the peen with a secondary grind

As always there are a few exceptions. I have one cross-peen that I use just for veining leaves. It has a peen that’s too sharp for anything else. Another would be a hammer that’s reserved just for striking chisels and other tools. Once you’ve put the time in polishing your hammer faces, you won’t want to mark them up by bashing on a cold chisel.

Since our hammer only weighs two pounds, I’ll dress this as a roughing hammer. I start with the peen end and grind the outline of the profile I want. I’m looking for a gentle curve, with nice rounded corners, perpendicular to the body of the hammer head. It’s easier to grind the head if the handle is removed, but this isn’t absolutely necessary. The handles that come with these hammers are usually low quality and poorly fitted anyway.

Next I’ll make a secondary grind to soften the peen. It helps to see this grind by changing the direction of the scratch marks. I try to make the secondary grind at about 45 degrees to the first grind. After these two grinds are made, I’ll switch to a belt grinder to finish, blending the grinds together until smooth.

This is tough to do if you don’t have a belt grinder. Neither do I, but you can do a passable job with a flap sanding disc on a disc grinder. Compared to a belt grinder, a flap wheel is somewhat stiff and doesn’t blend the grinds as well...it tends to make new bevels. Just take it slow and lightly stroke the piece until everything looks smooth.

Now switch back to the grinding wheel to profile the face of the hammer. Look carefully at the face...most new hammers have a sharp ring near the edge, where the hammer was ground at the factory. That edge has to go. I grind the profile first on axis with the eye, then perpendicular to the eye, and then at 45 degrees. The profile curve of the hammer’s face needs to be carefully ground...it should have the same curve all around, as even as possible. After the profile looks good from all these angles, I switch to the flap wheel and blend them together.

The sanded peen before polishing

Grinding the face profile

Now take one last look at the head, and examine it closely for any sharp edges or facets left over from the grinding and flap sanding. Hopefully there won’t be any, but if there are blend them in. A roughing hammer is useable at this point, but I like to take the extra step of polishing the head. It doesn’t take long. I use a sewn cotton buffing wheel mounted to a 6" 1750 rpm grinder. Charge the wheel with a little bit of grey or red rouge buffing compound. I’ve found compound available in three colors, grey, red, or white. The coarsest is the grey and cuts fairly fast, the red is finer and removes the scratches from the grey, and white compound is finest of all. It works slowly and leaves a bright mirror finish. You should use a separate buffing wheel for each color. I usually buff a hammer head with a red or grey to shine it up and leave it at that.

There’s a good bit more to buffing than I’ve described....I’ve got an entire book on the subject...but I don’t get too crazy when buffing hammers. Just a little polishing is all you need.

Now turn your attention to the handle. They always come varnished...I imagine that this is to keep them from warping. The varnish makes the handles slippery when using gloves, and kind of sticky when I'm using bare, sweaty hands. I don't usually get
blisters from varnished handles, but it seems to irritate and red-
den my palms. I have small hands, so almost all the handles I
find are too fat. I also forge with gloves, which makes the han-
dles seem fatter still. So for all these reasons, I take the time to
dress the handles of my hammers.

The shape of your handles is a matter of personal preference.
Some like handles that keep the factory oval shape. Jerry Darnell
likes handles that are short, and cuts off his ends. Uri Hoffer's
hammer handles have two flats parallel to the head. This is to
prevent the hammer from rotating in your hand, and to give you
a tactile clue about the orientation of your hammer head.
Donald Streeter suggested placing the thumb on top of the ham-
mer handle for straight blows, and some folks like to put a single
flat along the top of the handle for this reason.

So there are lots of variations in handle dressing for you to
choose from. It's like the old joke...ask five blacksmiths the best
way to dress hammer handles, and you'll come up with six differ-
ent answers. Try them all, and go with what you like best.

My personal favorite is octagonal handles, cut thin for flexibility
and to compensate for the gloves, finished with linseed oil. Robb
Gunter says that hammer handles should fill your hand...if your
fingers touch when holding the hammer, the handle is too small.
Linseed oil leaves a nice, satiny finish that grips reasonably well
under gloves or bare skin, and it wears well under use.

