

# Santa Cruz Woodturners

## *Sanding for Pleasure and Pride*

**Raf Strudley** and **John Wells** offer a Virtual “Panel Discussion”

April 24, 2020

There are many famous Sanders in contemporary American folklore...most recently Bernie Sanders. Football fans remember fondly Hall of Famers Barry Sanders and Deion Sanders. On the distaff side you can choose between Summer Sanders (Olympic champion swimmer and sheer force of nature) and Sarah Sanders (White House personality).

However, all of us are Woodturner Sanders, and that will stay true no matter how many years we turn and hundreds of miles wooden surfaces travel beneath our hands.

Sanding is also possibly the least appealing part of turning. Some sage advice can make turning more efficient and pleasant for those of us who are earlier in the quest.

We present a virtual “panel discussion” interview (similar to the box-making interviews in March) with **Raf Strudley** and **John Wells**. These two SCW turners have enjoyed success in Open Studios and commercial sales...in considerable measure due to their sense of creative design...and meticulous finishing. They also stand out as great teachers, as readers will quickly appreciate.

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I posed **12 questions** to Raf and John. Their answers follow in **red** and **blue** fonts, respectively, for fun (no politics here!). I’ve used the moderator’s prerogative to interject a couple points, in **green**.

### **1. WS: About what percent of your time turning is devoted to sanding?**

**Raf:** Too much! For every piece I make I probably spend 20-25% of my time on finishing. I sand to 600 grit or finer, then a two or three coat finish of some kind. Then I polish using the 3 stage Beale system.

**John:** Exterior spindles maybe 10%. Interior stain grade maybe 20% with hand sanding with the grain. Most bowls 25%. Kauri bowls more like 35%. Carvings 5-20%. This doesn’t count sanding or rubbing out between coats of finish.

### **2. WS: Of your sanding time, about what percent do you use power sanding as opposed to hand sanding?**

**John:** Probably 65% power on bowls and 10–60% on spindles. Really, hand sanding with the lathe running is power sanding.

**Raf:** 80-90%%...I often do a quick hand sand with the grain between each grid upgrade if necessary.

**3. WS:** For power sanding, do you use a corded drill motor, a rechargeable drill motor, or an air-driven sander? (...or something else)

**John:** Corded drill mostly and some with a pneumatic disc sander. A corded drill is much more aggressive and effective than a battery drill.

**Raf:** Corded.

**4. WS:** “Going through the grits” can get pretty tedious if you are constantly re-chucking or switching discs. Do you ever use more than one motor for convenience?

**Raf:** No....this is something I need to improve on as I am constantly taking paper off the Velcro pad and installing the next grit. I need to come up with a better system.

**John:** One drill but 4 disc pads with a quick change adaptor in the drill.



**Wells'** bank of sanders is possibly excessive, but I typically have a half dozen projects going at different stages, and this just saves oodles of time instead of switching back and forth. Collectively, the drills will last a long time because none gets overused.

Yellow-green one is a 3/8" Ryobi 43D.

Blue one is the Woodturners Wonders 3/8" angle drill (max RPM 1400).

**5. WS:** Standard 3" sanding discs cost about 50 cents apiece. How long do you use one before replacing with a fresh abrasive? How do you know “when?”

**John:** How long depends again on the wood and sanding speed. I change when they stop cutting effectively, when the previous grit's scratch pattern just won't go away even when there's still dust coming off the paper. I saw a video where a well-known demonstrator advised that grit is worn out after 2 or 3 seconds with the lathe running. That seems excessive to me.

**Raf:** I most often use the wave form discs. If the waves get torn off, the disc goes to the bin. I often wipe my piece with lacquer thinner between each grit in order to get rid of grit left from the previous grade that might still be “hiding” on the piece I’m working on...this allows more life to be preserved for each sanding disc. I look to see what kind of dust is being generated from the paper: No dust = done with that disc. Sometimes choosing to get rid of paper is intuitive...if it just does not seem to be generating any positive gain.

**Wells:** Life is too short to use tired sandpaper.

**6. WS: RPM’s...always a point of interest. Some pros sand at lathe speed—same as turning. Others slow it down to 300 RPM or so. (Lathe speed and car speed have something in common: the more experienced the driver, the more comfortable at higher velocity.)**

**Some say that high RPM on the lathe and high RPM on the motor result in fast heat buildup with accelerated degradation of the sandpaper and sometimes fine surface checks. Others say that’s not a problem if you use the right materials. Some say go too slow and the coarser grits dig into softer sections and create annoying “ripples”**

**How do you balance this out in your shop?**

**Raf:** This is a tough one...I generally have the lathe turning slowly...trying to minimize heat buildup. The type of wood and anomalies in the wood dictate lathe speed.

**Wells:** My 2 cents is that light touch, as opposed to heavy pressure, is important. The disc is less likely to “grab” and peel off, especially with coarser grits, ruining the hook and loop surface on your disc holder. Also, once you sense the paper getting hot, it’s time to change the disc and let the fresh grit do the work...false economy to grind away with dull paper.

