Great Falls Woodturners Newsletter

www.gfturners.org

Volume 8, Number 8 May 2017

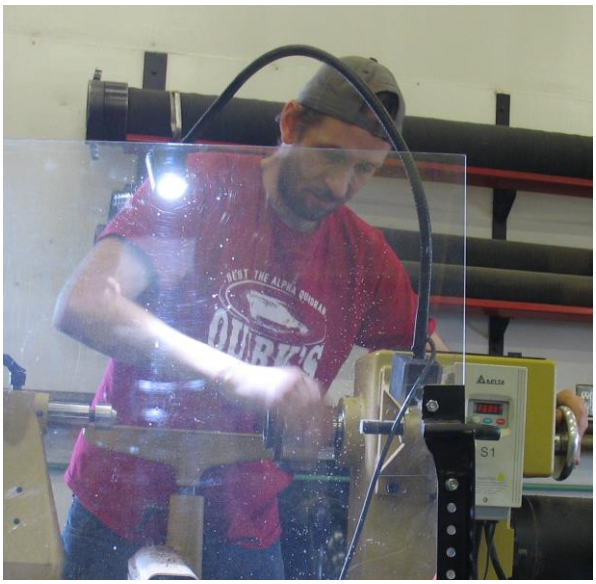
Memorial Day 2017

Club Demonstrations

Chris Johnson – April 15th
Turning a Pepper Grinder

Chris decided to turn a pepper grinder out of walnut for his FIRST demo for the club. Chris, we salute you for your contribution to the club.

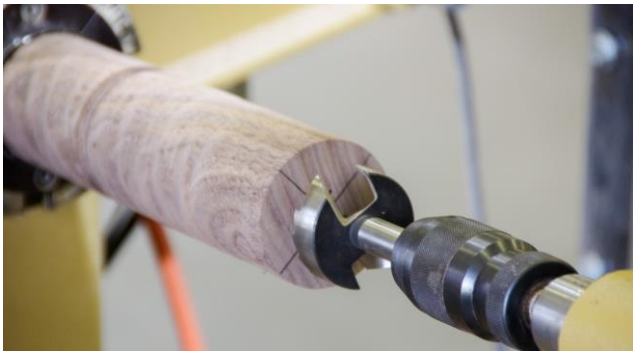
He mounted a 3 square inch piece of walnut between centers. He indicated that you could use a piece of stock 2 ½" or 3", but the three inch gives you more latitude to be creative.



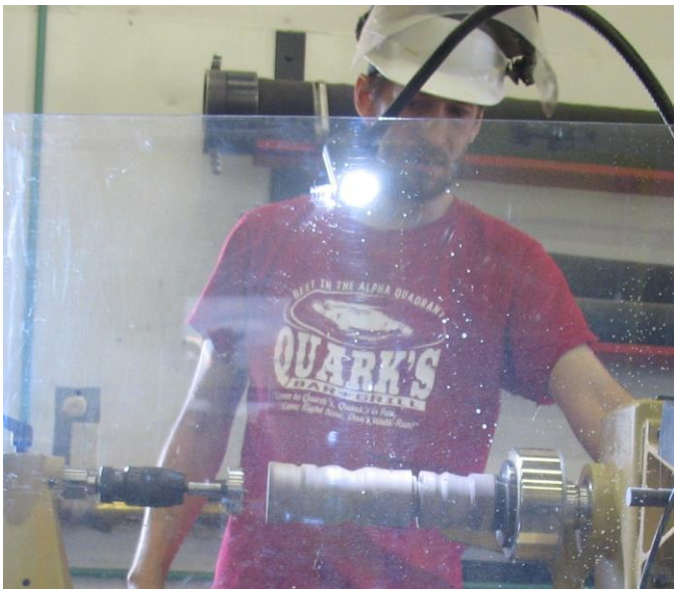
Using a spindle roughing gouge, he shaped the stock round and created a tenon to mount it in a chuck.

After remounting the piece in the chuck, Christ then did his beads and coves thing and created the shape he wanted the grinder to be.

At this point he was ready to start drilling the center to receive the grinder. Using a Forstner Bit, he first drilled a hole ½" deep to mount the base of the grinder. Then he proceeded to drill a 1 ½" hole through the stock for the grinder and the shaft that turns the grinder.

