Northwest Woodworkers Association

THE SAWDUST NEWS

Northwest Woodworkers Association

November 2014 http://www.nwwoodworkers.org

An association for woodworkers of all skill levels to share their common interest

The Next Meeting

Date: **December 11, 2014**
Note that there will be no meeting in November
Location: **Rockler Woodworking – Northgate**
832 NE Northgate Way
Seattle, WA 98125
Program Highlights: **A Veneer Give Away – A substantial gift of high quality hardwood veneer has been donated to the Association by the estate of a local woodworker. Forty one (41) lots of veneer will be distributed by lottery to interested members present at this meeting. All members are invited to attend and participate in the drawing.**

October 2014 Meeting Highlights

Newsletter Photos by Scott Wilson & Paul Stoops

The **October 2014** meeting of the **Northwest Woodworkers Association** was held on **Thursday, October 30, 2014** at **Woodcraft Supply** in Seattle. A special thanks to **Ron and Michelle Hall** and the **Woodcraft** staff for providing this great venue for our meeting and setting up the chairs and equipment for us.

On this rainy, blustery night, fraught with heavy, slow-moving traffic, there were 13 members present including one new member, **David Seymour** and his wife, **Evelyn**. **David** said his woodworking interests included making furniture and items for his household. He noted that he has been a woodworker for "decades". Welcome, **David** (and **Evelyn**)! We hope membership in the **Association** will be a blessing for you and that you will feel free to share your experience and expertise with us.

Challenges 'N' Solutions

Jan Erickson presented a challenge to the group regarding a current project in which she needed to build an isosceles triangular assembly. After cutting the equal length sides of the triangle, she was unsuccessful in cutting the angles on the ends of the parts in a manner which allowed the ends of the parts to join – for some reason one of the triangle legs appeared to be too short, even though she had cut the parts to equal lengths! The group tossed around several possible causes for her problem and deduced that somehow the angles on the ends of the parts had been cut incorrectly. It appeared that perhaps **Jan** had misunderstood the geometry of the angles and had made her calculations based upon the obtuse angle instead of the included angle. She seemed to agree and said she would check her measurements after the meeting. [***Ed. Note***: Subsequently, **Paul Stoops** made a sketch and sent it to **Jan** describing a method that could be used for cutting the angles. Hopefully it solved her problem.]

Charlie Culler posed a question related to applying veneer to some flat picture frames he is currently making. He is trying to decide how to apply one or more layers of veneer to a raised area along the center of his frame members, some of which are curved. It was suggested that he coat the veneer with a wood glue, such as Titebond, or hide glue, let it dry and then apply it, using a clothes iron to soften the glue coating and bond it to the frame members. Hopefully, **Charlie** will be successful with his veneer application and come back to us at a future meeting with a positive report and information the group can use for future projects. Good luck **Charlie**!

Show 'N' Tell

New member **Mark Martinez** showed us a beautifully crafted curly cherry box he had made in accordance with a **Shop Notes** article. He noted that he had purchased the material some time ago at **Woodcraft** and had it stored awaiting just the right project. He said that he had used water soluble red and brown dyes to color the body of the box and shellac for a final finish. What a stunning visual effect the dyes made to pop the exquisite curly grain in the cherry. He was unable to identify the dark wood used for the ends, but from his description, the group suggested that perhaps it was Ironwood. This dark wood made a nice contrast to the highly figured curly cherry.

Mark noted that the only problem with the project was that one corner of the lid seemed to bind slightly against one of the ends and he solicited suggestions to alleviate the problem. **Herb Stoops** offered the most helpful suggestion that he remove one of the hinges, plug the screw holes with a couple of toothpicks, and redrill the holes to slightly relocate the hinge.

Beautifully crafted project, **Mark**! Thanks for sharing it with us.

Mark's second project item was a small crosscut sled he had made for his table saw. The sled was nicely crafted and used a single runner on the bottom. One of the unique features was a sliding panel in the Baltic Birch base which allows him to cut dadoes without damaging the base of the sled. He also installed tee tracks in the base to allow small part clamping, and on the rear fence to accommodate a deluxe flip stop.

In spite of the nice craftsmanship on the project, **Mark** noted that he was somewhat dismayed that somehow in building the sled, he had managed to mount the rear fence out of square with the runner and the tee tracks by a little more than 2º! This construction error made the sled practically unusable, so he solicited suggestions from the group as to how he could correct the problem.

Most of the suggested fixes recommended removal and relocation of the fence to correct the angularity problem. In the interest of solid construction, **Mark** had solidly mounted the rear fence to the base with glue and screws, complicating the repair situation! However, the

suggestion was made to remove the screws and use a heat source such as a heat gun, or even a hair dryer to heat the glue joint enough to soften the bond so the fence could be removed and relocated. He noted that he had never heard of using heat to soften a glue joint, but was willing to try the fix. Hopefully, **Mark** will return to a future meeting with a good report of a successful rework of his project.

Upcoming Events

Herb Stoops noted that **Bridge City Tools Works,** a Portland, Oregon company, is currently featured in a show at the Bellevue Art Museum. The show features their one-of–a-kind collector tools of the highest quality and creative designs. The show also includes a furniture display and demonstrations and runs until February 2015. [**Ed. Note:** The **December 2014** edition of **Woodworker's Journal** Shop Talk section features an article about this exhibition]

Remember that due to the Thanksgiving Holiday, there will be no meeting in November!