I start off by scraping the handle. I use an old knife, but a real
scraper blade would work better. You'll be tempted to sand the
varnish off with your flap wheel, but don't give in to temptation!
The varnish will melt and hopelessly clog your flap wheel. Scrape
the varnish off of eight sides, then hand-sand the rest until the
handle is about the shape that you want. If the handle is really
thick, or you want to do some drastic thinning, you can use a
spokeshave to shave things down a bit. The spokeshave will leave
an irregular surface, but you can sand this out.

Finish the handle with a couple of coats of linseed oil. Thin the
first coat a bit with thinner, to help the oil penetrate deeply, then
finish off with a full-strength coat. You'll need to give the handle
a coat every six months or so, especially if you don't use the ham-
ner much.

Take care when fitting the handle to the head...a loose hammer
head is dangerous. I like to replace the handles with new ones,
especially if the tool will see a lot of use. A new handle is only a
couple bucks, so treat yourself. Fit the handle by coating the
inside bottom of the eye with ink, then set the hammer down on
the handle. Remove it, and carve away the marks left by the ink.
Repeat this until the handle goes deeply into the head, and sticks
out about a half inch on the top. Leave room for the wedge...if
the head compresses and closes the wedge slot, then you won't
get a good fit. When you set the head for the final fit, make sure
you can't see the cut for the wedge at the bottom of the hammer
head...this area should be solid wood.

Drive the wood wedge in first, then follow up with one or two

steel wedges across the wood. Some folks like to cap the whole
thing off with epoxy to seal the handle, but I've never tried it.

If your head does become loose, an old trick is to soak your han-
dle in water. The water swells the wood, tightening the head. It
works, but the drawback is that once you do this, you need to
keep the hammer in water. If it dries out, the head will be looser
than before. I've heard that soaking in antifreeze swells the han-
dle without drying out the wood, but I haven't tried it.
Antifreeze does work as a wood preservative, though.

That's one way to dress a cross-peen hammer. A straight-peen or
ball-peen is dressed pretty much the same way. Even if you use
different techniques than these, take the time to dress your ham-
mers. Your forging will be cleaner and easier with dressed tools,
and folks won't think you a beginner if your toolbox is full of
nicely polished, rounded hammer heads.

There is another option to dressing up cheap, used hammers,
and that is to make your own from scratch. Jeffery Funk and
Robb Gunter both demonstrated this at Flagstaff...look for an
article on this subject in the next issue!

The Safe Shop...

Baby Ears

This comes to us from Bill Fiorini and Kirsten Stiles, proud
parents of a soon-to-be striker. Very little ones in the shop
need special precautions to keep them safe.

"I checked with our family doctor on baby ear protection.
She gave me 2 good options.

1. An ear wax that fits into the outer ear (not the ear canal),
available at pharmacies.

2. Child ear muffs available from the audiology department
at our clinic for $16. They are supposed to be adjustable to
infants.

John Medvedeff's tip for eye safety is to use swim goggles on
kids. He says they form a tight seal and are difficult for a
young child to pull off."
Slot Jaw Tongs

By Doug Fritz, Adobe Blacksmith Shop

Here are some photos of a set of tongs I found years ago. They are easily the most useful tongs I own. The original is factory made, with a slot 1/2" wide. These tongs hold rounds, squares, and flats (shown is 3/8" x 11/2"). A strong man cannot pull a bar out of the jaws when you are holding the handles lightly. By feeding a flat through the slot, as shown in one of the pictures, you can exert enormous grip pressure. Square bars are held with the corners in the slots.

FINALLY, A USE FOR FLAT JAW TONGS!

I decided to make another set to handle smaller bar stock by modifying an old pair of flat jaw tongs, the kind everyone winds up acquiring, but really never finds a use for. One set I modified has jaws that are approximately 3/4" x 2 3/4" and are about 5/16" thick.

I cut out a slot in each jaw, about 5/16" wide. The slot can be cut out with a hack saw, band saw, or torch (grind the corners smooth). I welded a 3/8" round bar 3/4" long across the opening. This size of opening handles 3/8" rounds and squares, and 1/4" and less flats. The original tongs handle 1/2" to 3/4" rounds and squares, and 3/8" to 1/2" flats.

You can widen the slot to accommodate thicker steel, and roll the ends back to accommodate wider stock.

