

## **Beginner's Corner: Some Light Along the Path Words to Turn By - Part 1**

Reprinted with permission from Robert Gulley  
[rgulley@wood-elegance.com](mailto:rgulley@wood-elegance.com)

Woodturning has its own language, like every field of endeavor. Some words and concepts may be familiar depending on one's background in woodworking, but many of the terms are specialized, and frankly, a bit strange-sounding! This month I want to focus on some of the more common terms one is likely to encounter whether reading columns like mine, or watching demonstrations. An alphabetical listing seems to be as good as any, and so I will begin at the beginning! While this is by no means an exhaustive listing, I will try to cover the most useful, but **please do** E-mail me with any questions you might have about these or other terms you may run across.

### **Banjo (saddle, cross slide, tool rest)**

This is the part on the lathe which slides along the bed and supports the tool rest. The banjo utilizes a locking mechanism to hold or clamp the tool rest base in place as needed. Most units use a simple cam/lever mechanism which rotates a plate or bar into place along the length of the banjo. (The banjo is one of the things you should test when looking at a new lathe—does it move smoothly and lock easily along the bed at various angles, as well as how solidly does it lock in place?)

The banjo needs to provide a solid support for the tool rest, and it should accept standard diameter tool rest shafts. The banjo needs to be able to be moved out of the way (or removed completely) when sanding, finishing, or carving.

With the mini/midi lathes the banjos are often a weak link in terms of locking capacity or holding capacity, so be aware of their limitations.

### **Bed**

The horizontal part of the lathe which connects and aligns the headstock and tailstock. This is an important element of a lathe because of the alignment aspect, but also because if the bed is not made well it can warp or twist under pressure. While a bed may be one or two rails depending on the design of the lathe, how they are made will affect the banjo and tool rest combination. I have found single rails can be difficult to align, but this can be more of an issue of what one is familiar with in day-to-day use. Round rails seem the most awkward as they can allow the banjo/tool rest combination to rotate, but there is a definite advantage in that the bed is less likely to warp. Most beds have two rails and are made of cast iron. The banjo has a track along which it can move, and this track and bed surface must be kept clean for smooth operation.

### **Bevel**

The bevel of a tool refers to the area directly underneath the cutting edge of a tool such as a scraper or a gouge. This area has different uses depending on the tool, but by far the most common reference to a bevel is for the gouge. The bevel on a gouge is always held in contact with the wood (except in one or two specialized cuts which are not important here). This bevel contact with the wood is called "rubbing the bevel), and it is critical that you learn how this cut is done. The bevel under the cutting edge slopes away at an angle (determined by the style of gouge), and actually supports the wood fibers while the cut is being made. When the bevel does not rub the wood as the cut is being made, the gouge edge becomes like a scraper and actually

tears the wood fibers, as well as making the whole cut rather unstable. However, scraping cuts (and scrapers!) definitely have their place.

While some turners make multiple bevels on their tools for specific cutting styles, as a beginner your goal should be to create a smooth bevel without any “facets” which can lay against the wood and give you a stable, well-controlled cut. If your tool has multiple facets you will have great difficulty controlling your cuts, and you will find areas of the workpiece which will not cut cleanly if at all until the bevel is smooth.

### **Blank**

A wood “blank” is the term usually given to a piece of wood which has been prepared in some way for turning—i.e. one which has been rounded smooth or cut into a section designed for lathe use. If a piece of wood is cut off from a log but still in its rough form, they are usually referred to as logs, sections, or pieces.

When talking about spindles a blank is usually rectangular with the corners still on the piece, so maximum diameters must be calculated by measuring the largest full circle a piece will support after the flat sections are rounded down. A compass works great for this (see, they are not just for grade school after all!).

### **Burl**

The term usually given for an unusual growth on a tree which produces some very interesting grain patterns (and turning challenges!). In British writings you might see the term “burr” used for the same thing. A burl is different from a “knot” which usually indicates a radical change in growth direction, such as from a tree limb. If a tree is damaged in some way a burl will often result as the tree heals and covers over the damage.