December 2014 Meeting – The **December** meeting will be held on **Thursday, December 11, 2014** at the **Rockler - Northgate** store. Unlike previous years, this meeting will be held on the ***second*** **Thursday of December** due to scheduling constraints.

The focus of the December meeting will be a **Veneer Give Away**. A substantial gift of high quality hardwood veneer has been donated to the **Association** by the estate of a local woodworker. Forty one (41) lots of assorted veneers will be distributed by lottery to interested members present at this meeting. All members are invited to attend and participate in the drawing for this valuable windfall ready to grace your next project.

Program Presentation

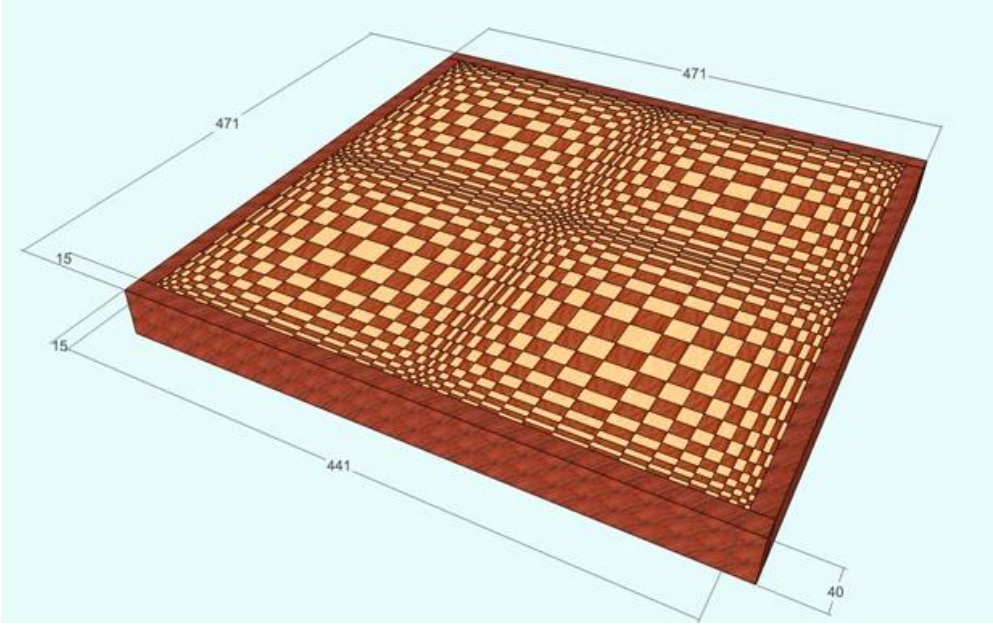
Designing and Building an Optical Illusion

Paul Stoops was our featured speaker for the meeting presentation.

He began his presentation with a question – **"*What is an optical illusion*?"**

One of our members responded with the thought that an optical illusion is something that appears to be something that it is ***not***!

Probably at this point, most of the audience was thinking "What a strange subject for a woodworking presentation!" But then **Paul** went on to explain that some time ago he had come across a cutting board design on the internet by a Russian woodworker entitled the **Butterfly Board**. The field pattern of the cutting board fascinated him because it presented an optical illusion in which the surface of the board appeared to be slightly bulged and there appeared to be curved lines in the pattern – neither of which was true!



[**Ed Note:** All dimensions in millimeters]

Fascinated with the design, he purchased the online download of the plans for the board, which turned out to be a well illustrated .pdf file giving all the dimensions and step-by-step photos of the fabrication operations.

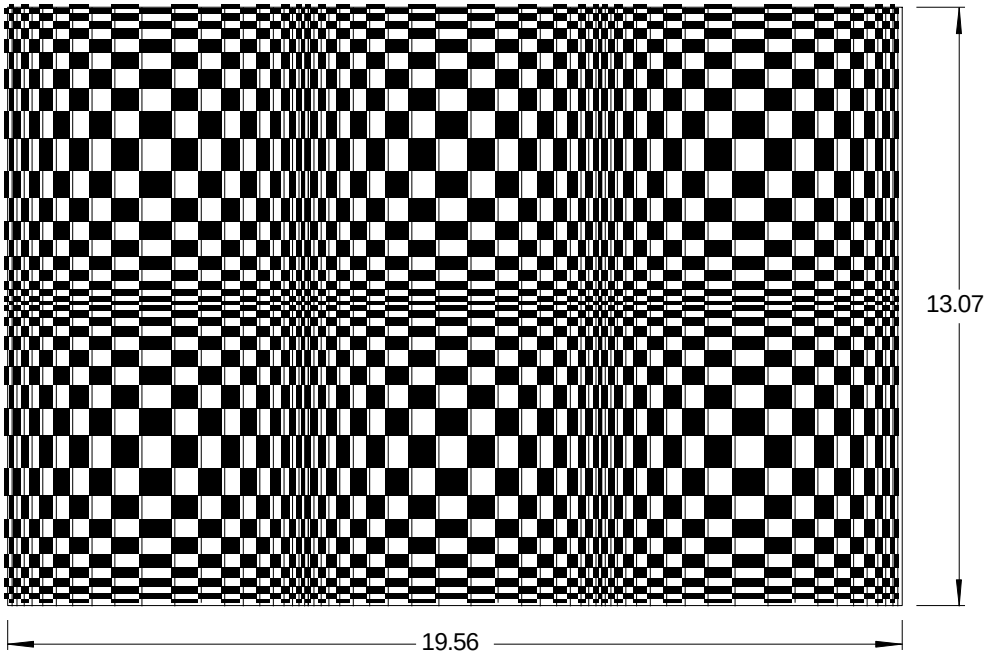
Paul wasn't interested in building a cutting board, having built a number of them in the past and having found that the recipients almost universally stated that "They were too beautiful to use!" But this unique cutting board design got the wheels turning, causing him to wonder if (and how) such a design could be adapted for use as the field pattern for a **serving tray**.

