Contemplating a Scraper’s Potential for Spindle Turning

Matthew C. Lewis

Great spindle turning is possible using a scraper if you understand the tool’s capabilities and how to apply them. You are likely familiar with the adage that real turners do not use scrapers when spindle turning. This common notion is often stated as an opinion, without much explanation beyond that scrapers are not cutting tools and therefore do not leave as clean a surface as a gouge or skew chisel. Deltacraft’s handbook, Getting the Most Out of Your Lathe (1954), however, offers this adage up for contemplation with the statement, “The turning of spindles can be done with either a scraping or cutting technique, the cutting technique by virtue of faster wood removal and a cleaner surface being almost a must for good work.”

This article offers some practical considerations for discerning turners, addressing the term almost in this passage and breaking the chains of popular turning theory by recognizing the potential of a scraper for spindle work. Although it may be true that the finish from the tool is not as good, a practical second best can be achieved with modified technique and by factoring in the considerations of learning curve, safety, required surface finish, ease of tool maintenance, cost, and production speed. In short, contemplating a scraper for spindle turning should not be driven by community acceptance or by popular opinion, but rather based on consideration of the job, efficiency, and the standard of finish for the final project.

A variety of scraper shapes can be made or purchased to provide flexibility in spindle turning. These include two well-known tools used in an alternative scraping fashion: the parting tool for turning beads and the skew chisel used on its side for forming beads and pommels.

To avoid discussing the nuances of all possibilities for scraping tools, I will focus on the potential of the round-nose scraper for spindle turning.

Context

I begin with a quick review of basic cutting tool and scraper function. Cutting tools generally remove wood by paring wood fibers. Paring is achieved when the tool’s cutting edge forms an oblique angle with the spinning wood (Photo 1). A cutting tool is able to cut cleanly because two surfaces of the tool are sharpened to a fine edge which, when employed correctly, slices each fiber completely.

Examples of scrapers/tools for spindle turning

- Skew chisel on its side for delicate removal of small amounts of wood
- Square-nose scraper for tenons and square rebates
- Parting tool for parting off, beads, and other convex shapes
- Drop-nose scraper (a variant of the round-nose) for planing, coves, and beads
- Standard round-nose scraper for planing, coves, beads, and roughing out
- Diamond point scraper for making V-grooves and beads
- Bedan tool for tenons, beads, other convex shapes and smoothing surface

Examples of scrapers and other tools used in an alternative scraping fashion for spindle turning.
The scraper on the other hand, when held in its standard orientation (flat on the toolrest with the handle in a neutral to slightly pitched position), scrapes the wood fibers. Scraping is done on the wood’s surface by means of a burr on the top of the scraper’s cutting edge. This action typically leaves a rough surface and occasionally torn fibers (Photo 2). (For an excellent discussion of scrapers and burrs for bowl turning, see AW, vol 18, no 1, “Real Woodturners DO Use Scrapers,” by Russ Fairfield.)

**Configuration**
Modern turning literature often recommends small clearance angles (or large bevel angles) for scrapers; these angles are measured as shown in Figure 1. Using large bevel angles seems appropriate for faceplate work (bowl turning) because the cutting action is dependent on the use of the burr on the top edge of the scraper; this requires minimal clearance between the bevel and the piece being scraped in order to apply the burr. Although the faceplate-work technique is useful on occasion during spindle turning, a more advantageous orientation that reduces tearout is to rub the bevel while applying the sharpened edge of the scraper nose to the spinning wood (Photo 3). (Safety note: Bevel rubbing is not recommended when scraping endgrain and/or during faceplate turning bowls, as a dangerous dig-in can occur.)

For spindle turning, in order for a scraper to be more effective using the bevel-rubbing technique, the angle between the two surfaces forming the scraper tip should generally be more acute than often recommended for faceplate turning. Myron W. Curtis learned from decades of experimentation and successful production turning that a shallow semicircular scraper with a bevel angle of 57° is a good configuration for general spindle turning. Still, an even more acute angle (around 45°) increases the effectiveness of the round-nose scraper for the tight areas associated with some beads, coves, and smooth curves. The cutting action of a round-nose scraper with this type of bevel is further enhanced by shear cutting (Photo 4).

**Technique**
The performance and versatility of scrapers for spindle turning can be enhanced by adjusting the presentation of the chisel to the wood and by modifying the profile of the cutting edge.

The semicircular nose of the tool makes it useful in developing curved surfaces (Photo 5), concave and convex, in addition to achieving straight lines and tapers. The cutting area for the round-nose scraper is generally from ten o’clock to two o’clock with the twelve o’clock position being the transition point (Photo 6), depending on the direction of cut, orientation to the wood, and the profile of the tool. 