A similar change in grain pattern may occur at the joint where a tree trunk forks, but this is usually referred to as “crotch” wood, and can produce some amazing grain patterns.

Burls in wood often make for an interesting surface. I have turned several eucalyptus burls where upon drying, the once smooth turning regained some of its irregular shape. In fact, this is one of the reasons I love to turn burls—you never quite know how things are going to end up!

Sometimes burls are just a single growth along a tree where it was starting to bud at some point but the process stopped for one reason or another. Cutting burls can be a challenge because of shifting grain patterns, but good technique and a sharp tool will usually do the trick.

### **Burnishing**

Burnishing usually refers to polishing wood by using friction heat. One method is to hold a handful of shavings against the spinning wood, preferably shavings from the turning itself.

Burnishing leaves a smooth surface and often enhances the natural color of the wood. It can be used as an alternative to sanding, but only in the case where the wood is reasonably smooth already. Unlike sandpaper, wood shavings do not really act as a cutting tool.

Unfortunately, burnishing can happen quite by accident with regular sanding when the sandpaper gets too full of wood dust. Rather than cutting the wood as sandpaper should, the wood dust acts like the shavings described above and burnishes the wood

### **Burr**

Not to be confused with a burl (see above), a burr refers to the slightly raised edge of metal left by a grinding wheel after sharpening. This edge can either be used as a cutting edge (as with a scraper) or it can be honed off for a smooth surface. Some folks like using the burr for their smoothing cuts, and it does work well on round-nosed scrapers, for example. The smoothest cut will come from a truly smooth edge, so final cuts often require the tool to be honed completely smooth.

A burr raised on a gouge is usually naturally smoothed by the spinning wood in all but the softest cuts. A bowl gouge used for roughing down a bowl blank would lose any burr almost immediately.

However, and this is important, an uneven burr may leave undesirable marks on a piece when you are nearing completion. Some turners like to work with burrs, while others prefer to take them off. I fall into the latter camp. But you can decide for yourself, by trying different cuts to see the results. If you are capable of getting a consistent burr which will not come off easily, you may like the effect.

### **Center(s)**

You will see lots of references to centers in woodturning literature, and you would do well to get comfortable with the variations of this terminology, Turning *between centers* refers to turning pieces of wood held in place by a center in the headstock (using a spur drive, for example), and a center in the tailstock, sometimes referred to as a *live center*.

This distinguishes turning done where pieces are held on a faceplate or held in a chuck.

A live center in the tailstock is so called because the center rotates with the wood from the pressure of the headstock. In olden days the center did not turn and something like wax was used on the center point to try to reduce the squeal of the wood rotating against an immobile center. With modern live centers this annoyance is avoided, and less marking is apparent on the wood. While the marking is less, there is still a point and/or a ring impression left on the wood which must be removed from the final turning, but this marking is relatively light.

There are various common centers which may be used in the lathe, such as a cone center, a pin center, or a cup center, and variations of these designs. These merely reflect the shape of the center which comes in contact with the wood.

The drive center is called this because using a spur or other means of gripping the wood the power from the motor is transferred to the wood allowing it to spin.

### **Turning Between Centers**

As mentioned above, turning between centers involves turning a piece while held between the headstock and tailstock, usually with the grain running parallel to the bed of the lathe. Some folks use a chuck to hold the headstock end even for spindles, but this is more commonly done when making goblets or vases.

Like faceplate turning discussed below, the meaning of turning between centers has blurred slightly, so it is important to distinguish which method is being discussed from the context of the article.

### **Chuck**

A device which holds the workpiece on the lathe, and there are numerous types and options, far too many to cover here. Some of the most common are the scroll chuck (also called a 4-jaw chuck), the collet chuck, the Jacobs chuck, and the vacuum chuck. In essence all of these tools are used to hold the wood onto a lathe, with the main difference in how they accomplish this task.

By far the most common is the scroll or 4-jaw chuck, with four *jaws* to grip the wood. These jaws move together to expand or contract along a section of the wood to grip the wood at the headstock.