Part 1 – Designing the Serving Tray Field Panel

For the design phase of the project he turned to one of the most useful tools in his woodworking arsenal – a **CAD** (Computer Aided Drafting) program on his computer! Explaining that he can't freehand draw a straight line or even make a very useful sketch, **Paul** said that he had purchased a basic CAD program some years ago and taught himself to use it. He found that just practicing with the program he was able to discover which of the bewildering array of tools and features ***were useful to him and how to use them***.

Having successfully used several versions of the **IMSI CAD** programs, he purchased a recent 2D program from **IMSI**, called **DesignCAD 2D, v22** to use on this project before recommending it. Although **v24** is the latest version of this program, he found the older **v22** available on Ebay for the bargain price of **$12 - $15** (about the same as a couple of drafting triangles), which has all of the features he requires for his woodworking designs. Importantly, the v22 is still supported by the IMSI technical staff.

Deciding that a 13" x 18" rectangular field panel would be more appropriate for a serving tray, **Paul** made a full scale drawing of the original square field pattern of the Russian cutting board design with his CAD program. Using the **Scale** feature of the program, he was able to create several alternate designs using all or parts of the original design.



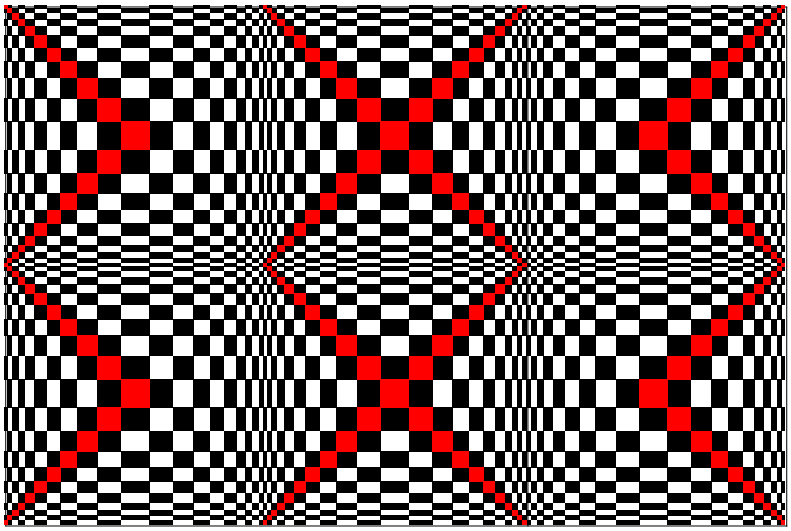
The design shown above was selected because it retained the double square pattern across the 13" width of the design and the curved, seemingly convex (i.e. "bulged") appearance at the center of each square. In addition, three of these double panels could be joined to form a panel slightly longer than the target 18" length.

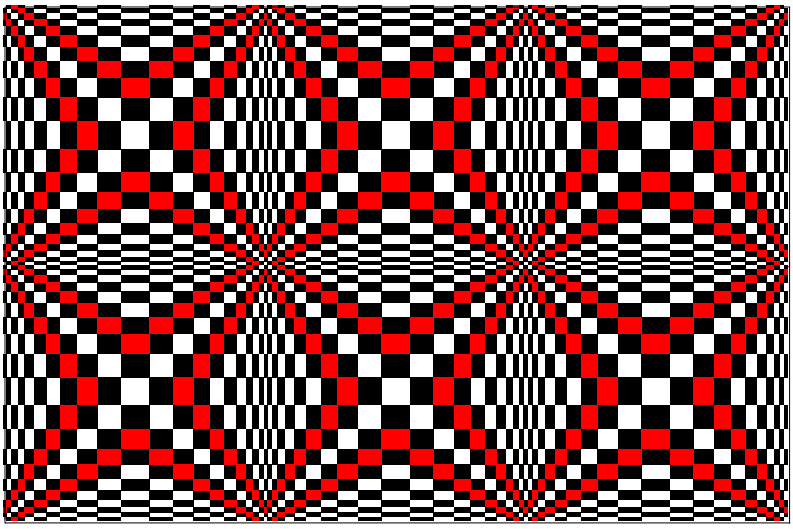
And of course, being a curious fellow, he wondered what the panel would look like if the light and dark pattern was embellished with some colored segments. So using the CAD program

again, the final panel design was copied and some of the segments filled in with a color, such as it might look with some Padauk mixed in.