The Safe Shop…

Tongs Under the Power Hammer

A pair of tongs like the ones shown above would be a good choice for power hammer work, where it’s especially important to keep a very firm grip on your work. Use two pairs if necessary, make sure they fit well, and always hold the reins to your side. A power hammer, especially a large one, can very easily kick your work straight back at you with considerable force. If the reins are pointing straight at your belly, things could get a little gory. So get into the habit of resting your back hand on your hip when holding tongs or long work, and stay out of harm’s way!
Anvil Stands

Text and Photos By Phil Rosche
I would like to provide a couple of alternatives to the typical anvil stump in use in many of your shops. The two anvil stumps I will describe here are a laminated one, and an anvil box.

Laminated Anvil Stump
A number of years ago, the anvil stump I was using on a dirt floor rotted out and I was in the need of another one. My first thought was to go somewhere and find a log of suitable dimensions and cut it as carefully as possible with my chainsaw. The problem with this was twofold: first, it’s hard to cut the ends exactly parallel even with the best of chains; second, the new stump would rot out in a few years and need to be replaced again. I also considered making an anvil stand out of angle iron, but the problems with these are that they are noisy, and they tend to walk unless you bolt them down. My father came up with the idea of an “artificial” anvil stump, made out of pressure-treated lumber. This was a great idea because it wouldn’t rot, and we could use the radial arm saw to cut the lumber, and the ends would come out being about as parallel as possible.

We decided on the height of the anvil and estimated how much lumber we needed. The "stump" was made by alternating 2" x 6"s and 2" x 12"s for each layer. The layers are held together with 6 pieces of 3/8" all-thread rod. To drill the holes in the boards, we clamped pieces of angle iron to the drill press table to act as “stops”. This ensured that all the holes were in the same position in each board. Only two set-ups are required for drilling the holes; one for the holes at the four corners, and one for the pieces of all-thread in the middle. To assemble the stump, the best way is to estimate the length of the all-thread with nuts and washers, cut it to length, put a nut and washer on one end of all the pieces, put them through one 2" x 6" and one 2" x 12". Lay these down on the floor, side by side, with the all-thread sticking up in the air, and then start alternating the boards. When you get to the last set of boards, put on a washer and a nut. Set the stump up in the working position and “snug” up all the nuts, and then go back and tighten them fully.

To hold the anvil down to the stump you can use any of the traditional methods, chain, spikes, etc. I took two pieces of angle iron that were about 3” longer than the anvil base (1” on each end). I cut a notch in each end by cutting off one leg. I then heated the ends of the angle iron and bent it 90 degrees away from the other leg. I then drilled three holes in each, set the anvil on stump, and bolted it down using the angle iron.

Anvil Box
The “anvil box” lends itself to being moved around. I built mine primarily for "offsite" demonstrations, but I use it in the shop as well. The anvil box is also made out of pressure treated lumber. I used 2" x 12"s for both the front and back and the sides. For the dimensions of the anvil box, the top is the dimensions of the base of the anvil you will primarily use it for. For the bottom, I made the front and back pieces 22" wide. For the front and back, I edge glued two pieces of 2" x 12" together. Make sure and use a glue that is made for pressure-treated lumber and exterior applications. To make the edges as flat as possible for gluing, I took a little bit of one edge off each board using the tablesaw. If you have access to a planer, it would do a better job.
To mount the anvil on the anvil box, I use semi-circular pieces of 2" x 4" or 2" x 6". Set the anvil down on the board so that the feet are flush with the edge of the board, and mark the arc between the feet onto the board. Do this for both the front and back of the anvil. Don't assume that they will be the same, so mark these pieces. Cut them out, and sand them. Screw one of the pieces to the anvil box. Set the anvil down on the box. Put the other semi-circular piece in place, and screw it down.

Anvil Height

In many blacksmithing books, and in talking to older blacksmiths, the rule for anvil height was when you were standing next to the anvil with your arm hanging down, your knuckles should just touch the top of the anvil. I had all my anvils at this height for probably 18 years. I started to hear blacksmiths talk about raising the anvil height up a couple of inches, but I didn't pay much attention to it. I had been using a 165-pound anvil as my main shop anvil until I got a 300-pound Peter Wright. I put the Peter Wright on top of the same stump that my other anvil was on, thinking that I would have to cut the stump down at some point in the future. Well, I started to use the anvil at this height, and you know what? I liked it! It wasn't nearly as hard on my back as bending over a little farther. If most of your work you do by yourself with a hand hammer, I would recommend working at this height. If most of your work is done with a striker with a sledgehammer, lower might be better.