A collet chuck is a different type of design which relies on pressure to hold a small tapered stem. These chucks are common in metalworking, but have great usefulness in woodturning as well. Similarly a Jacobs chuck is familiar to anyone who has used a modern power drill, as most of these come with Jacobs' chucks. These are also useful for holding small stems or bases.

Sometimes a Jacobs chuck may be used also at the tailstock end for drilling purposes, such as for setting the depth of a hollow form or box.

A vacuum chuck is designed to use a vacuum pump (or even a shop vac!) to hold a piece of wood by suction, creating a vacuum. This holding method is great for finishing off the bottom of a bowl after it has been hollowed out, but does require a bit of finesse in terms of tool control. I would not make this one of your first purchases or creations until you are comfortable with the basic aspects of turning bowls, platters, and other faceplate work.

### **Dovetail Recess**

A recess on the workpiece which narrows slightly from the base into which a set of jaws can fit, such as those on a scroll chuck. This recess is called a “dovetail” because of its shape, similar both to the joinery technique by the same name, and the general shape of a dove’s tail (clever, eh?!) This shape has proven it’s worth in flatwork joinery, and as a temporary holding design for a lathe it works great. While the recess narrows up from the base, the jaws are widest on the end and then narrow to form an interlocking grip which is very solid. Unless you are pretty heavy-handed with your tools or there is damage to the wood in some way, this grip is very secure.

### **Faceplate**

A faceplate is a circular plate attached to the headstock spindle which has various holes in it to allow screws to pass through and into the base of the wood. This is the oldest and perhaps still most common way of holding bowl blanks and other large pieces of wood safely and effectively. As long as one remembers to account for the depth of the screws and not hollow down to them, the workpiece can be held very securely.

Most lathes come with at least one faceplate, and the wise turner would do well to add one or two more plates of larger size to his or her collection. A good faceplate should have numerous holes any varying distances so that odd shaped pieces can be attached, as well as offering the ability to have 6-8 screws attached to the wood at any one time.

If your faceplate only has four holes, you will need to use longer screws for a solid hold, limiting the depth of the turning. If you can use 8 or 10 screws around the workpiece, those may be much shorter and therefore allowing a larger working area.

(Just as an aside, keep in mind a faceplate may be used to secure an intermediate block of wood where one side is screwed to the faceplate as above, and the workpiece is glued to the other end of the wood block. This method is also quite common, and is especially useful if the workpiece is too narrow and you do not want to lose any of its depth to the screws. The intermediate block is then referred to as a “glue block”.)

### **Faceplate Turning**

Not surprising, this generally refers to turning a workpiece held onto a faceplate, also sometimes known as *face turning*. However, it has become synonymous with turning any piece of wood in which the grain of the wood runs at right angles to the axis of the lathe, whether held by a faceplate or a chuck.

Technically of course you could use a faceplate to hold large pieces of wood where the grain runs parallel to the bed of the lathe, but this holding method is not particularly strong since the screws would be going into end-grain.

And speaking of strong holding methods, some folks pull the tailstock away as soon as they mount wood to a faceplate or to a chuck, believing the wood is being held securely enough. Your

turnings will be more stable, and the wood will be held more securely by using the tailstock/live center whenever possible.

## **Beginner's Corner: Some Light Along the Path**

### **Words to Turn By - Part 2**

This time around I will continue with our woodturner's glossary of terms a newcomer is likely to encounter with regard to the hobby. Every field has its jargon or specialized use of common terms, and working with wood is no different. While some terms are logical, others are specialized terms with which you will certainly want to become familiar. While this list is by no means exhaustive, you will be well on your way to holding your own like an old-timer if you have a basic grasp of these terms.

#### **Figure**

Figure refers to the prominent patterns in the work piece which are either unusual or give the wood its character. Swirls, streaks, geometric patterns, or any other of a number of striking characteristics can make a piece of wood stand out. Figure is highly prized in a piece of wood, but it is only one of many elements which make a piece unique. Design and good execution are at least as important if not more: a beautifully figured piece of wood with tear-out is far less prized than a "simple" but well-executed design.