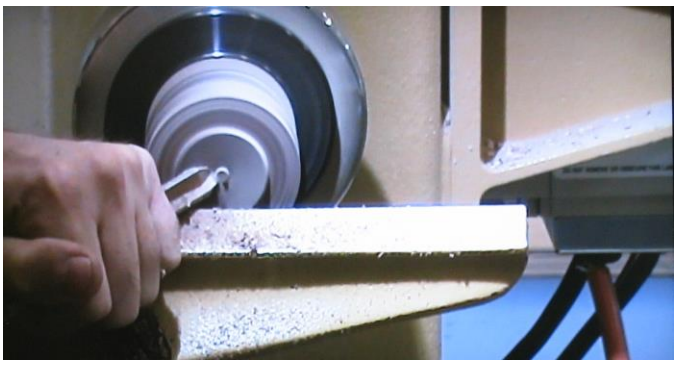


Once that was accomplished he then worked on the shape of walnut stock to obtain the finished shape of the housing.



Now it was time to use a parting tool to separate the body from the top and finish drilling the hole for the grinder. He then drilled the hole in the top to receive the grinder top.

Chris then ensured that the top and body was able to turn smoothly and he finished shaping the top of the grinder. He used extended jaws to hold the top while he shaped it.



Rather than bore us to sleep, he decided to take the grinder back to the shop and sand it to a finished product. After that is done, he will mount the grinder hardware and put finish on the product.

Chris, thank you very much for an Outstanding demo. We appreciate your stepping up and helping the club.

Jay Eklund – May 2nd

Turning a Segmented Pen

Jay began his demo by discussing turning both regular and segmented pens. He discussed the components in making pens such as all the different types of pen kits, use of the different sizes of bushings needed for the respective kits, drill bits, etc.

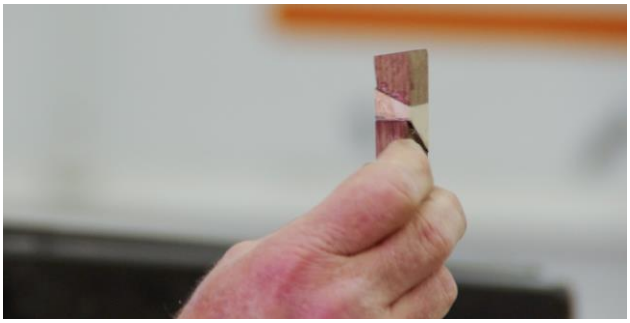
He made us aware of the valuable asset available to us which us YouTube where we can find educational videos on making pens. That's where he found the concept of making a segmented pen.

He gave us an overview of the steps involved with making pens and made us aware that with each pen kit there is a detailed plan provided. This detailed plan provides total guidance in the making of the pen from beginning to putting finish on the completed project.

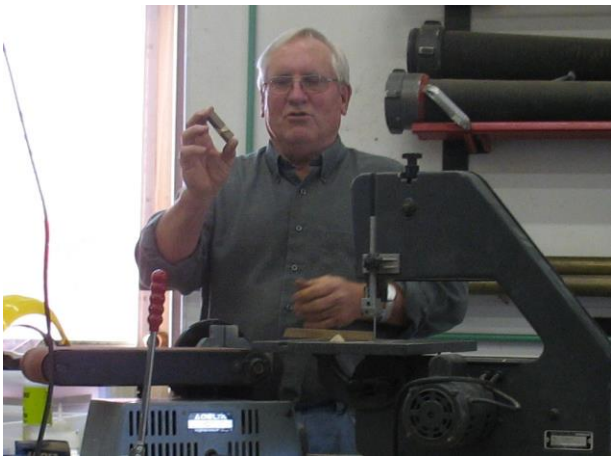
Jay had made a segmented pen using a gift card to enhance the seams between the glued pieces. This evening he decided to experiment (a brave man indeed to experiment during a demo) with pieces of an aluminum soda pop can.

So, he started the project by using ¾" x ¾" scraps of walnut and maple and cutting them at an angle on his band saw and then sanding the cuts to ensure

they were smooth. On one half he used the reliable gift card plastic and glued the pieces of walnut and maple with the card using CA glue.



He shaped them using the sander so that all materials were uniform. Then he glued the other half of the pen using the strips of aluminum following the same sanding and gluing procedure.

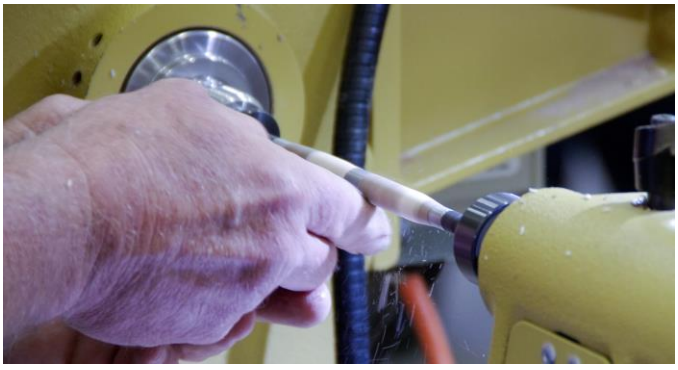


Next came the drilling of the two pieces with a size bit that accommodates the brass tubes.