An anvil box

After gluing, I clamped the boards together using pipe clamps. If you are laying the glued boards on a table, it's a good idea to put down a couple of layers of waxed paper so you don't glue the boards to the table. You can sand the waxed paper off the boards after the glue dries. After the boards are glued up, mark the lines for the angle cuts on the front and back pieces and the sides and carefully cut them straight.

Now, for the hard part. To determine the angle for the top and the bottom of the boards, a little trigonometry comes into play. The equation for figuring out the angle for the example at left is:

\[ \tan^{-1} \left( \frac{22.5}{1} \right) \]

So, to find out the inverse tangent of 22.5, either look in your 1932 edition of Machinery's Handbook, use your scientific calculator, or use the calculator on your personal computer. When I looked this up, the answer was 87.5°, so set your saw blade to either 87.5° or 2.5° degrees, depending on whether your saw starts at 90° or 0° degrees. This may not seem like much, but it is enough to make the anvil box sit flat on the ground. If you didn't want to go through the trigonometry, you could probably assemble the anvil box, set your circular saw on it, and eye-ball the angles.

To assemble the anvil box, glue the edges of both the side pieces and loosely clamp the front and back to it with pipe clamps. Set it on the floor to make sure it sits flat and tap the pieces to adjust it accordingly. Tighten up the clamps, drill pilot holes, and screw together with either galvanized or stainless steel deck screws, 3" long.
A Heading Plate

By Brian Gilbert

A heading plate in its simplest form is a block of steel with a hole drilled through it. That's exactly what we have laying around the shop...a square block of mild steel with about five different sized holes through it. It works well enough, but it's hard to store and use, and it always seems that the holes are just a touch off what's needed.

I noticed this design in Otto Schmieder's book, Work Methods and Tools of the Artist Blacksmith, which is one of my favorites. There's a photo of several of these hanging on the wall. I pretty much guessed at the construction details...there may be an easier way to make these things, but this method worked for me.

The most obvious use for a heading plate would be to put a head on the end of a piece of round stock, making a rivet or nail head in any size you want. With a little ingenuity, you can use this tool as a rivet shears as well, or it could work as a monkey tool in a pinch.

I started with a spring clip from a railroad rail...I'm not sure what the proper name is for these things, but they clamp under railroad rails to keep them in place. They're often lying in piles along railroad tracks. A spark test showed a fair amount of carbon, and I'd guess that these things are made from 5160 or 1085 spring steel.

The first thing to do is straighten that puppy out, and you'll need to get it pretty hot. I remember trying to do this with an undersized fire at home. The hammer bounced right off with little noticeable effect. If you use a big fire and work it yellow, this steel works rather easily though.

You'll find you have to do a bit of clean up work once the clip is straight. The severe bends in these clips deform the steel, leaving an irregular surface with several changes in thickness. Draw the steel down to a uniform size, and be careful not to fold over the surface, which would leave a hot shut. It doesn't need to be perfect at this point, just close.

One clip will give you enough steel for two plates. Take a bite on each end with a spring fuller; about two inches from the ends. This part will be worked down into the handle. You have to be careful when you draw the handle out, or you'll surely get a hot shut. Hold the fuller section over a soft edge of the anvil, and work the inside edges of the fullers first. Then you can gradually bring the bar up to vertical, and draw the handle out. I like to leave my handles octagonal, but you can round yours out if you like.

Forging the heading plate handle

Forge the handle on the other end, and cut the bar in two with a hardy. Forge a mild taper in the body of the tool, and flatten the bar down to a uniform thickness. A flatter would be a nice touch, but since I didn't have a striker, I used a tinkle hammer. Now anneal the two blanks. Heat them to non-magnetic, then bury them in vermiculite and go to lunch or start on another project. After two hours, they'll still be too hot to touch...that's when I pulled them out and let them air cool the rest of the way.