#### **Fingernail**

The shape of the ground end of a spindle gouge which resembles a fingernail in shape. Also known as a side-grind or an Irish grind, this style of gouge is prized for its graceful cutting properties, while presenting a challenge for accurate sharpening. The fingernail design is popular because it allows for graceful curves along bowls, as well as the ability to get in smaller spaces than a traditional grind. Because the wings are swept back there is less likelihood of catching one of the wing corners on the wood. They also have an advantage when making beads and coves in spindles for the same reason. The coves can be deeper without running the same risk of a catch as with a standard gouge.

#### **Finishing**

Not to be confused with a *finishing cut*, in this sense it refers to sanding and polishing wood after the tool cutting is completed. This process may be completed in the same day, or it may extend to several days or even weeks depending on the desired effect. While not always involving polish or other chemical treatments of the wood, at a minimum finishing involves sanding a piece smooth and removing any tool marks that are not an intentional part of the work piece design.

#### **Finishing Cut**

A *finishing cut* refers to light, controlled cuts with a turning tool designed to leave a smooth surface and/or to highlight design elements in the piece, such as smoothing out a graceful curve along the base or rim.

#### **Gouge**

This is a cutting tool with a 'U' shaped cross-section typically used with the bevel rubbing. There are three main types: the roughing gouge, the spindle gouge and the bowl gouge. Each of these tools may have different grinds applied to their cutting edges, such as a "standard grind" or a "fingernail" or "side" grind. This different grinds affect the angle in which the cutting edge attacks the wood, and both have advantages and disadvantages.

## **Grain**

The alignment of the cells relative to the long axis of the tree. Grain can sometimes be a bit difficult to follow in smaller pieces since less of the tree's natural pattern remains. Grain may be straight, diagonal, wavy, knotted or swirled, among other random patterns. Cutting "with the grain" means one is following the pattern of the grain such that the cuts are being supported by the wood as the cut is made. Cutting "against the grain" usually means the wood is not being cut cleanly—much like using a knife when whittling wood in the wrong direction—going against the grain causes the cutting edge to skip.

If circumstances require you to cut against the grain, make sure the tool is really sharp and the cuts are light to minimize damage to the wood. Sanding against the grain can be difficult as well, as sandpaper is itself a cutting tool.

## **Growth rings**

These are the rings which indicate the growth pattern and age of a tree, and are usually part of the grain pattern mentioned above. The rings are often distinguished by the light/dark pattern of the wood produced as the sap rises early in the season and less in the latter season.

## **Headstock**

The headstock provides the drive for the work piece usually through a series of pulleys connected by a belt to the drive motor. Some headstocks are able to be rotated or moved up and down the bed of the lathe, while other headstocks are fixed. The headstock also may offer a means of indexing the work piece through fixed stops, say at 60 degree increments, to allow design elements to be added. While the headstock is typically very stable, by its designed it can only hold one end of a work piece. The tailstock should be used whenever possible to add stability and safety. Also, the headstock should be checked periodically for alignment and for worn bearings which can create a wobble as a piece is rotated. Worn or stretched belts are also common culprits here, so having a spare belt would be advisable.

## **Heartwood**

The fully developed wood which surrounds the pith (center), usually darker in color, and very dense. The contrasts created between the heartwood and sapwood can be very intense in some pieces, and their patterns prized. Care must be taken if using the heartwood and particularly the pith in a bowl or platter design as changes in moisture content can cause cracks. Moving away from the pith by even a small amount can help preserve the integrity of the wood, but I certainly have seen some dramatic pieces which included the pith. Just be aware of the challenges!

## **High speed steel (H.S.S.)**

High speed steel is the most common type of steel used for turning tools, and it about 5 times harder than carbon steel (such as the steel used for chisels). While these tools are harder and can keep an edge longer than carbon steel tools, they also do not get quite as sharp as carbon steel. However, most turners feel the tradeoff is worth it because the tool requires less sharpening.

Additionally, the stronger steel means that the tool can be sharpened to a higher temperature without causing damage to the tool. A carbon steel tool will lose its strength (temper) and therefore lose its cutting edge (indicated by the characteristic "bluing" of the tool). While high

speed steel will also turn blue if overheated, unless exposed to prolonged high heat the tool will still be usable. High speed steel is usually indicated as such by a stamp somewhere along the steel either by the name itself or by the initials HSS.