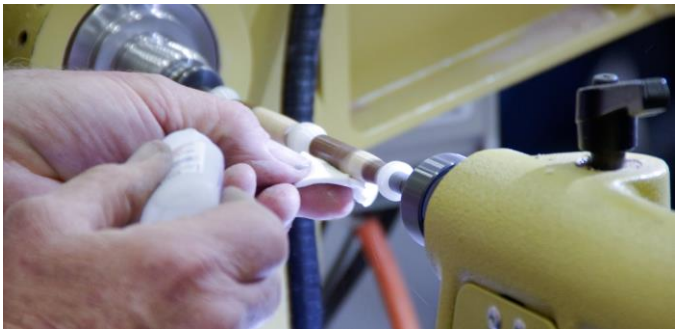
He sanded the tubes so the glue would adhere better and glued them in with medium CA glue and spritzed them with activator so he could immediately use the barrel trimmer and make the ends square and even with the tubes.

He then mounted the pieces on the pen mandrel. In the process of mounting the pieces, he used the appropriate bushings necessary to size the blanks to the pieces of the pen kit.

Jay used a spindle roughing gouge to shape the blanks almost even with the bushings then used his easy wood tool he made to refine the surface and sanded the blanks.



Once sanded he then used thin CA glue to put on several coats of finish. Then he sanded the CA finish with sanding pads up to 12,000 grit.



Using the directions provided with the kit he assembled the pen into a great example of a segmented pen embellished with decorative seam materials. It really looks great.

Finished Demo Pen:

Thanks Jay for an Excellent demo and all your time and effort associated in doing the demo.

Editor's Note: There is a wealth of information on the web site of Kurt Hertzog on turning pens. He is a master turner of pens:

http://www.kurthertzog.com/demos.htm

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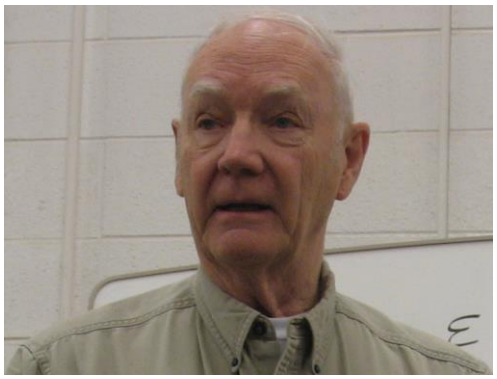
Recognizing a Special Person



The following is quoted from the KRTV News Web Site:

History Museum announces Legacy Award recipients

Great Falls – Several Great Falls community leaders were recognized on Wednesday for their efforts in preserving Montana history.

Museum organizers say each year they present "legacy Awards" to individuals, organizations or businesses that have shaped and preserved Cascade County and north central Montana History.

Paul Snyder received the first "Special Museum Award" this year for his work as a volunteer over the past 10 years on the board of directors and the museum's building committee.

Snyder says he worked at the Stumptown Historical Museum and Society in Whitefish for a decade before volunteering time at the history museum in Great Falls.

“It just seemed like the logical thing, I grew up over in eastern Montana and Montana history has always been important to me and I liked this part of the state and I just seemed to fit where I would be involved here,” said Snyder

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Special Thanks

A very special thanks to **Roger Wayman** for initiating and taking charge of Rewarding First Time Demonstrators by ordering, paying for and presenting the great T-Shirts and/or cups. Here’s the first T-Shirt awarded to Chris Johnson:

Thanks to **Paul Snyder** for the great pictures of the demo and instant gallery.

A special thanks to **Dirk Johnson** for ordering the new TV stand and to **Chuck Kuether** for his assistance in assembling the stand and mounting the new TV.

Thank You

Tips

Info Tip – Tom Krajacich

Headache with Woodturning

Do you ever get done turning, and notice a headache from it. No, I don’t mean like doing the math to figure out sizing of segmented bowls or their segment length. I mean that the headbands in even good quality face shields or helmets are not very good. The headbands are usually very thin, and don’t add much comfort. I solved this problem recently with the purchase of welding helmet sweatbands from

Amazon Prime. I purchased the BSX Black Helmet Sweatbands which come in a pair for only $7.48 with free shipping. Don't you just love Amazon Prime. The sweatbands are thicker and very comfortable. Really is a nice up-grade for face shields or Trend Helmets. Happy and Headache free turning. Tom Krajacich

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Tips From The Past

Info Tip – Reb Bishop & Paul Snyder

This is a website that Reb Bishop sent to Paul Snyder and Paul submitted it to the newsletter so you can all learn very interesting information about finishes. It is just over 36 minutes long, and covers a nice variety of questions about a lot of areas of finishing. I found it to be a very worthwhile investment in time.

