

THE ONE AND ONLY MONTHLY NEWSLETTER OF THE



EUGENE 5160 CLUB – AUGUST 2011



The August Meeting will be Thursday the 4th at 6pm at the Woodcraft store in Sheldon Plaza on Coburg Road, Eugene. Informal Steering Committee meets at McDonald's at the North end of Sheldon Plaza at 5pm.



Eric Bergland & Ray Richard shared their knife sheath expertise at the July meeting.



MARK YOUR CALENDAR

AUGUST 4TH Our own ~ **WAYNE GODDARD** ~ author, Master Smith, and general mentor of knifemakers, will be sharing his techniques for **AMERICAN-STYLE SHEATH MAKING**. While Wayne is known to knifemakers the world over through his books, articles, and forging video, we get to enjoy him in person! We'll see and hear the distillation of what Wayne has tried, what works, and what to avoid, at our next 5160 Club meeting. This will be a great complement to last month's more Scandi-oriented knife sheath presentation. See you there!

In **MID-SEPTEMBER** sometime we hope to put together another hammer-in at **JIM JORDAN'S** place just North of Eugene – stay tuned for details.



MISC. NOTES

MOKUME GANE DEMO ~ We had an *outstanding* time down in Southern Oregon with **GENE MARTIN** demonstrating two different processes for making mokume gane – see my photos & write-up later in this newsletter. A special thanks to Gene & Sally for their generosity and hospitality!

NEWSLETTER TIMING ~ I feel like the White Rabbit in Alice in Wonderland – looking at my watch and wondering where the time went. I intend to get newsletters out mid-month from now on ... we'll see how well I do *next* month.

JEFF'S STOCK REMOVAL HOW-TO ~ I let Jeff know that his Part 1 instructions were appreciated and people would love to see Part 2 – he's jazzed about getting the next installment written up when he gets back from his travels.



JULY 5160 CLUB MEETING

ERIC BERGLAND & RAY RICHARD each shared their passion for knife sheaths. Eric collects Sami (Laplander) style sheaths as well as being an accomplished knife and sheath maker – and flint & obsidian knapper. Ray Richard is a multi-award-winning knife maker who considered sheath making an unpleasant chore up until a year or two ago when he developed his own method of making a Scandinavian style sheath.

Eric went first, laying out an array of traditional Sami sheaths on the table – and passing some of them through the group. Most are made of reindeer antler: either a complete section of antler that has been drilled out, or the antler has been split lengthwise then shaped and reassembled.

The split bone sheaths are secured with one or more copper rivets near the point, and reindeer rawhide at the throat.

The fanciful scrimshaw and openwork give these sheaths each a personality of their own!



The bone at the throat is often contoured in such a way as to secure the rawhide as the rawhide cures in place. A buttonhole loop is commonly used for hanging the sheath.



Eric noted that some of the sheaths had wood or leather lining. Some sheaths are woven out of Birch bark – and while this is looked down on within the Northern peoples as being lower grade, the woven sheaths have a beauty and appeal of their own:



Knife handles are typically antler as well, with enough core hollowed out for the tang – which is jammed into the handle with not much more than some deer hair to wedge it in!

Eric is a knife maker and sheath maker in his own right – and uses walrus ivory and elk antler for his sheaths. At the end of his presentation we all flocked to the table to have another look at the work he'd passed around – and at the other knives and sheaths that had stayed on the table.



I was particularly taken by a knife Eric made:



Beautiful work! And an informative talk – and a wonderful set of authentic Sami knives & sheaths.

Thank you Eric!

Now it was Ray's turn in the barrel:



To say that Ray Richard (<http://hawkknives.com/>) is an accomplished knife maker is like saying BB King can play the Blues. No kidding. But it caught me off guard to hear Ray say that for 17 of his 18 years as a bladesmith he hated making knife sheaths. Hated it. Then something happened.

A year or two ago he played around with Scandi type sheath making and came up with a style and a process that changed it from a chore to a creative outlet. Ray has even used what he's learned on the sheaths to create contoured leather knife handles:



These are two-ply sheaths – with leather (or other material) strips in-between the layers to give patterns and contours to the finished sheath.



The sheath is wet-molded leather that conforms to the contours of the blade up onto the handle for a snug fit. Ray demonstrated the satisfying “snap” of knife into sheath that indicates a good fit.

