Sharpening Lathe Tools
Part 1: Getting Started

In this section:

- The Oneway Wolverine grinding system
- Basic grinding angles
- Safety using a grinder
- Setting up the V-pocket and Varigrind fixture
- Getting a good shape

This handout is intended as an introduction to sharpening turning tools. More advanced handouts will follow in 2017.

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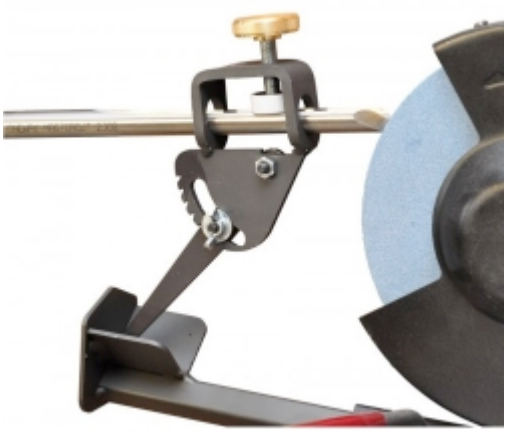
The Oneway Wolverine system

Possibly the biggest challenge when first learning to turn wood is getting nicely sharpened tools. Most of us completely underestimate *how important* a sharp tool is, and without expert guidance we find the process extremely frustrating. This handout is intended to present a straightforward way to get started.

The Wolverine sharpening system is the most common of the quality systems found in use today, so that is the system modeled here. If you have a different system, there is bound to be an OPCAAW member who uses it and can help you with it, so just ask around for assistance.

Here's picture of the Wolverine set-up on a grinder with 8" stone wheels:

And the Varigrind fixture for holding gouges:



There are DIY plans on the internet for making your own Varigrind and even grinding platforms, and many people use them, so if you need to save money, do a search or ask Jamie, she can send you some links.

There are instructions for set-up of the Wolverine platform at the Oneway website: https://oneway.ca/pdf/GJ%20Instructions%20update%20January%202010.pdf [click on "Manuals" on the oneway.ca website and look for the Wolverine platform]

NOTE! The instructions in this handout for setting the V-pocket arm and the Varigrind fixture are *based on advice and instruction from David Schweitzer,* professional woodturner, tool designer and founder of D-way tools. His instructions will differ from those of Oneway's but you will find that they are an easily understood way to get started, provide a very consistent grind, and you can modify your set-up down the road to achieve any specialized grind you desire. In my opinion, they remove a great deal of the confusion that surrounds sharpening with this system.

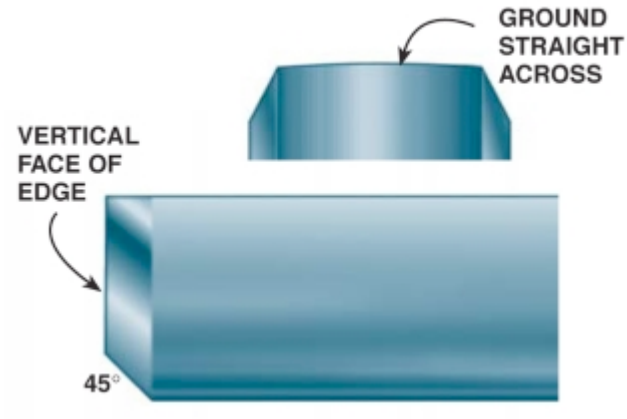
Basic Bevel (grinding) angles

The angles listed on the following pages are very basic. There are many variations, especially on bowl gouges and spindle gouges, depending on the user's level of skill and the type of turning being done. Such variations will be presented in a more advanced handout later in the year. As in all things turning, opinions vary. This information has been gathered from a variety of sources, and should serve as a good starting point.

Remember this essential: the shallower the angle, the more skill (tool control) required to guide the tool without catches. So, it's OK to start with a steeper angle (say 60° rather than 55° on a bowl gouge) and gradually decrease it as your tool control improves.

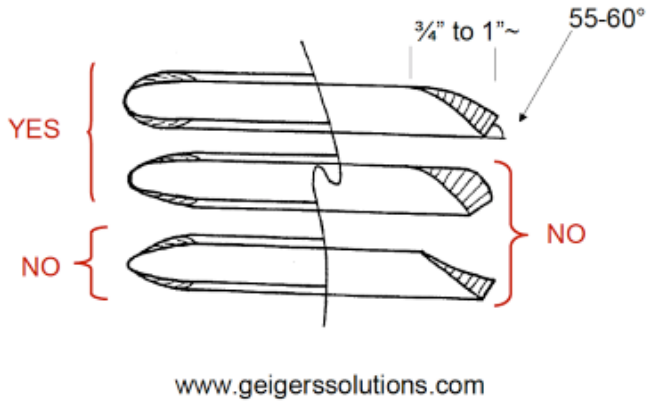
Guiding principle: Any highly-skilled woodturner's approach to sharpening is virtually guaranteed to work if it is learned and practiced. Today's world of the internet and YouTube presents so many varying approaches (some questionable) to those of us who spend hours reading and watching can make sharpening difficult! When starting out, picking a proven system and following it is the fastest way to success. Once the process starts to make sense, it's time to venture out and discover other approaches, angles, etc.