**John:** More pressure is not helpful. Wells is correct. Just like with a random orbit palm sander: let the sander and the grit do the work. Generally, I sand as fast as possible. With spindles that usually means never adjusting the RPM’s. Finish cutting, grab the paper and go. I usually finish by hand in the direction of the grain. I do this with bowls and other forms too. Even if you don’t get rid of all the scratches but you break up the circular patterns they become nearly invisible. Some woods and shapes just lend themselves to slower rpm’s. Cardinal rule of turning: If something isn’t working, try something else.

If a bowl has warped you can still sand on the lathe by slowing down to a speed such that you can keep the disc or paper on the surface and not skipping off. If you have to leave a bowl in the turning or sanding process you can stave off warping by wrapping it

fairly closely in a plastic bag and sealing it, even overnight. This prevents moisture exchange and the piece will remain stable.

If you have a defective spot after sanding you can stop and spot sand then go over the whole surface quickly and blend in the spot, thus saving time and work. This is much riskier on soft woods. *Be wary of sanding the middle of the inside too much.* I touch it very little. You can get a divot in your perfect curve very quickly!

The wavy surface problem, I think is actually more related to the density difference between early and late wood in the grain. (I refer everyone to R. Bruce Hoadley's *Understanding Wood*, an invaluable resource!) Try and cut as cleanly as possible and start sanding with the finest grit possible and do as little as possible. This problem is most obvious in soft woods like pine, redwood, cedar, and sometimes in fir. Oh, and ash, too. When you've done your best, tell everyone what a lovely, organic feel the piece has 😊.

**7. WS: If you use epoxy for decorative features or repair, does that change your strategy?**

**John:** Not really. I just try not to over sand and create a divot.

**Raf:** I often use the Inlace brand...and heat buildup is death to the inlay material. It will melt the material rather quickly if you are not careful. I do use epoxy sculpting putty and this sands and finishes very well. I have not had any issue with it regarding heat buildup.

**8. WS: *Chatoyance* is the grain feature prized by all turners—the magical, “crumpled satin” reflection from quilted grain that changes with even subtle movements of the bowl. When you have a blank which shows this flourish, does it change your approach to sanding?**



*Black Acacia*

**Raf:** Only from the perspective of using the lower grits more sparingly...I don't want to sand away any of the charm.

**John:** No. But you've done wonderful pieces with quilted grain and probably have insight on this situation.

**Wells:** I think standard sanding, but with higher stakes. It's the undulating orientation of the fibers underneath the surface that creates this effect, not the surface finish. It's going to be the central attraction of that piece, so make sure you've dealt with the scratches or else they'll haunt you.

**9. WS: Wet sanding has become popular. Some moist or even drippy wet blanks will warp into exotic shapes after they dry, so a once-turned bowl needs to be sanded while still circular if the turner wants to use the lathe instead of the elbows to drive the sanding. What do you do?**

**John:** If doing a once turned bowl, I don't sand the wet surface. Your paper will clog immediately and incessantly. Dry the surface with a hair dryer and then sand. However, the surface will have to be re-sanded after the moisture has migrated to the surface and out. At that point the bowl is out of round. My experience is that it can still be sanded on the lathe at low speed (see above). Otherwise it can be sanded by hand.

**Raf:** I don't do any wet sanding.

**Wet sanding with the finishing material:** Some turners routinely wet sand the piece on the lathe while applying the first coat of sealer or finish. The fine slurry of sanding dust and finish seals open pores and makes a nicer eventual finish. Open pore woods like oak and ash beg for it. **Is this step worth the mess? How often do you do it?**

**John:** Worth it? *Absolutely!* I use it on almost any piece with an oil finish (salad bowls) and almost any time I use varnish/wiping varnish. I don't use it with lacquer which I spray. I have been told you can do this with materials other than your seal coat. I've seen water and orange oil degreaser recommended. I haven't tried that last one.

**What abrasives do you use for wet sanding?**

**John:** I use silicon carbide wet and dry paper. I generally sand dry to 220. Then I raise the grain if I think it may be exposed to water. Sand again with 220. Then wet sand with 320. If I'm doing oil and wax I'll wet sand with oil additionally with 400, 600 and 800. These grits only take a minute or so each. If I'm using varnish, I let it dry after wet sanding with the first coat. Then I use 600 or 0000 steel wool between coats.

**10: WS:** Some people suggest turning in reverse direction while sanding, especially with stringy, fibrous woods. Do you ever do that?

**Raf:** Yes, I reverse sand all the time

**John:** I very seldom sand in reverse. I don't find it necessary (Kauri being a notable exception). Might just be the woods I use most of the time.

**11. WS: Brands?** There must be 6 different manufacturers of sanding discs...conveniently sold in distinctive colors. (Green, blue, gray, tan, gold, red). They all cost around 50 cents apiece for 3" discs from online sources.

**Raf, you indicated you like the wave-edge discs. Is there a manufacturer that you prefer?** Always looking for good hook and loop! I prefer the yellow wavy edge ones from Craft Supply...but they are expensive, and the H&L doesn't last as long as I would like. Always looking for suggestions.