http://www.thewoodwhisperer.com/videos/oil-based-finish-basics/

Club Visitors

The following visitors came to the May 2nd club meeting:

Bree Hibbert
Lane Nickolls
Mason Crocker

Club's Appreciation

Editor's Comment: My thanks to the following individuals who helped with the content of this newsletter:

Tom Krajacich
Reb Biship
Paul Snyder

Club Officers

President: Sam Sampedro - 761-4145

Vice President: Roger Wayman - 460-0507

Treasurer: Chuck Kuether - 727-2442

Secretary: Dirk Johnson - 899-0726

Directors: Tom Krajacich - 727-3464

Wayne Petrini - 868-8420

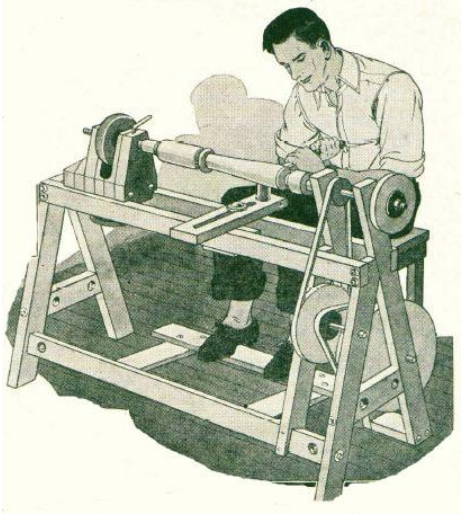
Paul Snyder - 750-1999

Meeting Location: Great Falls Fire Training Station
1900 9th Ave South
Great Falls, MT 59405

Meeting Days: First Tuesday of the Month and
Third Saturday of the Month
(Unless otherwise noted in
The club schedule)

Meeting Times: Tuesdays: 6:30 PM
Saturdays: 12:30 PM

A Very Rare Photo……



Chuck Kuether at his First Lathe

God Bless America

Instant Gallery Photos

(Great Photos by Paul Snyder and Sam Sampedro)

Darrell Young

Jay Eklund (Demo Pen)

Jerry Hall

Kent Holtz

Kent Holtz

Terry Hill

Jerry Hall

Tom Krajacich

Chuck Kuether (Tooth Pick Holders)


Paul Snyder (Tool Pick Holders)


Paul Snyder


Sam Sampedro

Stan Tiffany (This bowl was started by the late Stan Tiffany and completed by his Good Friend **Kent Holtz**)

Jerry Hall (Go ahead, figure out this puzzle……..Sam)

(

Items for Sale

Dust collector hose, clamps, fittings, blast gate Delta woodworking 4"

4" dust collector hose (not sure of total length as it is stretchable flex hose) , clamps (20), T, Y, blast gates, etc. (everything in the photo is what you get). If you have a standard dust collector this will allow you to hook up multiple machines. Cost new, over $200

Vortex separator from Rockler, brand new

I live in Seeley but get to Great Falls fairly regularly. Randy Gazda

(Note: Randy Gazda was a great member of our club for several years until he had to move to Seeley Lake for a job assignment.)

Email Randy Gazda at:
rgazda@hotmail.com or
call: 406-677-3782

T10010 10" Wet Grinder Kit

Excellent Condition.
Price New: $199.95, Sale Price $75.00

Call Sam: 761-4145

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Great Falls Woodturners
Meetings/Demonstations Schedule

May 20th **Demo – Greg Yeager – Will demo cutting 16 point Morning Star**

June 6th **Meeting and Demo – Harry Boughton followed by Sam Sampedro**

June 17th **Demo – Ed Austin**

July 2017 **There will not be any meetings in July – Enjoy the Summer!**

August 1st **Meeting/Club Elections and Demo**

August 19th **Demo**

September 5th **Meeting and Demo**

September 23 **One Day Symposium: 9 AM – 4 PM**

Please Note: Tuesday Meetings start at 6:30 PM, Saturday Meetings start at 12:30 PM

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Director's Meeting Schedule

May 17th	**6:30 PM**	**Sam's House**
June 21st	**6:30 PM**	**Sam's House**
July 19th	**6:30 PM**	**Sam's House**
Aug 16th	**6:30 PM**	**Sam's House**

AAW Info

AAW will launch exciting new incentives on April 1.

1) AAW 50% dues incentive for chapter members who are new AAW members:

- Local chapter members who have never been AAW members will have the exclusive opportunity to become AAW members for one year for just $30, a 50% reduction on the $60 rate. Only AAW chapter members who have never been AAW members are eligible, and the special rate is available only during the exclusive sign up period from April 1 through June 30, 2017.