[grinding angles start on next page]



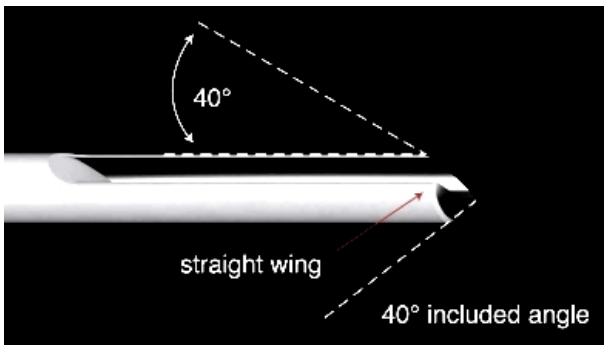
ROUGHING GOUGE: Used for roughing spindle stock only (do NOT use on bowls). Generally ground to 45° but 35° may work better on softer woods. If you sharpen these using a V-pocket, be careful the tip of the tool is above the centerline of the wheel.

[photo source: popularwoodworking.com]



BOWL GOUGE: There are many variations. This is a safe place to start, with a 50°-60° nose bevel, swept-back wings with *convex* or *straight* profile (not concave/dipped – dangerous). Move toward 45°-40° as skills permit.

A “bottom of the bowl” gouge may have a 70° angle and no sweep. The list goes on!

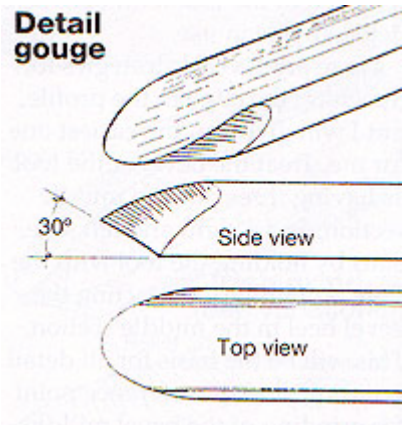


40-40 Bowl Gouge: The 40/40-grind on a bowl gougeis used by Stuart Batty, Tom Wirsing and several other turners. Cannot be ground using the Wolverine, but is relatively easy to learn to grind free-hand. Very versatile Wings are straight and the bevel angle is 40° throughout

[photo source: floridawoodturningsymposium.com]

Spindle Gouge: Used for turning beads and coves, especially on spindle stock. Various uses during bowl-turning and hollowing small, open forms. Can be ground according to skill level between 45° (easier to control) to 35° (takes finer tool control, but can fit into smaller spaces — see “Detail Gouge”). These are shallower than bowl gouges, but generally ground in a fingernail shape with a slightly convex wing.

[photo source: ashleyilestoolstore.co.uk]



Detail Gouge: A spindle gouge with bevel and wing shape designed to make finer details, get into tighter spaces. Bevel 35°±

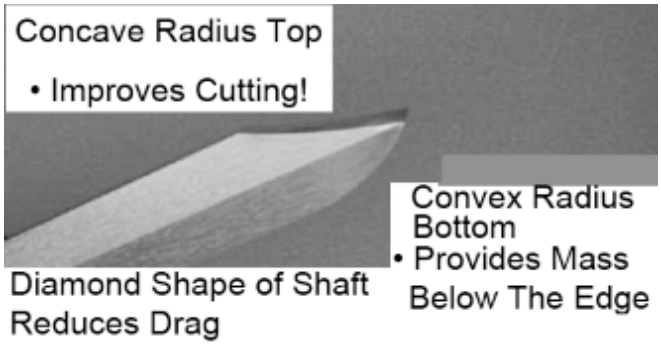
[photo source: geigersolutions.com]

Parting Tool (flat): Parting tools are used for parting through spindle stock, and several other operations. 45° is a good general angle. **Edges (face:edge)** need to be 90°, so must be held square to wheel. When ground flat on the platform (not vertical), it will have a flat edge rather than a “hollow-grind” (curved).