The following are only two of a possible buzillion variations in the pattern just by adding a third color.....and if you added a fourth color.....and a fifth.....by then you might be having so much fun that you would forget to actually build something..... :-)

Warning: This CAD stuff could very well become addictive.....!! But is there any better way woodworking folks can actually go on a jag for only $15?? And with no hangover!





As noted, the original field pattern was dimensioned in metric units. At first this seemed a little awkward, but it became obvious that dealing with small whole number units instead of three decimal Imperial measurements – i.e. 3mm instead of 0.118” would probably lead to less setup errors – particularly since some of us Sr. Cits sometimes transpose digits. So he decided to retain the metric dimensioning system for fabricating the strips making up the panel. In reality it

doesn't make a difference since the setups are just established to some number or other. But in this case, using metric units just made more sense.

Part 2 – Making Sawdust

At first glance, this field panel looks very complex and difficult to build. However, the reality is that the panel is nothing more than a series of wood strips, ripped on a table saw to various thicknesses, drum sanded, and glued together. Cut lists and part identification are necessary to keep track of the many pieces, but this is a task easily accomplished. In fact, fabrication of the field panel for the serving tray was much like making an end grain cutting board.

Wood Choices

When he built the prototype tray for the **2014 2 x 4 Challenge**, **Paul** found that the prominent grain patterns of the Douglas Fir material overpowered the pattern of the field.

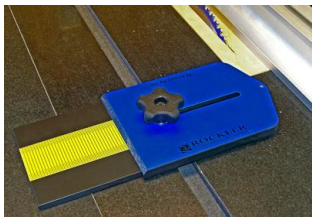
So for this project, he wanted to choose hardwoods that would have a minimal grain pattern and contrasting colors to enhance the field pattern.

After looking at various wood species, **Paul** chose **Peruvian Walnut** and **Beech**. The dark brown color of the Peruvian Walnut contrasted very well with the slightly pinkish tone of the Beech. Both of these materials were purchased at **Crosscut Hardwoods**, one of our **Association** sponsors.

Stock Blocks

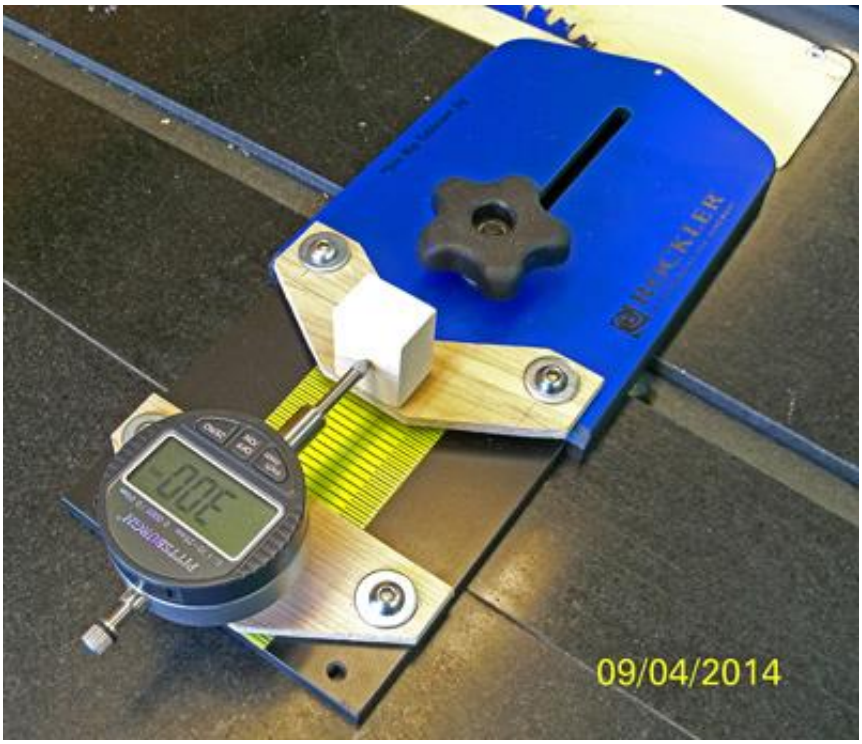
Layouts made with his CAD program determined that **30** pieces **1 5/8" W x 11" L** of each species of the 4/4 (13/16" – 15/16") material would be required for the field panel. These pieces were glued face-to-face into two blocks of each species, containing 15 pieces per block. This was done to facilitate easy and safe ripping of the thin strips to be used in the following fabrication step. After gluing, the blocks were drum sanded both sides to a flat, uniform surface.