---

Copyright 2011, 2016, American Association of Woodturners. All rights reserved.
To improve the cut when using the round-nose scraper during spindle turning, begin by rubbing the tool bevel on the spinning wood, then gently raise the handle just enough to cut/peel the wood. Using an acute bevel angle, this orientation more closely approximates the action of a cutting tool (Photo 7). This approach will effectively cut/peel side grain, although the finish will vary depending on the wood type and the direction of the wood fibers. The rougher finish that is frequently produced is typically a reason some say that a scraper is not an appropriate tool for spindle work. The finish can be improved fairly simply, however, by changing the orientation of the scraper during cutting.

When making cuts that are straight, tapered, or gently curved, canting the scraper toward an approximately 45° angle while rubbing the bevel will shear the wood fibers (Photo 8). This effect is also accomplished when rolling the round-nose scraper during bead, cove, and tighter curve cutting, the same as for using a gouge or skew chisel.

Care should be taken not to cut on the upward side of the cutting edge (above the transition point) when performing this operation, as a catch is likely to occur and the tool will slam down on the toolrest, potentially causing damage. An even longer bevel improves the effectiveness of the round-nose scraper for cutting certain concave or convex surfaces in this manner.

The traditional tipping of the scraper, nose down, can also be used to great advantage while spindle turning where a curve with a precise radius, close to that of the scraper, is required. This technique requires finesse and a light cut (Photos 9a, 9b). A heavy cut will certainly result in torn fibers that are further magnified by side grain wood that is naturally prone to tearout; clean-up is easily accomplished in this case using the shearing technique.

**Considerations**

Although the round-nose and other scrapers are extremely effective, it would be disingenuous to say that they produce as consistently a clean surface off the blade as do cutting tools for spindle turning. There are, however, several noteworthy considerations in favor of the scraper that may more than make up for the slight degradation in surface finish: learning curve, safety, required surface finish, ease of tool maintenance, cost, and production speed.

The spindle gouge and skew chisel have a rather steep learning curve that includes the potential for catches, which can result in damage to the piece and/or turner, frustration, and elevated risk to safety. A round-nose scraper greatly reduces catch potential and also reduces the training necessary to produce acceptable products. Round-nose scrapers are forgiving. This is not to say that turners should avoid investing the time to learn cutting tools, but at least consider these factors with regard to the job at hand and your skill level. All turners will do well to combine the use of the...
two types of tools for maximum capability/versatility when spindle turning. Although the surface left by a cutting tool employed by a skilled turner is typically clean and free of blemishes, on many woods a nearly identical surface can be produced using the aforementioned modification in cutting style. The small differential that may result in the quality of surface texture will easily be cleaned up when abrasives are applied. Furthermore, many turning projects do not require a gallery-quality finish. This is the case in the architectural world where sanding to a 180- or 220-grit finish is acceptable for paint and staining, especially for balusters (Photo 10), columns, newel posts, architectural finials, damage-control plugs (a cork-like fixture used to plug pipes during maintenance), and certain furniture components.

Scrapers provide the turner a much higher degree of accuracy in producing specific finished dimensions because small amounts of material can be removed with precise control (pattern-makers rely on scraping tools). Many undulating surfaces are easily smoothed using scrapers, without the use of abrasives. Scrapers, however, typically require more radial pressure than do cutting tools, which can sometimes result in undulating surfaces. Consequently, there is a small investment in learning the necessary feed rates, lathe speed, and pressure required to achieve precise cuts. Scrapers are easily maintained because they are made from flat stock, do not have a flute, and are easy and quick to grind by hand. Adjustable toolrests on bench grinders suffice for grinding the desired bevel. Scrapers are easily shop-made and are in most cases less expensive than a gouge. Also, they do not require the purchase of fancy jigs and/or many long hours practicing freehand grinding.

For some projects, scrapers are just what are needed and will likely improve production speed when these considerations are implemented.

Conclusions

A scraper’s potential for spindle turning is a worthy consideration for the open-minded turner who considers all aspects of the task and is willing to stray from the mainstream in defining the appropriate tool for a given job. Although scrapers are not replacements for cutting tools, they offer a versatile, safe, and cost-effective option for some types of spindle turning. Given the proper circumstances, the use of scrapers can ultimately result in a gain of speed and efficiency during production work. So, next time you are doing spindle work, consider the potential of a scraper. You will likely find a new friend at the lathe.

Matt Lewis’s primary interest is in tool making and turning architectural elements and other functional items. He consults regularly with his friend, Myron W. Curtis, an accomplished and well-known professional architectural/production turner.

Drop-nose scraper

The drop-nose scraper is a modified round-nose and was born out of necessity from more than 30 years of experimentation and use by Myron W. Curtis (an American progenitor of modern day architectural turning). A user of the round-nose scraper exclusively, Myron developed the drop-nose specifically to simplify his efforts when turning beads and coves on spindle work. Although the basic design may be modified according to task, the dropped nose feature exists to improve balance at the tool tip when tilting the blade while maintaining the rigidity of the complete cross section. By reducing the mass of the blade at the nose, the amount of work required to roll the tool is reduced and the probability of the tool rolling too far is limited, resulting in better control and increased cutting precision.

A drop-nose scraper for spindle turning, designed and made by Myron W. Curtis.