While flat parting tools must have a relief space to vent sawdust as you cut, they are very useful for making a very square cut (such as when making a tenon)
[photo source: craftsupplies.com]

Diamond Parting Tool: Designed to make it easier for sawdust to clear as you cut. 45° is fine. Best for diamond ridge to be centered between bevels. The upright position of the tip during grinding produces a hollow grind on edges (curved on either side of tip).

[photo source: craftsupplies.com]



A variation: Parting tools come in several different shapes. This is a variation on the diamond parting tool.

Some “thin parting tool” designs are flat blades which are very slightly thinner along the top edge than the bottom cutting edge.

[photo, modified from: geigersolutions.com]

Safety Using a Grinder

1. Use safety glasses and breathing protection
2. Use the grinder shields with wheels other than CBN. **Stone wheels can explode/shatter**.
3. **Never position a tool below the center of the wheel.** Better yet, be above center.
4. When using a platform, have it close enough to prevent the tool from catching between the platform and the wheel

Setting up the Varigrind Fixture and V-pocket For Bowl or Spindle Gouges

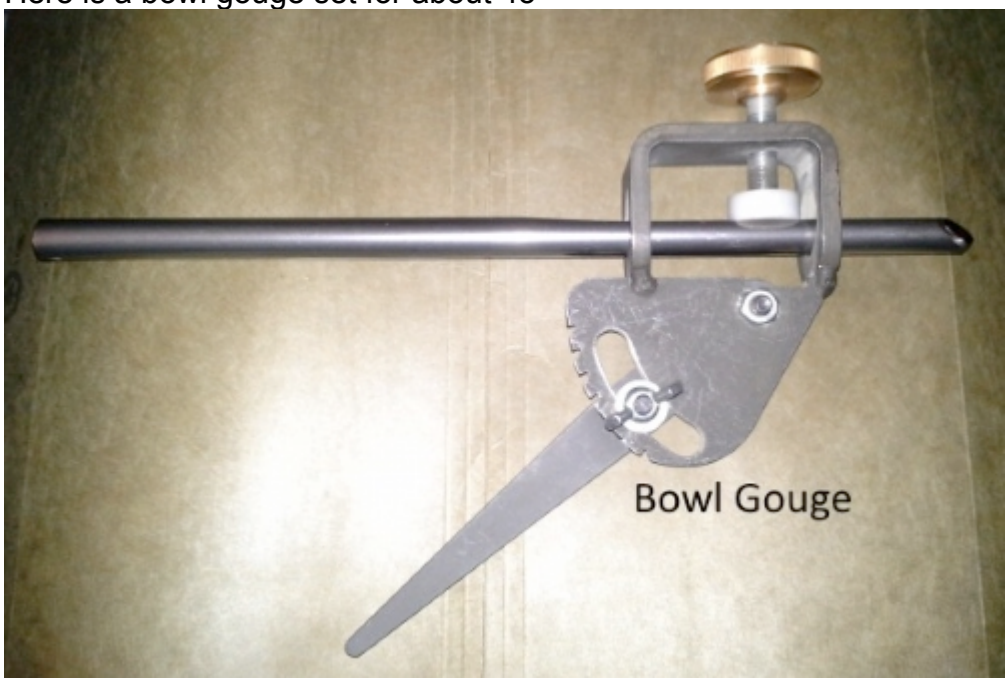
These guidelines were learned from David Schweitzer (see introduction). I strongly recommend watching two of his YouTube videos, listed below, in order.

Sharpening D-Way Tools Bowl Gouges [https://www.youtube.com/watch?v=uxdLXsFl01s]
This video starts with the set-up of the Wolverine system, and continues with basic instruction.

Sharpening D-Way Tools Spindle and Rouging Gouges….
[https://www.youtube.com/watch?v=XdF9mmJtuvU]
Includes skews, scrapers, beading tool, etc. The **spindle gouge** section starts at **10 minutes**.
Search for the titles above to avoid having to type in the URL.

Setting the Bevel: According to Dave, and verified by some experimenting by several turners, the **angle of the nose bevel** is set by the **leg on the Varigrind fixture**.

