

## ***Northwest Woodworkers Association***

# ***THE SAWDUST NEWS***



January 2020

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

### ***The Next Meeting***

**Date:** February 27, 2020; Social at 6:30 PM; Meeting at 7:00 PM

**Location:** Woodcraft Supply  
5963 Corson S.  
Seattle, WA 98125

**Program Highlight:** Top 5 Machines in the Shop  
**Speaker:** Gary Rogowski

### ***January 2020 Meeting Highlights***

***Meeting Photos by Scott Wilson***

***Meeting Notes by Tim Newsome***

The January 2020 meeting of the Northwest Woodworkers Association was held on Thursday, January 30, 2020 at Rockler – Northgate. We want to express our appreciation to the Rockler – Northgate Staff for hosting and providing such a wonderful venue for our meeting.

Twenty-four members and guests were present.



## **Show 'N' Tell**



**Jim**, one of our guests for the meeting, noted that he enjoys chip carving. He noted that when he and his wife vacation at the beach, he brings along his chip carving equipment and wood and does his chip carving, while his wife knits. Sounds like a good arrangement to me! He also brought along some samples of his nicely crafted work:



Nice work, **Jim**! Thanks for sharing with us.



**Charlie Culler** showed us another of his construction equipment toy collection he is building for one of his grandchildren. Living in an apartment, he said that he does some of his woodworking in his bedroom! He also noted that most of the fabrication of this wooden toy was done with a scroll saw and a router. Nice work and great attention to detail,

**Charlie!** I hope your grandchild gets as much enjoyment from playing with this as Grandpa is having building it!



This big low boy trailer and the smaller flatbed trailer are significant additions to that neat toy collection, **Charlie**.



**Tom Howorth** displayed some photos of some of his recent projects made with his CNC equipment. These boxes, made for his sons, were fashioned by routing out the interior of the boxes and the mating lids. The decorative CNC carvings in the lids of the boxes really enhanced their appearance and appeal. Great job, **Tom**. It's nice to see some of the capabilities of the CNC world put to work.



**Tom** also showed us a photo of a pair of kumiko panels he had recently made. Wonderful craftsmanship, **Tom**! Those must be some kind of lesson in patience.....?!:-)







**Bill Bond** showed us some of his recent indoor and outdoor projects, including a beautifully crafted kitchen island cabinet with laminated, turned legs and aprons with curved molded edges. His outdoor project was a uniquely designed library, shaped like a schoolhouse, with hand split cedar shakes on the roof and lap siding milled from a 2 x 4! It was designed to be mounted curbside to hold books for exchange from a lending library.



**Bill** explained that he has had difficulty keeping the rain out of his library! He noted that after some recent downpours, he is going to have to go in and do some disassembly and resealing, in an attempt to outsmart the Weatherman. Hope it works for you, **Bill**. That is surely a beautiful project!

# **Program Highlight**

## **Making Profiles on the Tablesaw**

### **Speaker: Paul Stoops**



**Paul Stoops** began his presentation noting that he wished to share a journey of discovery he recently traveled to find a suitable way to create a curved profile for an upcoming jewelry box project. He explained that he had a mind's eye vision of the profile he wanted to make but didn't know how he was going to make it! He explained that he didn't have a shaper or a router table, so he was looking for an alternate method to create the profile. Having heard of cove cutting on the table saw, he did some online research about this process and decided that perhaps it might work for this application. He explained that this presentation was not designed to teach people how to do cove cutting, but rather to document some of the interesting things he learned about the cove cutting technique that might be useful to fellow woodworkers.

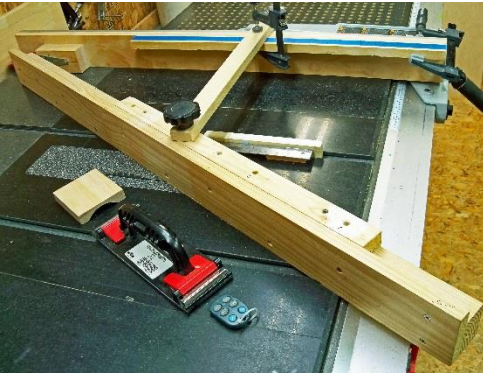
He found that the cove cutting process is an old, established process which is very well documented in woodworking magazine articles and DIY online videos. Interestingly, this process is not limited to just creating cove moldings but can also be used to create a variety of **curved** profiles on our **straight-line** cutting table saws!