Next is the boring part...drilling the holes. I figured the smallest size I needed was the same diameter of my smallest rivet, which in my case was about an eighth of an inch. I just increased the sizes from there, each time trying to match my rivet diameters, and throwing in extra sizes that I thought might be handy. If you take it slow and use some drilling or thread cutting oil and sharp drill bits, the drilling won't be too bad. The larger sizes need to be step-drilled, which is just pre-drilling the hole with a small diameter drill bit before stepping up to the finished size.
Once all the holes were drilled, I went back with a large bit and lightly touched each hole to shave off the sharp edge. Since I'll be using this tool as a rivet shear as well as a heading plate, I left one side sharp and relieved one side only.

I chose to harden my plate, but that’s a tough call. These things get hammered on, so if you do choose to harden, don't go too far. I hardened in oil, and annealed at 500 degrees in a toaster oven for about 45 minutes. Draw the temper back to a blue or purple. This would be an easier call to make if you knew the exact alloy of the steel, but I think these would still give good service if they weren’t hardened at all.

To use the heading plate to shear rivets, all you need to do is drill two holes through a bar of mild steel that's as thick as your desired rivet length. You need 1/4" long rivets? No problem, use a bar of 1" x 1/4". Drill one hole a size larger than your rivet, and bolt this loosely to the heading plate, so the bar still swings. Arrange the two pieces to form a flattened x shape, and drill a second hole the same size as your rivet. Drop a rivet into the hole, and squeeze in a vise...the rivet should shear off easily. Alternatively, you can use the heading plate as a holder for the rivet and shear it off with a cold chisel.

Don't have the right sized monkey tool? The heading plate will work as a last resort, if your tenon piece isn't too large or irregularly shaped. Position the correct size hole over the pritchel hole, and drive your tenon into the plate until the shoulders are square and correctly set.

Donald Streeter's Approach

Donald Streeter showed a different approach to the problem of shearing rivets in his book, Professional Smithing. Instead of having one tool with multiple uses, he went with a dedicated tool, and if you have a lot of rivets to resize, his method probably works better and would certainly be easier.

Get two bars of annealed tool steel, 12-18" long. It helps if one of the bars is the same thickness as the rivets you'll need...for example, if you have a bag of 1" rivets and you need them 3/4" long, make one of the bars of your rivet shear 3/4" thick, and one, say, 5/8". Inserted one way, the rivet shears at 3/4", but from the other side, it shears 5/8". Drill a hole at the end larger than the diameter of rivet you have to shear, and pin the two together so that the two bars pivot. About a half-inch away, drill a hole the size of your rivet.

It isn't necessary to harden these bars, since rivets are so soft. Drop your rivet in and pull, and you'll get a clean sheared rivet of the correct length. Of course, you need to make one for each size rivet that you'll be working, but most folks only keep a few sizes of rivets in stock anyway, so three or four of these would cover 98% of your rivet sizing needs.
EVENTS & CLASSES

**October**

7-8 Appalachian Blacksmiths Assn. Fall Conference, Cedar Lakes Park, Ripley, WV (304) 624-7248

7 PABA Bimonthly meeting, guest demonstrators Rob Hudson and Peter Ross. For more info, e-mail southpaw@epix.net

14-15 Saltfork Craftsmen Conference, Guthrie, Oklahoma. Bill and Diana Davis, Rt. 1, Box 1105, Fletcher, OK 73541; (580) 549-6824; davis@sonetcom.com


Natl. Ornamental Metal Museum Repair Days will be Oct.20, 21, & 22. Memphis, TN. For more info, call Lisa C. Loehmann (901) 774-6380, loehmann@metal museum.org

**November**

16-17 ABANA board meeting in LaCrosse, WI

**2001**

**January**

Tentative Bill Gichner's Hammer-In at the Huchinson Brother's Farm in Cordove, MD

**February**

24 Dan Boone's 5th annual Hammerfest

**June**

1-3 Ironfest in Grapevine, TX. www.ironfest.org

June 29 to July 1, 2001 CanIron III Conference/Hammer-in at the Western Development Museum in North Battleford, Saskatchewan, Canada. www.geocities.com/caniron/ for more information, or write Glen Grismer, 115 Riel Crescent

Saskatoon, Saskatchewan S7J 2W7 CANADA

Tel: (306) 933-4985 E-mail: grismer@sk.sympatico.ca

**July**

20-22 Upper Midwest Regional Blacksmithing Conference, Pontiac, IL. Contact John Biewer (847) 746-2470

**2002**

**June**

5-9 ABANA 2002 Conference, LaCrosse, WI

Editors Note: The following is a list of facilities that offer blacksmithing classes. It is by no means exhaustive, and every effort will be made to list the locations of as many educational centers as possible. For individual course descriptions, contact the centers directly. This is not intended as an endorsement, nor does ABANA sanction or approve any of these classes, but is given as information only.