2) New AAW learning tools to be introduced April 1:

- **Woodturning FUNdamentals Online**, an easy-to-use integrated online learning experience designed for new turners and those who would like to build woodturning skills. The site complements the digital Woodturning FUNdamentals publication.

- **Discover Woodturning Online**, a new web-based resource loaded with introductory and descriptive information about the art and craft of woodturning, designed to educate the general public. This is your tool, for your chapter's new turners. Contact the AAW office to find out the options for your chapter! Call 877-595-9094 (toll free) or 651-484-9094 (M-F 8:30am to 4:30pm).

Spalting, a Fungus Amongus

Andrew Hilton

Decay and rot is all around us. Fungus is everywhere and just awaits the opportunity to take advantage of the right conditions to grow and affect us in many ways. No, I'm not starting a great novel about the social and political conditions of our times, although that could be my next article if this one doesn't work out. What I am talking about is what happens to wood. Wood decays. Wood gets colored. One of the outstanding effects, sometimes, of this wood decay and coloration is what we call Spalt.

Spalt doesn't always occur when a tree dies and neither does it always strike all specie of tree equally either. When it does occur, it can be a beautiful and wonderful thing for those able to use or at least appreciate such a thing. Spalted wood is always unique. No two pieces are exactly the same. Now, I grant that you might not want a nicely spalted piece of maple making up your kitchen cutting board. There's a time and place for spalted wood.

Here's how I will be structuring this article. First, I'll discuss what Spalt is and what causes it. Second, I'll mention a few things about how to work with Spalted wood especially from a woodturning perspective. Third, I'll give some tips and tricks on how to spalt your own wood. On with the show...

Spalt, What Is It?

As I alluded to above, spalt is a a result of wood decay. That's partly true. Spalt is the combination of a wood decay and a wood coloration mechanism. Brown Rot is something different with it's own fungus's and mechanisms. With that said, let's make this really simple at this point. Spalted wood is caused by a specific fungus. We can separate the two major groups of fungal-created wood coloration associated with Spalt into the White Rot fungus' and the Blue Stain fungus'. I'll keep things easier and not mess with the fungal scientific names. If you really want them, look them up.. We'll just call the fungi by their types of decay and coloration. I'll also not go into the other types of decay and coloration. These are out of the scope of spalting but are very interesting in their own right. Often, mineral stain and reactionary stain are confused with the coloration defined as spalting. Did I mention that there are lots of different wood colorations? Ain't nature COOL ?!

White Rot is a decay mechanism and gives those great thin, quite distinct lines with broad lighter colored areas between them. Blue Stain does not contribute to the decay of the wood but does give, contrary to the single-color name, anywhere from yellow, orange, red, blue and some blacks and brown coloration. These colors are often found near, and most often just underneath, the bark of the tree as opposed to nearer the heartwood. They are also not usually very widespread but tend to be blotchy and quite vibrant. This contrasts nicely with the White Rot type of coloration.

White Rot is caused by the wood decaying. Left to continue too long, the White Rot decay will turn your wood into a nicely colored piece of mush and be basically useless for woodworking much less woodturning. Sure, you can sometimes beef up those "punky" areas that are spongy with some thin epoxy, CA glue, common White PVA glue, or other wood stabilizers / hardeners and make them

usable. Many times, though, large enough pieces just flake off of the too-decayed wood and doesn't even make good firewood. The key is to catch that White Rot at that stage where it gives the greatest amount of coloring but yet isn't too soft to work well. And how do we know when that is? See the next section for that.

So, what makes those fine lines? The White Rot fungi groups do that. Those are called "zone lines" and are caused by incompatible colonies of White Rot fungi coming together and, I guess, not liking the togetherness. Hey, it's not just us humans that are like that! Those zone lines are laid down by each colony as a barrier to surrounding colonies. The slightly different coloration on either side of those zone lines are the results of those fungi colonies moving through the wood. White rot attacks the cellulose, lignin (although not actually "eating" it), and other chemicals in the wood giving the wood an off-white appearance.

The cause of the Blue Stain coloration is not exactly known. We do know that it is caused by a fungal invasion but we're not sure what the one, if there is just one, mechanism of that invasion. Some think that the fungus enters the wood at or near an injury area such as a bird pecking or driven nail or whatever else that causes injury to the tree. The tree reacts to this injury and it's that reaction along with the presence of the specific fungi that causes this coloration. Others see the Blue Stain fungi invading simply via a convenient entrance point, probably along with bugs or other animals, and waiting for the right environmental conditions to begin affecting the wood.