Cove cutting is not rocket science – but rather a simple process that involves passing a board across a table saw blade against a fence set at an angle to the blade, carving a curved groove in the face of the board. A curved profile is generated by making successive cuts, raising the blade in small increments between passes until the desired profile depth is obtained. The **size** and **shape** of the curved profile are determined by the table saw settings.

No special equipment or tooling is required to do cove cutting. This process can be performed on any table saw with nothing more than one or two 2x4's clamped to the table for a fence! A wide variety of table saw blades can also be used successfully.

For this investigation, **Paul** decided to build a shop-made adjustable fence which he could clamp to his existing table saw fence. This fence, along with a digital protractor and a digital angle cube, allowed accurate setting of the fence angle and blade tilt over a wide range of values to investigate the effects of various combinations of table saw settings on the size and shape of the cove profile.

His tests were conducted with two different diameter table saw blades as well as a specially designed cove/beading cutter.



**Shop-made Hinged Fence**



**Digital Protractor**

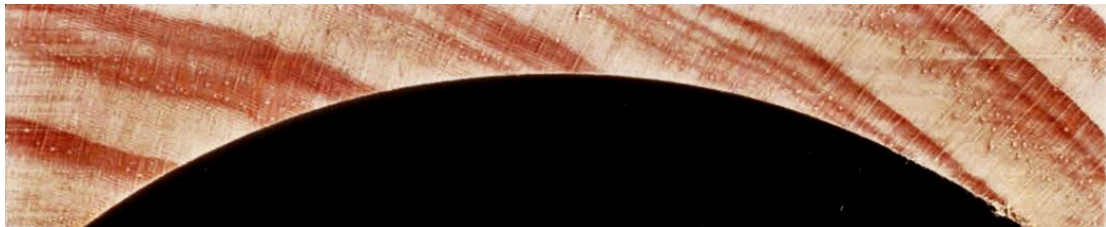


**Digital Angle Cube**



**Table Saw Blades & Beading Cutter**

Two basic curved profiles can be made the cove cutting process – ***Symmetric*** and ***Asymmetric***.



**SYMMETRIC COVE PROFILE**

***Symmetric*** cove profiles are characterized by their uniform curvature over the full width of the profile. The highest point of the profile (***Apex***) is located at the centerline of the width. ***Symmetric*** profiles are made with the table saw blade ***vertical***, perpendicular to the table. The angle between the blade and the fence (***Fence Angle***) determines the ***width*** of the profile.



**Asymmetric** cove profiles are unique in that the **Apex** of the profile is **off center** and the curvature of the profile is constantly changing from one end to the other.



### ASYMMETRIC COVE PROFILE

The **Asymmetric** cove profile is produced by the combined effects of the **Fence Angle** and **Blade Tilt**. Within certain limits, the **Apex** can be shifted by varying the **Apex Offset**.

Both cove profiles are created by two converging cutting paths of the table saw blade as it passes through the material. The **Symmetric** profile is formed by two identical parallel cutting paths, which accounts for the uniform appearance of the curvature on both sides of the centerline of the profile. The **Asymmetric** profile is also created by two cutting paths, but the **curvature** of each of the paths is **different**, due to the effect of the **Blade Tilt**. In both profiles, the cutting path closest to the fence is created by the **downward facing** blade teeth; the other by the **upward facing** blade teeth. Under most conditions, the two cutting paths cannot be distinguished because they occur on the bottom of the part and converge at the **Apex** of the profile to form a continuous, smooth curve.

Under certain conditions, such as small **Fence Angles**, which produce narrow cutting paths, the effect of the two paths can be discerned. This sample was made at a **10° Fence Angle**.