So here's the scoop as I got it down – I'm hoping Ray will straighten me out if I've left something out or gotten something wrong.

★ Cover the blade with masking tape to protect it and keep the leather from binding to it. Then build up any low spots (like the choil) with paper towel & tape so that the molded leather will not have any choke points that keep you from removing the blade.

★ Make a paper pattern from the knife – including the bolsters or guard area so you'll get a snug fit. The seam will be on the back side of the sheath.

★ The inner ply is a light flexible grade of leather. Cut it based on the paper pattern – just a little on the large side.

★ Soak the inner ply thoroughly in a mixture of 50% denatured alcohol and 50% shellac.

★ Wrap the inner ply around your taped-up knife. Overlap the leather where it joins – you will come back and trim this after it dries. Pull the leather tight and tie it in place. Ray uses a very thin wire for this.

★ Let it dry. After as little as an hour it may be dry enough to remove and clean up the knife. You might be able to take the wire off too. Let dry overnight.

★ When fully dried, trim the leather for a butt joint fit on the seam.

★ At this point you add a belt loop and your artistic contours. Use Barge's or contact cement to attach the belt loop and strips of leather that give the finished sheath a distinctive pattern. Ray also recommends a small strip on top of the butt joint – this will raise up the seam on the outer ply and make it easier to sew.

★ Ray force-dries the cement with a hair drier.

★ Make a new paper pattern for the outer layer – again, make it a little generous at the seam.

★ The outer ply is a more durable leather – Ray says about 1/16 inch thick. Cut it to your paper pattern.

★ Put 2 layers of Barge's cement on the inner ply (now a formed shell) and on the inside of the outer leather. Spray the outer layer with water until it is totally soaked and then stretch it over the inner shell, pressing it into the contours formed by your leather strips between the plies.

★ Crimp the seam on the outer ply with pliers. Sew up the seam and trim off the excess. Ray uses a triangular needle so that he doesn't need to pre-punch the holes with an awl – but he warns that these needles tend to cut the thread if you aren't careful.

I believe that's it. The results speak for themselves and Ray obviously loves the creativity that this process allows him.



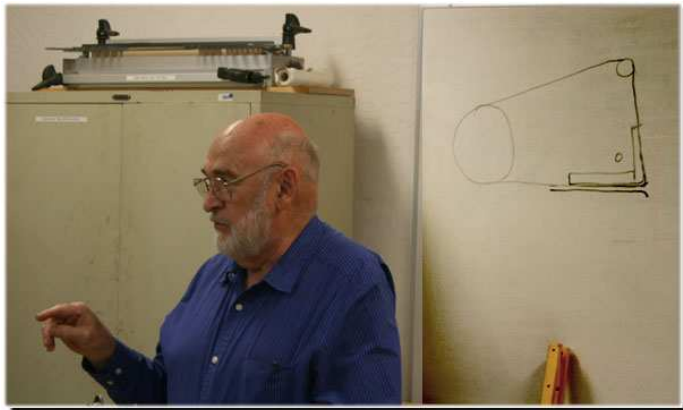
And of course we crowded around afterward and tried not to drool too much.



Our thanks to Ray for sharing his experience and insights!

Between and after the presentations there were discussions of all things knifemaking...

Wayne described a novel belt grinder setup he is using that has the dual benefits of putting the grinding scratches (potential stress risers) the length of the blade rather than coming down to the edge – and superior grinding position for plunge lines on ricasso style blades. With the 2x72 grinder in the normal vertical position, the bottom wheel is replaced with a graphite block. The platen is moved to a horizontal position behind this block. That's where you grind the blade – horizontally under the platen with the tip away from you.



Wayne also got his first shipment of the totally revised **Wonder Of Knifemaking** book – which were available for tailgate sales after the meeting.

Martin Brandt showed us a new adhesive backed sandpaper that is really aggressive and shortens your work time dramatically – I gathered that he may start carrying it if there is enough interest.

Mighty Mike Johnson passed around a knife (not of his making) that had a lot of character:



And with that – we all wandered into the night...



MOKUME GANE DEMO AT GENE MARTIN'S PLACE

Gene Martin (<http://www.customknife.com/>) made the offer and boy did we take him up on it! Gene has been learning and experimenting with mokume gane for some years now and on July 16th he showed us how it's done.