### **Honing**

A sharpening method to increase the sharpness of a cutting edge of a tool, or to smooth off burrs which develop during normal sharpening. Various materials are used for this including sharpening stones and diamond-impregnated boards. Honing a round-nosed scraper, for example, can allow the tool to leave an extremely smooth surface, instead of one which would likely show small surface imperfections left by an uneven cutting edge.

### **Inboard Turning**

Faceplate turning which is done over the bed of the lathe. This is by far the most common form of turning bowls, but some lathes allow outboard turning as well which often permits larger work pieces to be turned. Inboard turning is the safest way to turn since the tailstock is available for added support/safety, but bed extensions are available for some lathes which add more support for outboard turning. If turning outboard one must be sure to have a strong, steady toolrest since there is such great force exerted on the tool as a large piece rotates; this can be a bit tricky depending on the lathe.

### **Index plate**

A plate used to lock the drive-shaft into a series of pre-set positions, dividing the 360 degrees of the workpiece into some even number of divisions. The plate is sometimes built into the lathe and sometimes is a separate attachment, and is used for making enhancements to the work or for segmented work.

### **Laminated work**

A work piece constructed from glued-up blocks or pieces of wood. This can be fairly simple or highly complex, with patterns or designs determined by alternating colors of wood. Laminated pieces must be glued carefully and should be allowed to dry thoroughly after gluing to ensure the workpiece does not explode. Sharp tools (and patience!) are required to ensure both safety and smooth cuts, as the workpiece is only as strong as the bonded joints.

### **Live center**

The holding mechanism in the tailstock which, using a system of bearings, rotates with the wood as it spins, providing support and centering of the workpiece. Live centers can usually take a variety of tips or cones to provide alternative methods of support. The greater the area of the live center the more support available, but also the greater impact on the surface of the workpiece. Most pieces require additional finishing to remove evidence of the live center/tailstock support. Some older lathes come with “dead” centers which do not rotate, requiring some means of reducing the friction between the workpiece and the center, if only to cut down on the squealing noise caused by the friction of wood against the center.

### **Mandrel**

A mandrel is a means of holding a workpiece by using a metal (or wooden) rod to hold things like pens, tops, bottle stoppers and the like. Mandrels need good support on both ends as vibration along the shaft is common. There are usually bushings used for spacing and sizing purposes, and care must be taken both to avoid cutting these bushings or the mandrel itself.

### **Moisture content**

Moisture content in wood is the percentage of water weight to total weight. One might have a moisture content of 30-40% or more when wood is freshly cut (“green”) depending on species and time of year. Dry wood typically has a moisture content of less than 7-8% after drying. Moisture can be re-introduced into wood through natural means such as humidity, but also through misting wood or soaking it in solutions.

For turning purposes wood should be allowed to dry before final turning unless warpage is part of the desired design. Green wood is typically rough turned into its basic desired shape, with room left to fix the inevitable wood movement which occurs as it dries. Rough shapes are then finished when the wood is dry enough that warping is minimal.

### **Morse taper**

A Morse taper (M.T.) is a measurement standard for drive centers and other accessories designed to fit in the drive spindle of a lathe, or in the tailstock spindle. The tapered design allows for solid a solid grip as pressure is applied, while still allowing for quick removal to swap out accessories. Morse tapers are numbered 1-3 typically, with a #2 Morse taper being the most common.

Some lathes use the larger #3 tapers for the tailstock for increased strength to handle such accessories as Jacobs chucks or heavy cone centers. While tapers hold quite well, they can malfunction if the taper or the spindle shaft is allowed to become dirty. Depending on the issue the taper can get stuck making it extremely difficult to remove, or a spur drive may spin without gripping solidly. The tapers themselves are easily cleaned, but the spindles are sometimes rather difficult because of their depth. You may want to invest in a taper cleaning tool.