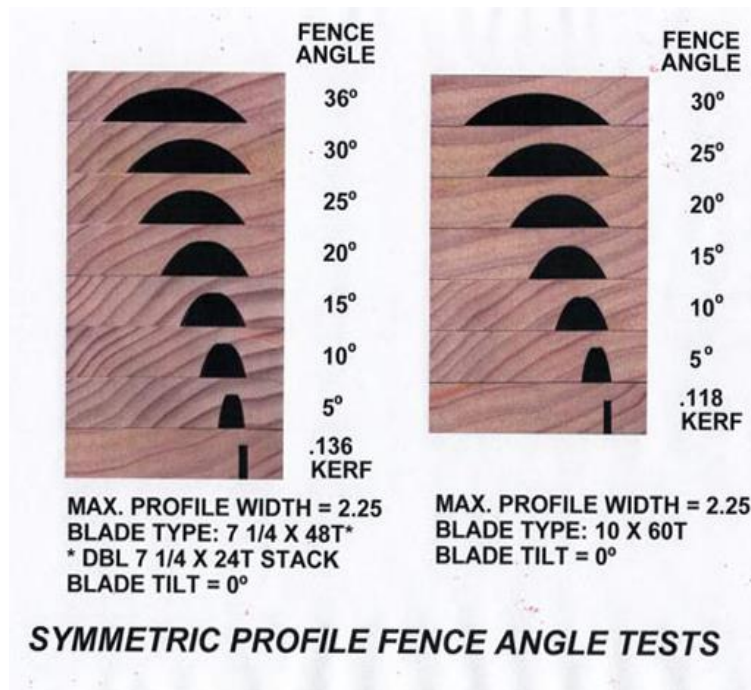
Note that the two cutting paths **intersect**, but **do not converge** into a single profile with a shared **Apex**. Clearly, there are **two Apexes** shown in the photo, produced by the two parallel cutting paths. Increasing the **Fence Angle** widens the cutting paths allowing them to converge.

A similar non-convergence condition can occur in **Asymmetric** profiles as well if the selected **Apex Offset** is too great. Fortunately, the online profile calculators disallow selection of an excessive **Apex Offset** and warn the user of the condition.

Although the **Fence Angle** and profile **Width** can be determined by using a parallelogram jig to set up the saw, a much easier and more accurate way is to use the **online calculators** available from **Fine Woodworking** and **Woodpecker.net**, which are very easy to use. Configured similarly, each of the calculators require specifying the **Depth** and **Width** of the desired profile to enable calculation of the required **Fence Angle** and **Blade Tilt** settings. The calculators also specify the maximum achievable profile limits based upon the input data. If using some angle measuring device, such as a protractor, to set the **Fence Angle**, select the **90° Miter Gauge Midpoint Angle** option.