Here's a classic knifemaker's use of mokume gane in the bolsters and pommel:



Gene and Sally live south of Grants Pass on a pleasant chunk of rural property. It was a bit of a drive (especially for Mighty Mike) but well worth it!



Mokume gane is a Japanese phrase that translates as “burl metal” - burl as in wood grain. Alternating thin layers of different colored metals are put under pressure and heated to just below their melting point where a diffusion bond forms them into a solid billet. Once this alternating layered billet is formed, it is manipulated to create an internal “wood grain” and then ground to reveal this resulting grain. This may sound similar to layered Damascus, but mokume plays by its own rules.

Traditionally the Japanese used gold, copper, and silver. The resulting metal was used for sword fittings. Gold and silver being a tad on the spendy side we worked with copper, nickle silver, and bronze. Nickle silver (aka German silver) is a nickle/copper/and sometimes zinc alloy (no silver). Gene noted that nickle silver with 8% nickle looks yellowish – and at the other end, 18% nickle is hard to move under the press when creating patterns.

Normally only non-ferrous metals are used, but Gene demonstrated how to get a low carbon steel (1010 shim stock) to bond into the billet - which gives you another type of metal to contrast to the copper family of alloys. Copper brass and bronze alone make a pretty subdued grain pattern.

Brass is copper and zinc; Bronze is copper and tin – in practice the brass and bronze you purchase usually contains other elements as well. Gene's bronze contains 15% tin. Gene warns NOT to use the bronze that contains silicon.

Lynn Moore, myself, Jim Jordan, and Randy car-pooled down. When we got there, Bear and Mighty Mike had arrived. Local knifemaker Peter Pruyne (<http://brothersvilleknife.com/>) was there to help Gene with the demonstrations, and another interested local dropped in. It will be no surprise to those who know Gene and Sally: we were greeted warmly.

The first order of business was to clean the surfaces of the 1010 steel shims. Cleaning the surfaces of all the metal layers is required to avoid inclusions, enhance bonding, and prevent delaminations. Lynn used a block of wood to back up the shims while grinding the surface clean – while the rest of us supervised. Gene recommends 60 or 120 grit, and he leaves the the grinder lines – feeling that they help with the bonding process.



You want all the layers for your billet cut to the same size so that you don't have a lot of ragged edges. Some folks even clamp the cut layers together and grind the edges flush before cleaning and assembling the billet.

Gene mentioned using 0.030” shim stock for the 1010 steel. It seemed to me like there was more leeway with the thickness of copper, brass, and nickle silver layers. Whatever the makeup of the billet, I believe Gene likes every other layer to be copper. He's spent years “being taught” by mokume and has come to think of copper is the layer that really binds to the other layers.

At this point we moved to the forging barn and got more words of wisdom before Gene and Peter started laying up billets.





Photo by Sally Martin



Photo by Sally Martin

Gene has taken jewelry classes in the area and has hosted workshops for them also. The jewelers use a much different technique for mokume gane – but then again they are making much smaller quantities. Both ways work, and Gene emphasized “to each their own” and if it works for you, that's great!

All layers of metal must be cleaned and then used within 4 hours. After the surface grinding (if it is required) clean the layers with rubbing alcohol – not the standard 70% stuff but at least 90%. I have seen instructions saying that after cleaning you have to wear latex gloves to avoid getting oils on the metal but Gene said that's only necessary if you have really oily skin. And given that his billets came out flawlessly bonded – I'm believing him!

The layers must be dry before assembling the billet – Gene used a towel to dry them off.



Gene demonstrated two ways of setting up the billets. You alternate layers of your materials to get the patterning you are shooting for. Gene keeps the billet together with a couple of wraps of masking tape.

The billet's layers will be placed under pressure and soaked in an oven. The oven will heat the billet to just below copper's melting point (copper melts at 1640°F so Gene uses a temp of 1600°F). Soaking a billet at that temp will cause a lot of oxidation if you don't protect the billet from exposure to oxygen.

In the first method Gene wraps the billet in stainless steel foil. In order to consume whatever oxygen is trapped inside the foil, Gene places a small piece of paper on top of the billet. Then you crimp the foil around the billet to make an air-tight package.

Here's a billet with a scrap of doughnut box on top – about to be wrapped in foil:



Then the billet is placed between two steel plates which have bolt holes spaced just outside the billet dimensions. The foil-wrapped billets are tightened between these 3/8" steel plates until the plates just start to bow.