Blue Stain generally affects the wood nearest the bark (sapwood and never the heartwood) and spreads out much more than it runs deeper into the wood. This means that, as a woodturner, you're likely to loose this great color in your shavings if you're not careful. This Blue Stain color is usually a far more vibrant color when compared to the White Rot color. Letting this Blue Stain type of fungi grow is just fine. It's not a decay fungi and won't harm the wood. It'll only grow larger although it often doesn't get very widespread in one large clump.

Sycamore. Showing both White Rot and Blue Stain (the orange & red blotch)

Same piece but showing endgrain

Now we know that Spalt is caused by fungus. We also know that what we call Spalt is actually the combination of a decay fungus called White Rot and a coloration-only fungus called Blue Stain that can produce more colors than just blue. So, why do we want all of this fungus amongus? How should I work it? What do I do with it?

Spalt: Natures Artist

Part of the appeal with artistic woodturners of this craft (errr ...Art?) is what Nature provides us with our major material of choice ... wood. Every piece of wood is different and thankfully so. This is no more apparent than in the spalted wood with it's greatly unique patterning. We enjoy the beauty and unexpected showing of burls, knots, figures, bark inclusions, and other treasures coming from the wood that we, as woodturners, can't control. We can control, to some degree, how those Nature's features are displayed and used in our woodturnings though. The same holds for wood spalt as well. We can get some small idea that spalt is contained in our blanks and can take steps to bring out it's best effect in our turnings. Spalted wood, by the vary nature of the decay part of it especially, behaves differently in all phases of woodturning. Let's explore these..

The only reliable way to determine if a piece of wood is spalted is to actually cut into it. Looking for mold and mildew growth on the outside of the log **isn't** a reliable method although the presence of molds give a good indication that the conditions are appropriate to support the growth of the decay fungi. Mold and mildew do not cause spalting. They are a form of fungi but typically just grow on the surface of the wood and produce a terrible, circular, faded surface stain. You don't want to encourage mold or mildew growth. See below...

Mold coloration after finish turning and a mineral oil/beeswax finish. Yuck!

It must be noted that a tree need not be laying on the ground to be spalted. I've found many standing trees that are spalted. Look for trees with their bark still on. Those trees are more likely to have the Blue Stain coloration. You needn't cut too far into the log to determine if it's spalted. Start near the base of the tree, or where the base of the tree would have been depending on how you've gotten your log, and cut up just a couple of inches. If there's spalting in that piece, then it'll start near the bottom and work its way up the tree. Often, it'll continue up into the primary canopy several dozens of feet up.

Now that we've got a piece of spalted wood, how do we make the best use of it? This is the hard part! Unfortunately, or should I say "fortunately" for the beauty of it, spalting isn't consistent throughout the diameter or the length of the tree. The sporadic patterns created by the fungi can dive deep into the piece or spread out wide and seem to almost disappear but reappear further up the piece. About the best you can do is look at both ends of the piece you're working and make a guess as to whether it's going to continue through it and about where it'll run. Trying to cut away the surface of the wood continually deeper will just waste what color is available especially the Blue Stain coloration present, if any.

The White Rot coloration runs parallel to the grain of the wood and is not always very deep into the heart of the tree. Therefore, spalted wood turned pieces look better on spindles and bowls, platters, and other faceplate turnings that run with the grain rather than against it. Say you're making a natural edged bowl with the top of the bowl facing the bark side of the tree. Most spalting will be running through the sides of the bowl and not along the length of it. You won't get the most effect from the spalt that way. The spalt will often be broken and not continuous lines that the eye can follow. Often, a bowl with the bark side of the tree near the base of the bowl will look better because of the way spalt tends to run from the outside of the diameter of the log to the inside. It'll appear as if the "flames" of the spalt lines are running up the sides of your bowl. You'll capture more of the Blue Stain coloration this way too. The bottom of the bowls often end up with more of the spalting than the sides. When cutting your spalted logs down the middle (taking the pith out), keep on cutting closer and closer to the bark until you get a good indication of spalt on that side too. Many times, you'll see wood turned pieces with beautiful spalting on one side and then absolutely nothing on the other side. This can be nice for the contrast but I personally think that that piece of wood wasn't used to the best degree as it could have been. Either something smaller should have been made from it or a repositioning needed to be made to get that spalt as uniformly present on that piece as possible.

Again, you don't know exactly what you're going to get until you get down to when you're nearly done. That's part of the fun of woodturning, right?