Initial Board Fabrication

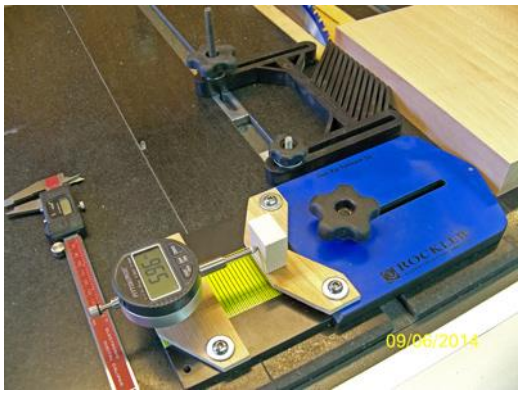


To facilitate the ripping of the **Stock Blocks** into various thickness strips, **Paul** remembered that he had an unused **Rockler Thin Rip Table Saw Jig** which might make those operations easier. This appeared to be a well made jig, but although it had graduations on the base, it lacked any measurement scale. Since this project was going to require accurately cutting thin ***metric*** thickness strips to specific dimensions, modification of the jig was needed to improve its functionality for this project.

So he went to **Harbor Freight Tools** and purchased a reasonably priced digital dial indicator that would measure in either Imperial or Metric units over a range up to 1" or 25mm: http://www.harborfreight.com/1-inch-sae-metric-digital-indicator-93295.html. He then fabricated some simple brackets to attach the dial indicator to the **Rockler** jig.



Using the modified **Rockler** jig, he ripped each of the **Stock Blocks** into ***edge grain*** strips in accordance with the requirements of the field pattern – including 2mm excess thickness for final drum sanding. A cut list was used to keep track of the cuts and each of the pieces was identified by thickness with a felt tip marker after cutting and sanding. Although the strips were ripped and drum sanded to a target thickness, slight variations from the design values occurred – the important factor being that ***all*** of the strips of the same thickness of both species were final sanded with the ***same*** drum sander setting, producing typical part-to-part variations within 0.1mm (0.004").



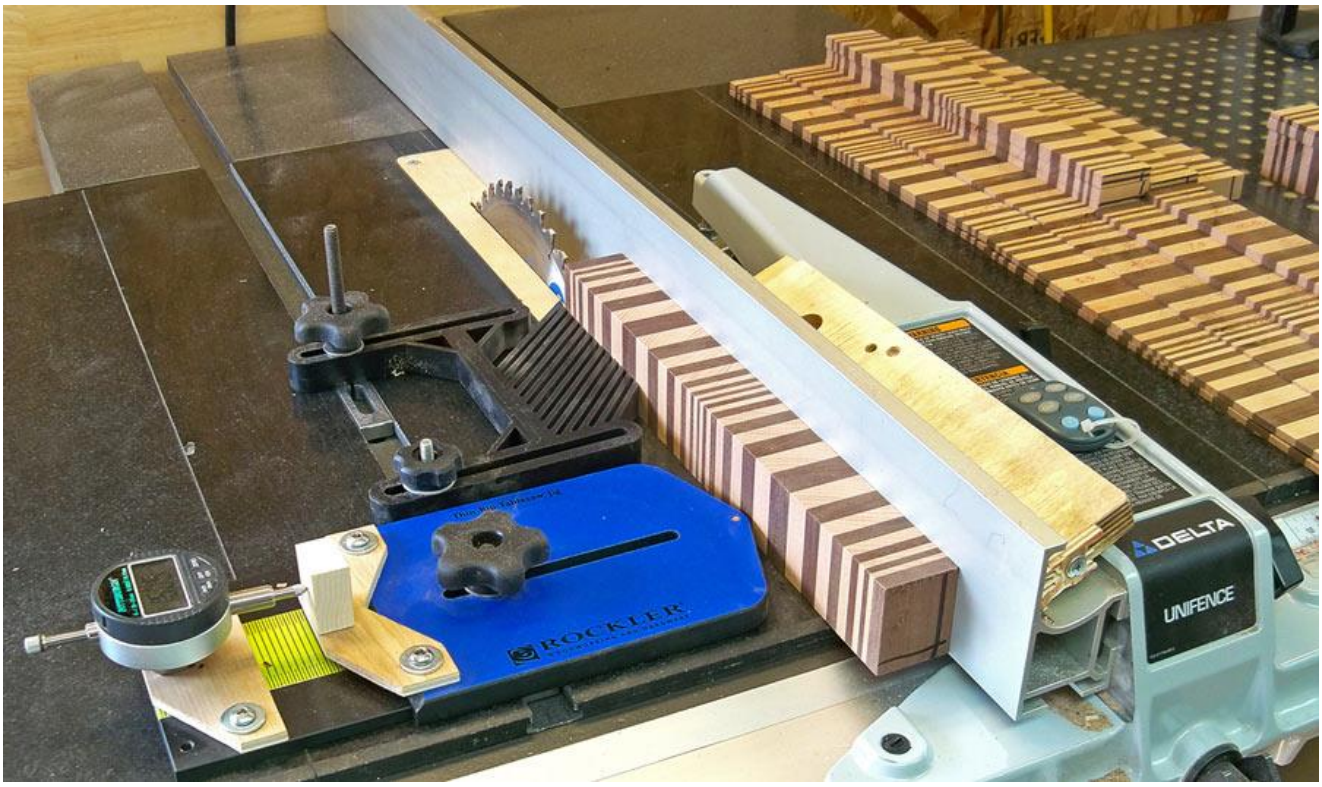
As shown below, strips of alternating species were subsequently dry fit face-to-face to form two **Initial Boards** in accordance with the field pattern design requirements. The two boards contained the same number and thickness strips, but were assembled starting and ending with the same species – i.e. one board had Peruvian Walnut edge strips; the other Beech strips. Note that the top and bottom surfaces of the **Initial Boards** were ***edge grain***.