Use stainless bolts and nuts so that the nuts don't start to fuse – but even these may need to be cut off later, as we witnessed – three of the nuts came off OK but the fourth had to be “persuaded.”

More than one billet can be pressed between the two plates – in our demo Gene stacked two billets between the plates. Below is a shot of one billet on the pressure plate, and the 2nd billet being wrapped up to be stacked on top... then the top pressure plate being tightened down on both billets.



Mighty Mike shared that he had used a clay coat on a billet after getting the billet pressed between plates (instead of the foil) and that this also seemed to do the job of keeping the billet from oxidizing.

The other method of keeping oxidation under control and putting the billet layers under pressure is to weld up a rectangular steel “can.”

Make the can just larger than the billet. Add your scrap of paper, and weld an end on the can. To create pressure on the layers of the billet, run the can through a press, just enough to compress the layers together snugly.



At this point Gene placed the pressure plate setup and the into an oven set to run at 1600°F for 30 minutes. Gene notes that this temp/time works for the materials we were using but it is *not* appropriate for copper/silver mokume.

After the 30 minutes, the billets were removed from the oven and pressed *lightly* to ensure the bonding between layers. Gene used a die that fit right between the pressure plate bolts to press those billets, and pressed the can also. Gene warned that too much pressure and you'd squeeze the softer layers out of the billet. Mighty Mike seconded that – he'd taken his first mokume billet out of the forge and whacked it with a hammer – sending molten copper spraying out in all directions!



So then the billets were allowed to cool. The pressure plates were unbolted (or hacksawed off) and the stainless foil removed – there was talk about how nasty a “paper cut” from this foil can be.



The can was taken back to the shop to cut/grind the can off the billet. Gene warns NOT to use 36 grit or you risk tearing apart the mokume layers.

At this point you might grind the sides to clean them up and make sure you don't see any delaminations. I saw none. Zero. Zip... in any of the three billets.

Now is the time to put a pattern into the grain. We went back over to the forging barn and used some spring dies made out of what looked like ratchet teeth. You need to re-heat the billet – just to black heat. It doesn't hurt to heat up the dies too.



Gene and Lynn put slightly different cross hatch patterns into the two smaller billets. This puts waves all through the “grain” in the billet. Note that you can pattern only one side if you intend to use the billet for something like bolster material.



Now back to the shop to grind the surfaces flat – removing the high spots and revealing the grain:



And there you go! Three billets. No de-laminations. Mokume gane demystified.

We had a great time – *many* thanks to Gene & Sally.

Gene sells supplies as well as knives – and I've purchased some of Sally's mosaic pin stock at the OKCA show – check 'me out at:

<http://www.customknife.com/>

Oh – and one last photo from the demo... Here's a clever “pin press” that Gene cobbled together:



DE-CLASSIFIEDS

Buy/sell/trade/etc. notices received by the editor. I'll repeat notes a few times then drop them unless I hear that the deal is still on. Postings are not backed by anyone other than the person who sent in the notice. We're a generally honorable group of people but still, misunderstandings can occur and it's up to the folks making a deal to check it out first.

Larry “Bear” Criteser has a commercially made oxy/acetl. cart with an 80 or 100 cubic ft. oxy bottle (not sure which) with unknown amount of gas in it, for sale. No acetl. bottle, sorry. He'd like to get \$75 for the cart and bottle. He also has an extra oxy bottle the same size as the one with the cart, with some gas in it for \$40. Home phone is 541-689-5680, or email at [<bearsgunnery@criteser.com>](mailto:bearsgunnery@criteser.com)

Marty has a 6" jaw width post vise for sale. Also 1050 and 5160 steels, old files to make knives out of, and anhydrous borax. Martin Brandt 541 954-2168

Wayne's totally revised **Wonder of Knifemaking** is now available. And I believe he still has an active free steel pile beside his driveway, and an ongoing tool sale. Call for an appointment: 541 689-8098.

Mighty Mike has access to a steady supply of used LARGE brake drums that can be welded up as bases for post vices, grinders, propane forges or whatever. Let him know if you are interested: Mike Johnston 503 351-3104.



So I hope to see you at the meeting Thursday – Wayne's American-Style sheath making

Mossy Mike – signing off!

Hey wait a minute. Is that the start of a bald spot on my noggin!?!?



Photo by Sally Martin