Spalted wood machines differently than unspalted wood. Mainly, I'm talking about the White Rot decay right now. The Blue Stain doesn't affect much in the way of machining or finishing. White Rot, being a decay process, causes changes in the wood fibers and these can cause difficulties in working it. Be aware that the normal working characteristics of a given specie of wood gets changed by this decay process. There will be intermittent areas that are softer and harder than normal and doesn't always follow throughout the entire piece. You must constantly adjust to the changing conditions even more so than normal. For woodturners, this is represented by terrible tear out and fuzzy cuts on otherwise fine working woods. Extra care in using a very sharp tool and light cuts helps as does wetting/filling those areas with waxes, oils, glues, or a thinned amount of the final finish. This will help to stabilize and stiffen those partially decayed areas enough to cut it cleanly. Still, on very large zone lines, the woodturning gouge will tend to bump on that much softer area and this will cause problems with uneven and chattering cuts. Instead of "rubbing the bevel" as is the usual process for light cuts, try "floating the bevel" instead. This will keep the bevel of the tool from dipping slightly into those zone lines and causing the jumping of the tool.

Sanding spalted wood has it's own problems. Much like pine and softwoods behave when sanding, the alternating soft and hard spots caused by the decay process especially at the zone lines cause uneven sanding. You'll notice that there will be slight lines standing above the other areas because of this. Those zone lines will easily wear away while sanding and leave an uneven surface. Power sanding or hand sanding with the grain and along the length of the zone lines will help with this. Bleeding can occur on the larger zone lines as well. Sanding the dark lines will cause the dark color to streak across the surface. There's not much you can do about this other than sanding by hand parallel to the lines in those areas where it has bled to wear away the dark streaks.

Drying of spalted pieces tend to be generally easier but those zone lines like to crack. Because of the decay process, much of the moisture is either already released or is easily released as you turn it. This makes the drying process easier because you don't have to worry as much about a great many cracks or warping. This isn't to say that those issues are completely gone ... just tend to be better with spalted wood. The one area where drying causes more problems is with the zone lines (do we see a pattern here with the troublesome zone lines?). Cracks, if they are going to develop, like to run along those zone lines. It makes sense, though. Those lines are weak and are easy to crack. Regardless of whether those lines are in the end grain areas, seal them with whatever method you use (wax, emulsions, paper, etc.) too.

Finishes behave a little differently with spalted wood too. Oils are great here! What might appear as fairly bland spalting (how can spalting be considered bland in any sense?) as you are working it, really pops out with the use of oils. Of course, the use of oil will darken the spalted areas greatly and can be good or bad depending on what you want. I especially like pure Tung Oil for spalted woods. Not only does it greatly define the color and fine lines of the spalt, it also is a drying oil (albeit slowly!) that gives the decayed areas some strength once dried. Care must be used when using any kind of water-based finish. Remember the bleeding caused by sanding mentioned above? It's even worse with water-based finishes. Grain raising is also more of a problem with spalted woods too. Because of the uneven hardness and dryness factors of spalted woods, finishes penetrate or soak differently. Blotchiness is the result. The use of a sanding sealer or a thinned final finish helps a lot here. Take time to let this really soak in and then wipe off the excess so you'll get a good base in the wood before your final finish. This is always a good idea with any wood but especially for spalted wood.

At this point, let me say that there's been some concern over the health effects of working spalted wood. There's not been overwhelming evidence of people getting sick but there has been a little. The problems seem to arise from the spores of the fungi causing respiratory problems especially for

those with preexisting conditions such as asthma or certain allergies. This is very much like the sickness encountered by farmers working their hay and the fungal spores present in them. Proper drying of the wood before working it will stop the growth and kill the fungi present in the wood BUT the spores will still remain and could cause health problems. I **strongly** suggest that you discuss the possible exposure to fungal spores with a suitable health professional and determine if you are at unusual risk before working with spalted wood. Regardless, I would recommend taking precautions such as using adequate dust collection equipment and wearing a personal respirator or mask. Protect yourself as you see fit.

Come to me, my fungal friend

Now, we know what spalting is and how to work it. How do we MAKE it? Give it up. It's not about you this time. It's about Nature. This is one of those rare moments the we, as woodturners, craftspeople, artists or just wood-butchers must defer to the natural processes of the environment, microorganisms, soil, and just plain fate. You can't "make" wood spalt but you can "encourage" the formation of it. I know, it's just a difference in what I think two different words mean. Let's cut to the chase, eh?

There are lots of "recipes" for spalting wood that can be found all over the internet; in a few books and even from magazines touting their own secret (how secret can it **be**!) recipe. Using every imaginable ingredient they can think of that makes their daffodils grow like bamboo, these recipes appear, at least to their creators, to take a wood that is un-spalted and make it spalt. Why would you waste perfectly good beer on this? How much effort do you want to give to pressure treating oak with 500 pounds of sugar? Got some leftover Miracle Grow? Sprinkle that in! It MUST be the Argentinian Oak leaves that they covered the logs with that made the difference. I'm sure of it. < g> Note the sarcasm in my writing?