Paul noted that during the dry fit, when comparing the two boards by matching them end to end, some strips in the boards ***did not align*** – ***some of the strips had been installed in the wrong order!*** Subsequently, the strips were rearranged and the boards were clamped and glued with **Titebond 3,** using cauls to minimize part mismatch. Had this error gone undetected, it would have been visually obvious in the final pattern! Geometric patterns require careful attention to detail! Final drum sanding removed surface irregularities from both sides.

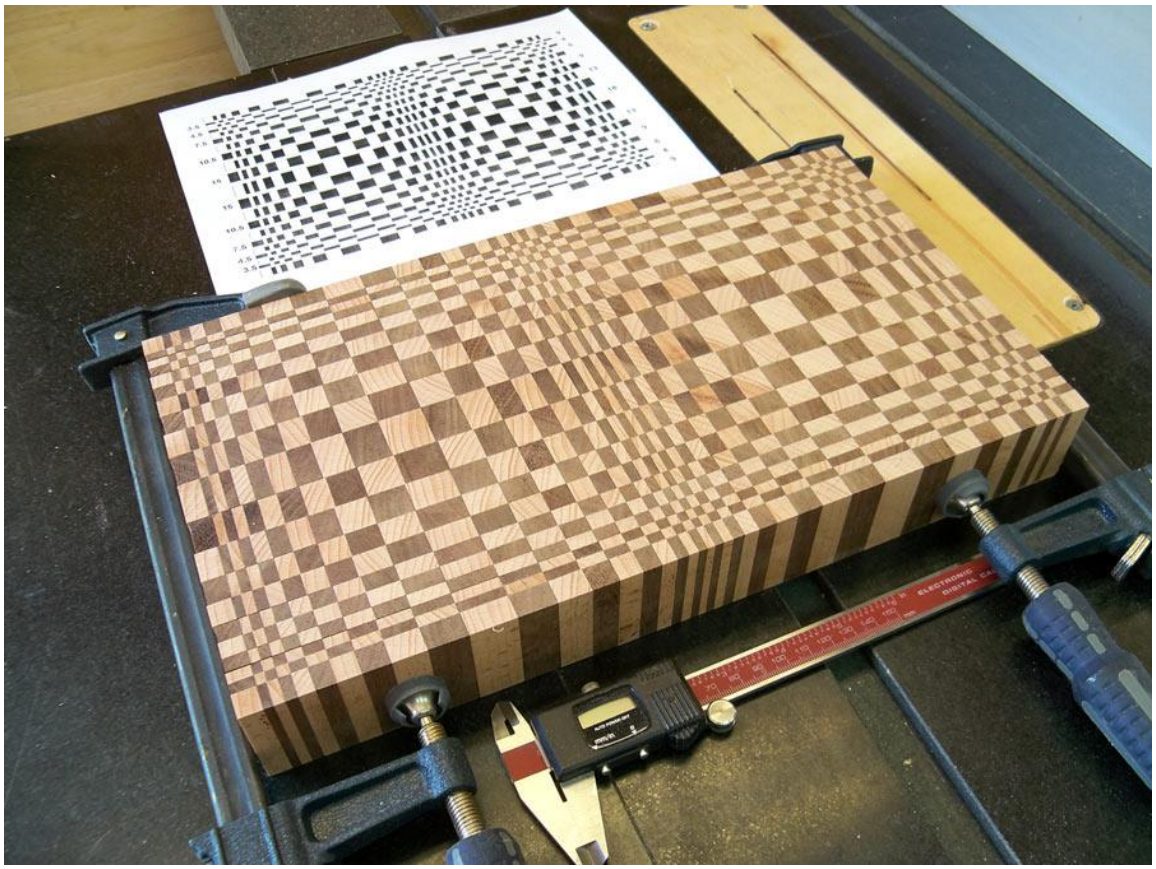
Final Field Panel Block

In the next operation, the two **Initial Boards** were crosscut into five equal width **Final Board Blocks**, as shown below. One block from each board was retained as a spare.

Subsequently, each of the eight **Final Board Blocks** was rotated 90º so that the ***end grain*** faced upward, and then ripped into various width ***end grain*** strips (including 2mm excess for final sanding) according to the pattern design requirements. Again, a cut list was used to keep track of the strips and they were identified by thickness after sanding