### **Natural edge**

The lip of a bowl or a goblet which includes either the bark of the tree or the rough surface underneath the bark. These pieces are called natural edge pieces because they intentionally leave the edges (or significant areas of the face) unturned. Natural edge bowls and similar pieces can be quite distinctive, but also a bit tricky to turn. While many turners wish to leave the bark on fully, the outer bark is often too fragile to survive the turning process, especially as the piece dries. Turners will usually knock this softer part of the bark off and simply leave the “skin.” If you really want the full bark to be a part of the design, there are a few “tricks of the trade” you can try to preserve it. One trick is to use turning quality super glue along the edge lines between the wood and the bark, allowing it to dry fully before turning. While this will likely work to hold the wood on, care must be taken to ensure the glue line is not evident or that the glue does not leave darker areas as if wet.

Another way to preserve the bark is to use workpieces whose bark tends to be naturally harder, such as cherry. Using a very sharp detail gouge and higher turning speeds (but watch out for flying bark!), gentle cuts can be made which should minimize damage to the bark you intend to keep.

## **Beginner’s Corner: Some Light Along the Path**

### **Words to Turn By - Part 3**

This third installment of our woodturner’s glossary of terms concludes with some basic terms you will come across in books and magazines with regard to turning tools and discussion of workpieces. While woodturning does not have particularly difficult terminology, to those unfamiliar with the terms things can get a little confusing. Hopefully this little series will help

you feel more confident as you move forward in your turning endeavors, and you can get the most out of all the resources available to you.

### **Outboard turning**

Outboard turning is essentially faceplate turning on the left-hand side of the headstock, and the workpiece rotates in the opposite direction as compared with turning over the bed (see **Fig. 1**).



Fig. 1

This means the drive spindle and attachments, such as a faceplate, require reverse threads, or the lathe must have the ability to be put in reverse.

The typical advantage of outboard turning is either a shorter bed or no bed, meaning you have more room to maneuver around the workpiece, and pieces can generally be larger. The downside is that you **must** provide a stable stand/tool rest for the turning tool if a bed extension is not present. Some lathes are built with sliding heads that can be moved to the end of the lathe once the tailstock is removed and the rotation problem is avoided.

### **Parting tool**

A tool for cutting off waste, measuring/marketing a workpiece, or used for design elements. Parting tools are useful accessories, particularly for spindles, but also for smaller faceplate turnings. Until one has a means of reverse mounting a workpiece or some similar method of finishing the base, a parting tool can allow one to turn down a base while leaving only a small nub before shutting down the lathe. The small nub can then be twisted off or removed with a chisel and then sanded smooth.

While parting tools are technically a scraper, and thus leave a rougher surface than a gouge, a sharpened parting tool can be used to level out a workpiece and leave a reasonably smooth

surface. They can also be used to create a slight concave surface to the bottom of a bowl or platter to help the piece rest evenly on a surface. They are also handy for creating dovetails on the base to receive dovetail jaws on a chuck.

### **Ring center**

A ring center in the tailstock usually has a small point set in the middle of an open ring. The point can be removed from the center, but is usually left in to help locate the center point of the wood. The ring portion, by adding surface area compared to the point alone, reduces penetration into the wood (see **Fig. 2**).



fig. 2

This helps to prevent splitting and is particularly useful for woods where the minimal amount of wood is to be removed, such as thin-walled piece or a piece of exotic wood.

### **Rough Turning**

The reduction of a square piece of timber to a round section. This is done with a spindle roughing gouge (spindles only!), or with a bowl gouge. While one can rough down a piece with a skew or a scraper (again, spindles only!), most folks prefer a gouge unless they are very adept with a skew.

The goal of rough turning is to prepare the workpiece for the final design shaping and finishing. It is called “rough” turning because the goal is usually rapid stock removal into the approximate dimensions of the intended design. While some folks take the term “rough” a little too literal (leaving a very uneven surface), most folks use roughing cuts judiciously—meaning they balance speed with producing a reasonably smooth surface.

With experience, you will be able to achieve this balance regularly. New turners are often fairly timid in their cuts (not at all a bad thing!), but as confidence comes the cuts will be more sure and the process of roughing much quicker.