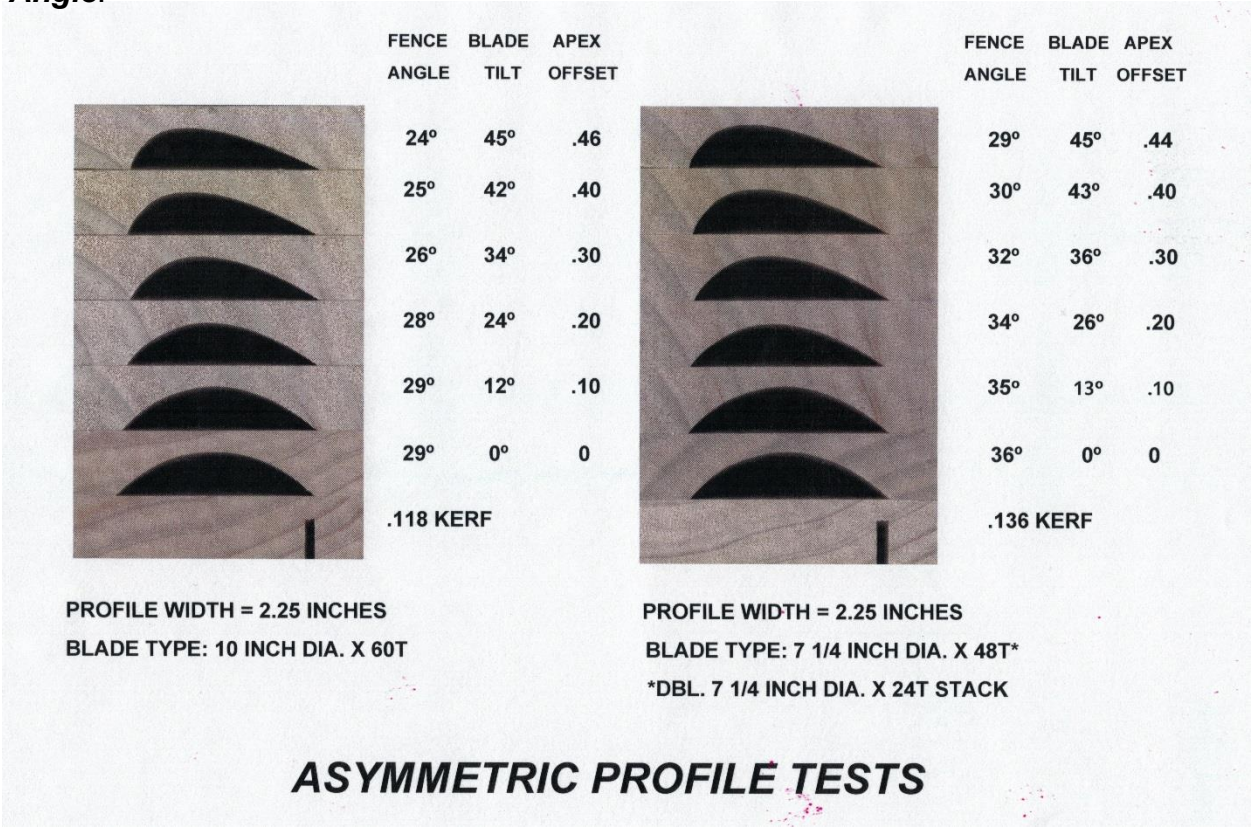
### FINE WOODWORKING CALCULATOR

Two sets of tests were conducted to illustrate the effects of **Fence Angle** and **Blade Tilt/Apex Offset** when making **Symmetric** and **Asymmetric Profiles**. Two different table saw blades were selected to demonstrate this cutter choice flexibility. The online calculator from **Fine Woodworking** was used to select the saw settings used in the tests.





The **Symmetric Profile** configurations were created by simply varying the **Fence Angle** without **Blade Tilt**. As expected, the **Width** of the profile widened with increasing **Fence Angle**.



The second set of tests were designed to illustrate the effect of the amount of **Apex Offset on Asymmetric Profiles**. The selected **Apex Offset** determined the **Fence Angle and Blade Tilt** for each test to produce a consistent 2 1/4" wide profile. As can be seen, the profile became more **Asymmetric** (skewed) as the **Apex Offset** was increased. Note that although the profiles appeared to be very similar, the two different diameter blades produced profiles with slightly different curvatures.

During his investigation, **Paul** noted that one of the common concerns registered by users was that the saw blade used to make the profile produced a rough surface that had to be smoothed by sanding or scraping. He stated emphatically that he is an unapologetic power tool guy who is **NOT** a fan of hand work, so he was interested in determining which blade produced the **best** surface finish, requiring the **least** post processing.

**Paul** also noticed that there was very little information available about what saw blade or cutter configurations to use for cove cutting. Therefore, he made test cuts using two different blades to demonstrate the performance of the different cutters on four softwood and hardwood species with increasing hardness: **Pine, Poplar, Cherry, and Red Oak**. For comparison, a set of test panels was also made using a heavy duty beading cutter having four, 1/2" wide, full radius carbide insert teeth. An **Asymmetric** profile was selected for the test panels to determine if the variable profile curvature would produce any significant change in the surface smoothness.