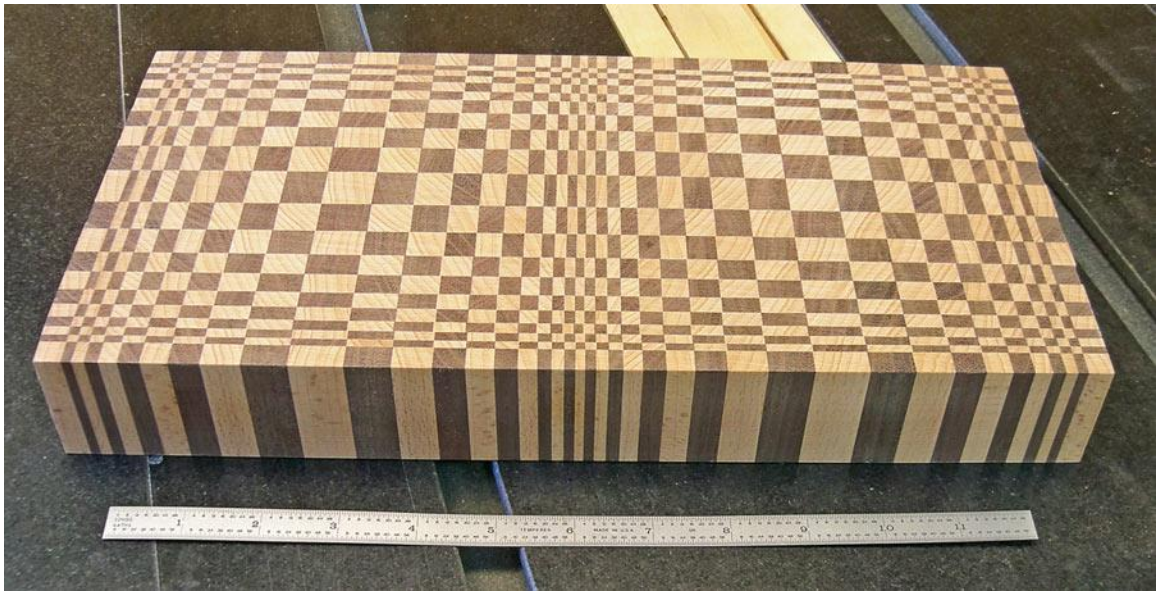


The ***end grain*** strips were then assembled into the **Final Field Panel Block** in accordance with the field pattern drawing and dry fit to verify correct installation of the pattern segments.



The photo below shows the **Final Field Panel Block** glued and sanded. Indexing the strips to a flat block against one end while gluing ensured accurate alignment.

The wide border strip on all sides of the block allowed final trimming to size.



The next operation required the **Final Field Panel Block** to be resawed along its thickness into three equal thickness panels. To facilitate the resawing operation, the block was kerfed twice along all edges on the table saw about ½" deep – this technique is said to help keep the bandsaw blade tracking along its desired path. It also increases operator safety because the blade is still contained within the panel at the end of the cut. The kerf width could be minimized by using a 7 ¼" thin kerf saw blade, which could reduce the kerf to around 0.065".

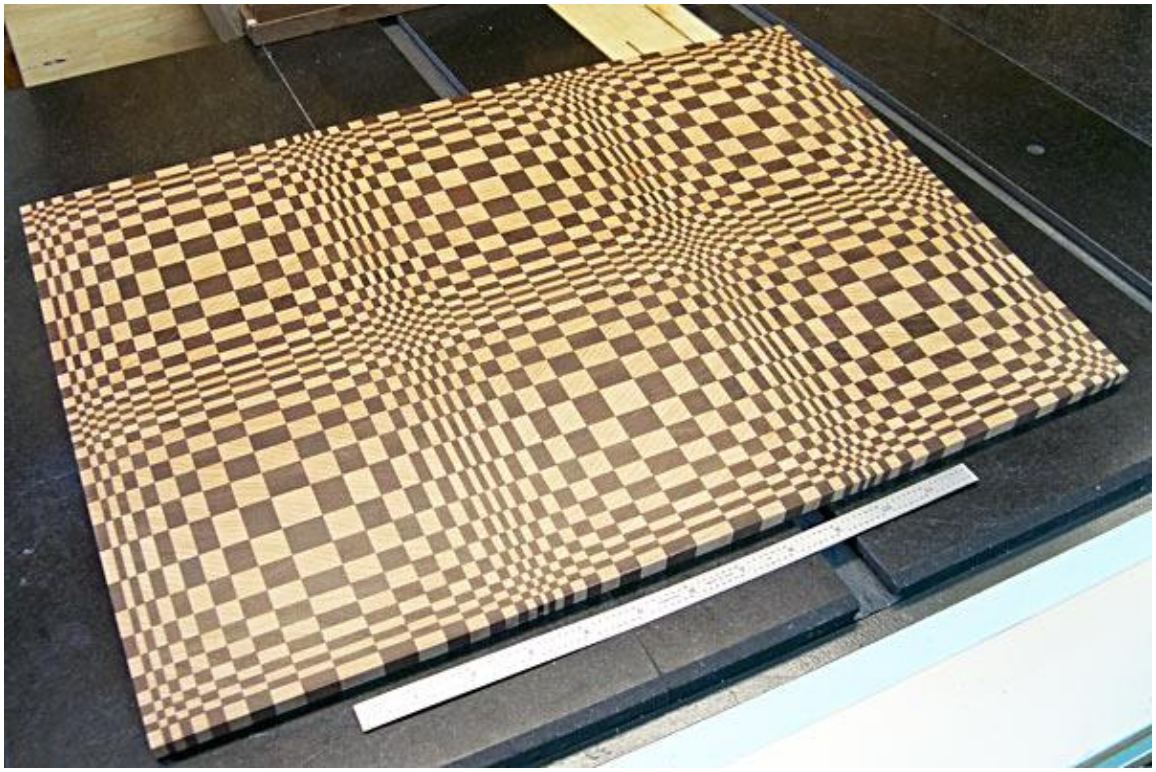
The photos below show resawing with a ½" x 3TPI blade using a high fence and stacked featherboards.