### **(Spindle) Roughing Gouge**

Used in spindle turning for reducing square stock to round section (see **Fig. 3**), a roughing gouge has a semicircular section and is ground evenly across the cutting edge.



Fig. 3

The bevel angle should be around  $35^{\circ}$  to  $45^{\circ}$ . A roughing gouge is for spindle work and should not be used for face turning (such as bowls) because the design of the tool cannot take a lot of downward force safely. The tang, the spike which goes into the tool handle, is short and bends easily. This can run the risk of severe injury should the handle actually break. While most references to a spindle roughing gouge omit the word “spindle” (this the parentheses above), I am one of the advocates for renaming the tool as indicated. This needs to be clear to all turners—spindle roughing gouges are for spindles only! (Stepping off soapbox for now . . . !)

### Sapwood

This surrounds the heartwood and is usually softer wood than the heartwood. It transports the sap from the roots to the leaves, and is usually a different shade of color than the heartwood (see **Fig. 4**).



Fig. 4

Sometimes the difference is rather dramatic and can become a large part of the design element of the workpiece. The sapwood also holds moisture longer, and thus can dry and warp at different rates than the heartwood, causing splits and checking.

### Seasoning (Drying)

Seasoning (or Drying) green wood to a point where the wood is relatively stable and less likely to move. Two common methods are air drying and kiln drying. Air drying is just that—allowing wood to dry naturally as air moves over the wood. This is a much slower process than kiln drying, but usually results in less checking/splitting.

Kiln drying introduces artificial heat to speed the drying process, but this still must be done with care. If the outside of the wood dries too rapidly compared to the inside, the wood is likely to

split. Sometimes this means the heartwood gets separated from the sapwood, but can also mean the wood warps and then splits in various ways.

Green wood will warp as it dries, and therefore many turners who want to turn wood while green (and therefore usually more soft) will rough turn a piece and then store it in a controlled environment to minimize wood movement. Once dried, the wood will be re-turned and finished as desired, sometimes 6 months or more after initial green turning.

### **Skew (Tool)**

A cutting tool in which the cutting edge is at an angle across the tool, with both sides sharpened evenly. Skews are used for fine detail work, smoothing a surface, and even roughing down spindles. The skew is primarily a spindle cutting tool, although some turners may use it on the outside of some faceplate work, particularly for detail and/or design work. The changing pattern of grain on a faceplate turning makes using a skew difficult (and potentially dangerous), and is not advisable for most faceplate turning work. While there are “bowl skews” on the market, I would advise staying away from them as a beginner. Keep skews and roughing spindle gouges for spindles.

### **Spalted Wood**

Wood which is in the process of fungal decay. This often shows up as black lines in the grain. The spalting is highly prized by turners as a design element (to the point where some turners try to introduce spalting artificially). Because the spalting is caused by fungus, care should be taken in dealing with spalted wood to avoid allergic reactions or breathing in the fungus.

Once wood has been dried the fungus stops spreading, so kiln dried spalted wood should be safe for handling.

### **Spindle gouge**

Sometimes referred to as a shallow fluted gouge, it has a cross section with a shallow arc. The cutting edge can be straight across at a 45°, or ground to a finger nail shape with a 30° - 40° bevel angle. Spindle gouges work great for beads and coves of course, but they are often useful for detail work as well. Their shallow flute does not allow chips to clear out quickly, so they are not a good choice for bowls.

### **Surface check**

A split on the surface of the wood which is usually caused by uneven drying (see **Fig. 4**). Due to the cellular nature of wood, water wicks out the end of the wood faster than the center. Checking on the ends of the wood can often be removed easily, but deep checks can ruin a piece of wood.

While checking often occurs as wood is dried naturally, green wood which is spinning rapidly on the lathe can check if the moisture is thrown from the outer surface of the wood while the center stays wet. If leaving a piece of green wood on the lathe for more than a half an hour, you may want to mist the wood with water and cover it tightly to slow the moisture release and prevent checks. This is even true with some woods as they are spinning on the lathe. Keep a spray bottle handy for misting the outside of a bowl when you are spending a lot of time hollowing out the center.