**BROOKFIELD CRAFT CENTER**

PO Box 122, Rt. 25, Brookfield, CT. (203) 775-4526

www.brookfieldcraftcenter.org

**JOHN C. CAMPBELL FOLK SCHOOL**

One Folk School Rd, Brasstown, NC 28902 (828) 837-2775

www.folkschool.org

**THE AMERICAN VILLAGE BLACKSMITH**

3 day classes in basic and advanced blacksmithing by Geronimo Brayard, 3739 Hwy. 138 W, Oakland, OR 97462, (541) 459-2609

**HAYSTACK MOUNTAIN SCHOOL OF CRAFTS**

PO Box 518, Deer Isle, ME 04627, Telephone: (207) 348-2506

haystack@haystack-mtn.org

**TOUCHSTONE CENTER FOR CRAFTS**

RD 11, Box 60, Farmington, PA 15437, (412) 329-1370

**PETERS VALLEY CRAFT CENTER**

19 Kuhn Road, Leyton, NJ 07851, (201) 948-5200

**PENLAND SCHOOL FOR CRAFTS**

Penland Road, Penland, NC 28765-0037, (704) 765-2359

**HIGHLAND FORGE SCHOOL OF BLACKSMITHING**

Box 344, Westport, ON, K0G 1X0, (613) 273-2515

**OZARK SCHOOL OF BLACKSMITHING, INC**

HC 87, Box 5780, Potosi, MO 63664, (573) 438-4725

**COLORADO ROCKY MOUNTAIN BLACKSMITH SCHOOL**, 1493 County Road 106, Carbondale, CO 81623

Phone: (970) 963-2562

**SOUTHERN ILLINOIS UNIVERSITY, SCHOOL OF ART AND DESIGN, Metalsmithing/blacksmithing program**

Mail Code 4301, Carbondale, IL 62901-4301

(618) 453-4315

**SUMMER 2000**
FOR SALE/CLASSIFIEDS

Expanding blacksmiths shop is looking for a knowledgeable and experienced smith. Must have a solid background in all aspects of forging as well as welding and layout experience. This is a great opportunity for the individual who wants to grow with an aggressively expanding business. Pay rate negotiable with experience. Send or fax resume to:

Dragon Forge, Ltd.
Attn: Craig May
68 Rim Rock Road, Bailey, CO 80421
1(888) 838-2619 Shop, 1 (888) 294-9900 Fax

New ductile iron swage blocks 140#, dimensions 7" x 5.5" x 18". Depressions for ladles, candle pans, spoons, cone, also slotted and square holes through as well as all the round swages you would expect. Updated. European design with trunnions on the ends to support it in a stand. $230 U.S. plus shipping. For pictures see my web site, www.asytp.com/blacksmith, or contact John Newman, Hamilton, Ontario, Canada (905) 318-8551. Coming soon, small swage blocks (6" x 6" x 3"). Good for portable setups and those with a small budget.

POWER HAMMER - 50 lb. Canadian Giant (Canadian version of Little Giant). Ceiling mounted 3 h.p. motor and leather belt. Combination flat and drawing dies. $2500.00. Haystack, Deer Isle, ME. (207) 348-2306.

Westville, an 1850's living history museum and the birthplace of ABANA, is seeking a museum blacksmith. Full-time position, available immediately. Minimum salary $8/hr. Send a resume and cover letter to Michelle Alexander, Director of Interpretation, Westville, PO Box 1850, Lumpkin, GA 31815. Fax (912) 838-4000, e-mail WHH@SOWEGA.NET

For Sale: 25# Little Giant power hammer, new style completely rebuilt. Runs and looks like new, $3000.00. Hammer is located in southeast Minnesota. Contact Duane Evans at (507) 689-2650 or e-mail at duane@piccadillygallery.com.

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ABANA Chapter Affiliation:

Application may also be made at the ABANA web site: www.abana.org

MEMBERSHIP APPLICATION

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