**John, in your demo last year, you indicated you had a go-to abrasive.** Yes. Klingspor gold "paper" 3". aluminum oxide discs. I have a large supply (I usually buy 100 at a time). I think I'll switch to Zirconium when I run out. No waves. Still from Klingspor. I probably ought to try them before I switch.

**Wells:** I've come around to the blue Deerfos ones. The hook and loop holds without annoying fly-off, and the grit cuts fast and stays sharp a long time before giving up. The backing doesn't buckle easily. Grits available 80 up to 2000 grit. I also keep the used ones for suicide missions on blanks with gummy sap or glue residue.



**12: WS: Finally—Dust collector on? Mask on? Face shield on?**

**Raf:** Sanding = always mask on...always. (Face shield is less important to me at this point in turning.) Ear protection is on 95% of the time as well. During sanding, I also have a dust collector going and two fans...one behind me pushing the particles away from my face and an exhaust fan pulling dust that remains out the window. Even with all that, my shop is still has issues with dust on things.

**John:** Dust collector and mask almost always unless it's real small or when wet sanding. (One of the advantages is the way it keeps the dust down – i.e. mixed with the finish material.) If I'm doing something big – say a 12' x 22" diameter column or a 3 ½' diameter bowl, possibly with a belt sander, I put on the air helmet.

Thank you, **John** and **Raf**! *Smoothness awaits!*

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And, when things just don't work out, there's always this:



Or this...



## Appendix: Choosing a Power Sanding Drill

*Opinions of a 300 bowl/year amateur who's tried 7 different brands or models.*

**WS:** As John observed, most of us use a corded hand drill to drive our sanding discs. Frequently that's an older drill that got demoted from regular drill duty, not one purchased for this specific purpose. Maybe it's time to re-think that.

Here are a few opinions about the ideal drill.

**Age:** It should be relatively new—newer drills are lighter without sacrificing power, and that makes a big difference if you're sanding for hours.

**Size:** It should be small...you're not using this to punch holes in seasoned concrete. A 5 Amp, 3/8" drill is plenty. Smaller size allows you more control and better angles when sanding inside contours.

**Ergonomics:** People have different size hands. Operating rooms stock gloves from size 5 ½ to 9. You'll be using this tool for hours, so take the time to do in-person shopping!



Photo: Two corded drills, comparably priced, both good drills that will last years with steady use.

Left: Skil 2677, 6.5 A, 2000 RPM, a full inch longer and lots heavier. (Better choice to bore holes in oak timbers!)

Right: Ryobi 43D, 5.5 A, 1600 RPM, substantially lighter, superior ergo grip and balance for power sanding.

**Chucks Matter:** Your sanding drill should have a manual chuck. Using a key gets really old when you change frequently.

The chuck should have a relatively smooth, plastic surface. This will be running inside the loop of your thumb and index finger. A metal chuck (ouch!) or a plastic one with an aggressive surface will be hard on your skin...or even a glove...and it will get hot, too.





**Blue Note:** Depending upon how big your projects tend to be, you'll find that the majority of the time you'll be sanding with 80 grit. Once the tool marks and torn grain have yielded, the subsequent grits go quickly by comparison. For this one grit, I purchased the Woodworkers Wonders blue angle sander (around \$60 online). It has a clever ergonomic grip right where you need the control. The angle makes it easy to get deep where those challenges lurk—at the transition from wall to bottom and end grain.

Since I never change the disc holder or the grit, the fact that it has a key chuck doesn't matter. Love the tool.



**Speed Control:** All modern choices have variable speed & reverse. What's different is the ability to control that. Some drills are really finicky! A feather light touch can send it screaming up to max. That's a nuisance.

Maximum RPM should be well under 2000. Many 3/8" drills peak out at 2000, even 2500 RPM, which is just way too fast. Most of the time I power sand at 400-600, always well under 1000 RPM. My favorite, the Ryobi 43D, peaks at 1600 and the trigger control is gradual and easy to hold.

**Ability to lock in speed trigger free:** Most drills have a button fixture that keeps the drill going without your finger on the trigger. *Handy!* However, many of those mechanical features only lock in at max RPM, which you don't really want. You have to play with one to find out...it won't appear in the specs. I don't really use it.

**Maintenance:** Brushes and commutator are the weak links in AC powered drills. Grit, dust, and gum get sucked in with cooling air flow. That will inevitably damage the contacting parts... and then that drill won't hunt. Blow out your drill at the end of every sanding day and you'll get an extra year or two. Don't feel betrayed if you have to replace it...just imagine how much drudgery that little thing saved you! A new drill costs less than one tank of gas for a small car...or a bottle of decent wine at a restaurant.

**Cost:** You can find a good selection that you can pick up and handle at a big box store. They'll run \$40, give or take. I found my Ryobi on sale for \$30 and bought 3, so none of them get overused. They're all lasting well. I'd be wary of garage sale drills.

Enjoy this day in your shop,

Wells Shoemaker  
President, SCW  
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