## **Tailstock**

The tailstock is the movable assembly opposite of the headstock which slides along the bed and provides support for workpieces. The tailstock has a locking mechanism to keep it secured to the lathe bed, as well as a means for allowing the wood to spin while applying pressure to the wood. Something to consider when buying a lathe is the ease with which you can secure the wood and release it. Some lathes have short clamp/handle combinations which are hard to secure and release.

## **Tear-out**

Tear-out is the result of uneven cutting across the surface of wood which has caused fibers to be torn rather than cut. The wood fibers are basically like straws which can stretch and then snap back below the surface of the wood. A common misconception concerning tear-out is that it leaves a raised surface. In reality it is the opposite—the fibers which have been torn are below the surface, which means more wood must be removed to smooth the surface. Often the cause of tear-out is a dull tool, but can be caused by soft spots, knots or burls, or other imperfections in the wood.

## **Tool Rest**

The tool rest is an adjustable part of the lathe (usually in the shape of a 'T') which fits into the banjo and provides support for the turning tool. Tool rests are extremely important because they must support the tool while encountering significant downward force as the wood is spinning. When looking for a lathe make sure the tool rest and banjo combination work well and that the controls are easy to operate. The tool rest must be able to be raised and lowered freely when needed, as well as be of sufficient size to prevent frequent adjustment. Turners typically acquire two or three tool rests to accommodate differently sized pieces of wood.

## **Wrapping it up**

I am quite sure there are terms you will encounter which I have not covered in this series, especially since different folks and even different countries have varying terms for tools, cuts, and wood properties. If you find some interesting ones do drop me a line at my email address, as I always enjoy hearing from readers and their experiences. Besides, I like learning new things too!

Until next time, stay safe, have fun, and keep those shavings flying!

## Turning Tools:

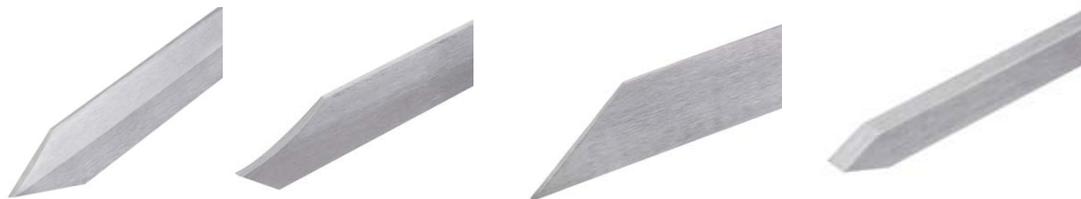
### Scrapers:



Skew      Square scraper      Round Scraper      Pyramid point

Scrapers are used for light finish cutting to smooth the finish prior to sanding. There are many shapes for special purpose turning such as making beads and free rings. Carbide scrapers can be used for heavier aggressive scraping

### Parting Tools:



Diamond point      Drop point parting      Narrow parting      Beading/parting

Diamond point parting is the most popular since it can be turned over to present a new edge. Many parting tools are designed for a narrow cut but these cannot penetrate as deep as a diamond shape without burning the wood. Wide tools can also be used to finish beading.

### Gouges:



Roughing      Detail      Bowl – Ellsworth      Bottoming      bowl – conventional

Gouges are designed to shear wood and remove material rapidly. The first two are primarily for spindle turning and the last three are designed for internal bowl turning to reduce vibration and

make shearing cuts. Deeper bowls are cut with a bottoming gouge with a double relief for better clearance and are usually finished with a round or square nose scraper. Many different grinds are available to suit personal preferences.

**Special purpose:**



**Boring Bars**



**Carbide hollowing**



**Bowl Coring**

Many special purpose tools are designed to make extreme designs like deep bowls or making multiple bowl blanks from one piece of wood to avoid wasting wood. Others are used for threading, fluting and cross drilling.

Cabinet makers scrapers can be used to remove tool marks both inside and outside the bowl and reduce the amount of time spent sanding.



**Cabinet makers scrapers**