All of the test samples demonstrated surface smoothness that would require only minor finish sanding. The **Poplar** samples exhibited some of the “fuzziness” characteristic of **Poplar**, although this was not present on the sample made with the four-tooth cutter. Minor machining marks occurred on some of the panels, but not deep enough to require such aggressive smoothing measures such as card scraping.

The best surface finish occurred on those samples produced with the **4-tooth beading cutter**. Due to the absence of pointed teeth on this cutter, there were no striations like those present in the other samples. Apparently, the shearing cutting action of the generously radiused cutter teeth helped produce the improved surface smoothness.

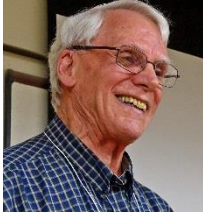
As a final operation, **Paul** made an **Asymmetric** prototype profile from **Red Oak** which represents the one he will ultimately use on his upcoming jewelry box project! This sample, shown just as it came off the saw, was made with the **4-Tooth Woodline Bead Cutter**.



***Mission Accomplished!***

***(Ed. Note: A separate downloadable .pdf document containing more detailed information will be available in the Newsletter section of the NWWA website.)***

## **Notes from the Editor**



What a great way to begin our meeting schedule for this year! We were encouraged by the number of members and guests who attended. As usual, there were some really interesting **Show'N'Tell** presentations. I want to encourage more of our members, and especially our newer members to bring their projects to share.

I hope that my presentation on cove cutting will inspire each of you to give it a try and see if it has something to offer for your projects – you just might be surprised.

Due to the limited space available in the Newsletter, I have written a detailed document with much more information about cove cutting. I hope to publish this .pdf document with this Newsletter and it will be archived on our NWWA website. If you have any questions, comments, corrections or enquiries, please send me an email at [pmstoops@comcast.net](mailto:pmstoops@comcast.net) I will try to answer them promptly.

Again, I would encourage each member to become more proactive. We all have knowledge and experience to share with one another – and especially with our newer members. Our meetings are also a great place to find answers to questions and solutions to problems.

Wishing you Happy and Safe Woodworking,

Paul

## **Announcements**

**\*\*Woodcraft now closes earlier on Thursdays, but they'll stay open just for us. When our meeting is there is also the only time that our 10% discount is valid.**

**\*\*Rockler - Northgate has openings for part time help. Part time employee discount = 30%**

**\*\*Rockler invites us to come to their 65<sup>th</sup> Anniversary VIP event February 20, 2020**

**\*\*Don Beacom is arranging an April 4, 2020 field trip to visit Holzer/Ames furniture on Capitol Hill. Contact Don for more information.**



## **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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## **Northwest Woodworkers Association Contacts**

**Membership**—Allen McCall [allen.mccll@gmail.com](mailto:allen.mccll@gmail.com)  
**Treasurer**—Chris Green [chrisandrenegreen@gmail.com](mailto:chrisandrenegreen@gmail.com)  
**Secretary**—Position Open  
**Webmaster** --- Tony Grosinger [tony@grosinger.net](mailto:tony@grosinger.net)  
**Newsletter Editor**--- Paul Stoops [pmstoops@comcast.net](mailto:pmstoops@comcast.net)  
**Photographer**— Scott Wilson [somrev2@comcast.net](mailto:somrev2@comcast.net)

### **Steering Committee**

**Don Beacom** [DonBeacom@aol.com](mailto:DonBeacom@aol.com)  
**John Gonder** [John.Gonder1@frontier.com](mailto:John.Gonder1@frontier.com)  
**Tony Grosinger** [tony@grosinger.net](mailto:tony@grosinger.net)  
**Tim Newsome** [tim@casualhacker.net](mailto:tim@casualhacker.net)  
**Scott Wilson** [somrev2@comcast.net](mailto:somrev2@comcast.net)

If you have a woodworking-related problem, question, comment, or item that may be of interest to the membership, we encourage you to contact any of the above individuals. We will endeavor to connect you with someone who can help.

In addition, please visit our website: <https://www.nwwoodworkers.org>