Here is a bowl gouge set for about 45°



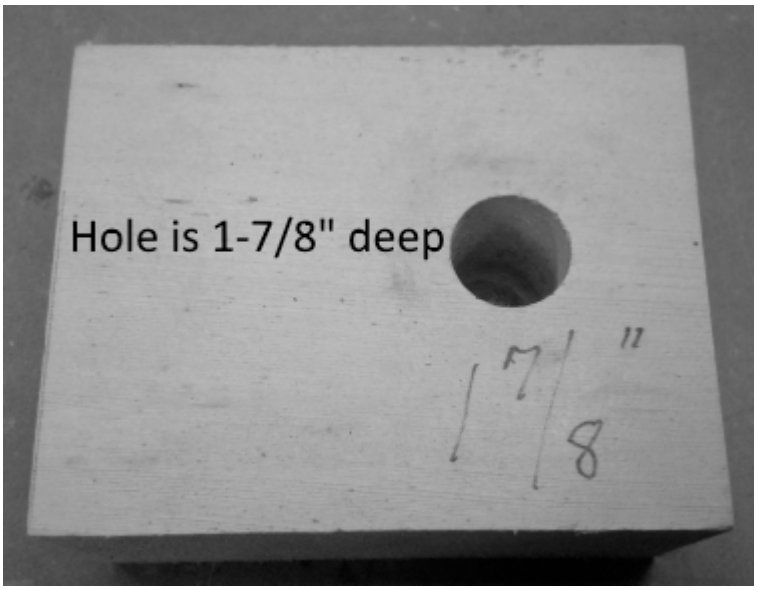
Bowl gouge example

This is a good starting point for a bowl gouge. To get a less aggressive, easier to control, larger bevel angle, you would move the leg closer to the #1 notch. To get a more aggressive cutting edge (lower bevel angle), you'd move the leg toward the tool handle.

Here is the Varigrind set for a spindle gouge to be ground at 35°. By moving the leg further down, you can produce a less aggressive, easier to control bevel – e.g., 40° or even 45°, As you gain more skill, you can decrease the nose angle.

Spindle gouge example

Setting the "stick-out": For the most part, you want all gouges to stick out the same distance from the Varigrind fixture. By using a shorter stick-out, you can use your gouges longer before you've ground down so close to the end of the flute that you need a new gouge. A 1-7/8 stick-out works well with this approach. It's worth taking the time to make a measuring block to do this quickly. My block is pictured below. You can see Dave's block in his video; it's a more common style.



Setting the V-pocket: For starting out, nice consistent grinds can be achieved by setting the V-pocket and leaving it, change only the leg on the Varigrind depending on whether you're grinding a bowl gouge or a spindle gouge – i.e., what bevel angle you want on the nose. The **side-grind** is influenced by the **distance of the V-pocket** from the wheel.

These relationships and instructions are different from what Oneway and most YouTubers describe – they would have you moving the V-pocket to set nose angle. Suggestion is to try

this approach for awhile, it works and is much simpler. It's clear from experience that moving the V-pocket out will take more metal off the cutting edge, and moving it in will take more metal off the heel. The side-grind on a gouge is influenced by that V-pocket – the Varigrind's let setting has virtually no affect on the side grind, only on the nose bevel.

If you use stone wheels as opposed to CBN wheels, your wheels will wear down, so this setting needs to be checked periodically. If you use CBN wheels, which do not wear down, you can simply mark the distance on the mounting shaft of the V-pocket. To get your setting, cut a dowel down to ~7-1/4", lay a tip in the V-pocket and move the arm until the other tip touches the wheel when lined up with the very center of the grinding wheel. This is the distance to set the V-pocket.

When the time comes you want to experiment with different wing configurations, this is what you would change to do so.

More tips:
Clearance of the heel on bowl gouges: you can help prevent burnish lines on your bowls by grinding back the heels of those gouges (burnish marks are made when the wood is compressed by the tool instead of being cut, and are almost impossible to remove by sanding).

- You can grind back the heel quickly by placing a small spacer in the V-block after you've ground the gouge – for example, use a ~½" square x ¾" thick piece and that will move the heel up for a quick swipe or two, center of heel. Sides do not need to be ground back. Occasionally, you may want to bring the heel back further. Try placing a quarter in front of the wood block, that should work.

You could also simply slide the tool further out of the Varigrind (increase the stick-out) after grinding the tool, and quickly grind back the heel. This produces a less hollow grind.

Getting a Good Shape

With a fixture or without, **you** are responsible for the **shape** of the gouge. You need a picture in your mind of the shape you want, and grind to that shape. Stay too long in one spot, and you'll get a dip in the edge. Mistakes can be fixed! Just regrind.

Tips:

- If your tool has a removable handle, remove it – less awkward
- Grind one half, then the other (left, right), then blend (rather than trying to swing the tool around all the way from one wing to the other)
- If your tools aren't high speed steel, be very careful about overheating the metal. Good quality HSS is difficult to burn, but once a metal loses it's temper, you've lost the edge quite a ways back.

Practice! Sharpening is like turning, it takes practice. Mistakes can be fixed.

Sharpen often! Any time your turning seems to become difficult, consider resharpening the tool. Often, that will solve the problem, especially if you're "gotten into the groove" of turning a big bowl and you think you're lost your technique. There's a good chance you've simply lost the edge on the gouge.