Spalting occurs in many species but most commonly in the birches, beeches and maples. Buckeye, elm, basswood, sycamore, apple and the hickories spalt too, but it is relatively unknown in red and white oak although it does occur and can be quite dramatic (see below). Walnut spalts too but you can't see it too well because of the dark color. Look at the light-colored sapwood in Walnut to find it there.


Spalted White Oak

I'm not going to give you a recipe for spalting wood. There's no such reliable method of producing spalted wood on a large scale. It's either that or I don't want to give my commercial secrets away!

The only thing I can do is to help you "encourage" the natural formation of spalt (White Rot and Blue Stain) in acceptable woods.

The overriding factor to help you spalt wood is to make your friend, fungus, happy. Remember, fungus, specific fungi, cause the decay and coloration that we call spalt. Encourage the growth of that fungus and you'll be more apt to get spalting. Actually, the hardest part of spalting wood is not getting it to start in most cases but it's getting it to stop before the wood is a bunch of mush.

So, what does fungus want? Pretty much what we all want ... a nice place to live and grow; an environment not too cold or hot, too wet or dry; enough friends so that we can tear the place down with the party and then move on. Oh, wait, I've gotten off track ... back to the fungus. Here are the best growing conditions for the fungus we're trying to help grow.

White Rot: The ideal conditions for this fungi include temperatures from 70 to 90 F; moisture content around 30%; lots of oxygen; plenty of good wood to live in and chemicals IN that wood to eat.

Blue Stain: This fungi type needs temperatures over 60 and under 150 F to thrive; moisture content between 20 - 30%; a good oxygen supply; nutrient rich food supply; access to bugs and other critters to bring the Blue Stain fungi in.

The main factor for the formation of any fungi is moisture. Keep it moist, but not waterlogged, and there will be fungal infection. The key is to get the right kind of fungus to grow. Some areas simply won't support spalting. Fungal spores are found almost everywhere but it's the specific type of fungus for spalting that we're concerned with and there must be a threshold of fungus present to kick start the spalting process. If one area doesn't seem to produce spalting, move the wood to another area and try again. Some areas are better than others as well. The best I've found, without building a special structure, is in a valley where water frequently runs in heavy rains but yet is covered with lots of organic matter (leaves, manure, bark, etc.). Old horse corals are great too although I suspect about any animal coral will work! Keep the logs with the bark still on and in contact with the ground. Keep the logs with the **ends** in contact with the ground. The tree's natural vascular system will transport the fungus up and throughout the entire log section up to several dozens of feet high. It can do this quite rapidly too so that there's little difference between the amount of decay between the bottom (next to the soil) and the top of the log. I regularly (several hundred logs a year) do this on logs up to 16' in length! Don't bother with storing logs with the bark next to the ground. You'll just end up destroying the protective bark on those sides and letting the log dry out too quickly through the ends. It's tough to get enough moisture into the log without introducing Brown Rot (see the beginning of the article) and destroying it all. You can seal the top of the log to help keep moisture loss to a minimum if you want. Keep air movement to a minimum as this decreases moisturehttps://www.hiltonhandcraft.com/Articles/Spalting_a_Fungus_Amongus.html re content. The fungus isn't going to come from the air. It'll come from the ground matter and the bugs/animals/birds but the specific fungus has to be there in the first place in order to cause the spalting process.

So, how will you know when the spalting is "done"? Take very small slices off the bottom of the log and look at it. Simple as that. That's how I get most of my turning stock. If you do get some good spalting on the bottom, try cutting a bowl blank out. If you have good spalting at the top of that blank then keep going. If you notice that the spalting tapers off or just isn't present at that level, you can simply put the rest of the log back down onto the soil and let it continue. The time it takes depends on the environmental conditions. In tropical climates, it can take just a few weeks with some woods. I've found that, around the Ozarks area, it takes about 6 weeks to spalt hard maple in optimal conditions. Sometimes it takes 3 months or more. You just never know and must check it every so often.

Other Spalting article sources:

Spalted Wood by Wood Magazine - http://www.popularwoodworking.com/projects/spalted-wood

Spalting, Afungus Amungus by Andrew Hilton - https://www.hiltonhandcraft.com/Articles/Spalting_a_Fungus_Amongus.html

Controlled Spalting by Woodweb - http://www.woodweb.com/knowledge_base/Controlled_spalting.html

Spalt your own A recipe for creating Spalted Wood by Russ Fairfield - http://www.woodcentral.com/russ/russ4.shtml

Spalted Wood by Alan Lacey – http://joshuastrees.blogspot.com/2009/07/bacteria-in-my-woodgrow-your-own.html#!/2009/07/bacteria-in-my-woodgrow-your-own.html