Final Field Panel

Prior to resawing, identification marks were applied to the kerfed block to enable bookmatching the three panels. After final drum sanding the three panels were bookmatched by rotating the two outer panels in opposite directions about the center panel. This technique ensured that the field pattern would exactly line up on both edges of the center panel.

However, to make the field panel match the desired design pattern, excess strips along the bookmatched edges had to be removed. This was accomplished by carefully aligning the panels with the edge of the table saw blade during the trimming operations so that the cutting took place along the glue lines – another reason to exercise care to align the strips during all of the assembly operations. After gluing, the **Final Field Panel** was drum sanded both sides to remove surface irregularities in preparation for final sanding, tray assembly, and finishing.

The photo below shows the unfinished **Final Field Panel**, drum sanded to about 100 grit. Subsequently, the panel was sanded with an ROS up to 400 grit prior to finishing.



And as Old Father Flanagan would have said, ***"Praise Be! It even looks like the drawing!!"***

After seeing this field panel, **Paul's** wife, **Sara**, told him, "I liked the tray you made for the **2 x 4 Challenge**, ***but this one's for me***!" [**Ed. Note**: She was unaware that **Paul** was making this tray for her as a present to celebrate an upcoming wedding anniversary!]

Finishing

For ease of access, **Paul** decided to finish both sides of the **Field Panel** before installing the rails. Wanting to preserve the natural color of the Peruvian Walnut and Beech woods, he chose a clear, high gloss, water borne polyurethane product, **Superclear EM9000sc** as the finish for the tray. This product, manufactured by **Target Coatings, Inc., Rutherford, NJ,** and available directly from the manufacturer, is frequently used as the top coat for high quality musical instruments like guitars, drums, etc: http://www.targetcoatings.com/products/interior-top-coats/em9000-super-clear-interior-polyurethane.html.

He used his ROS and sanding disks up through 400 grit to finish sand the panel. Final smoothing was done with **Micro Mesh** disks up through 12000 grit, producing a high gloss surface.

After finishing and polishing, the corners of the **Field Panel** were coped at 45º for a length of about two inches along each end and side to remove the 90º corners.

Completing the Serving Tray

Tapered side, end, and corner rails were milled from more of the Peruvian Walnut stock. A shallow groove was cut in the outside surfaces of these pieces for a custom laminated inlay made from spare pieces of the field pattern material. The rails also had a second groove milled into the inside surface to enclose the edges of the **Field Panel**. Miter joints were used to butt join the rail components.

To provide a visually appealing way to round each of the corners to protect them from damage, he installed a vertical Peruvian Walnut spline centered on each miter joint. In addition, he installed a walnut spline transversely across each joint for reinforcement.

To complete the part fabrication, tapered Peruvian Walnut skirt components were milled and installed underneath the **Field Panel**, raising the tray to provide better access under the handles. Resilient plastic stem bumpers were used to prevent surface scratching and slippage of the tray in use. Attractive brushed nickel finish metal handles were installed by embedding studs, threaded into the handles, into blind holes with two part epoxy.

As a final touch, **Paul** applied a commemorative plaque, custom made by a local sign company, to the back of the tray, dedicating the project to his wife, **Sara**.

After the tray was complete, paste Carnauba wax was applied and buffed to produce a high gloss, protective coating.

Part 3 – Showing the Hardware

At the end of his presentation, **Paul** brought out the finished tray, which produced a ripple of Ooohs and Ahhhs throughout the audience (according to our Secretary's meeting notes!).

[**Ed. Note: Paul** didn't recall that response but he did notice that a number of folks couldn't seem to keep from rubbing the high gloss finish!..... :-)]

[**Ed. Note:** I always think of hot air balloons and Christmas ornaments when I look at this view!]


Made with Loving Care
for Sara
Happy Anniversary!
Love,
Paul
October 2014

Definitely a fun project with a satisfying result!

A Note from the Editor

One of the things that impressed me about the October meeting was the willingness of the members to offer help to other members who were having problems or concerns about their projects. We have such a varied and wonderful reservior of knowledge and experience within the Northwest Woodworkers Association. I find it fascinating and uplifting when members freely share their suggestions and solutions with one another. The old saying that “No question is a dumb question!” is really true. Sometimes less experienced folks are reluctant to ask questions for fear of being considered ignorant. Fortunately that is not the prevailing attitude here within the Association – our members seem to welcome opportunities to help others based upon the things they have learned along the way. But sometimes it is good to remind ourselves that ***we*** once were newbies, too, wondering about answers to the same or similar questions! That attitude of willingness to help and share benefits our whole organization. Keep it up, folks!

In that light, I would like to thank **Herb Stoops** for critiquing this Newsletter and helping me refine the content.

Happy and Safe Woodworking,

Paul

Northwest Woodworkers Association Sponsors

We appreciate the generous support provided by our NWWA sponsors, from providing member discounts on purchased items to providing state of the art venues for us to conduct our monthly meetings. Thank you, Sponsors!

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We encourage our members to contact any of the above individuals with questions, comments, or items that may be of interest to the membership.

In addition, please visit our website and forum: http://www.nwwoodworkers.org