

# Thinking through your turning

In the next part of this new series, Kurt Hertzog explores the concept of 'thinking through your turning', which is the most powerful yet most under-utilised tool there is

Most woodturners anxious to learn woodturning have their focus mainly on the mechanics. Their thirst for knowledge is: what tool to use; what grind it should have; which wood species will look best; how fast to spin the work; what finish to apply; what can they buy next that will make them a better turner; and more. At the risk of being branded a heretic, while a couple of those are somewhat important, I'll propose that there is an aspect that is far more important than any of those. It not only is hugely important but it should predate your first wood chip on the project and can cost virtually nothing. This issue we'll explore 'the plan'. I define the plan as thinking through the turning and making the plan to overcome and solve problems that can be anticipated. From my experience, the almost zero cost and amount of time spent pays huge dividends.

I know some turners, although small in number, who do a drawing of their turning beforehand. They use a drawing board and paper complete with the actual dimensions creating an engineering production drawing. A few others plan using anything from a computer CAD software package to sketching apps on the iPad. Personally, I use an old-fashioned chalk board or the back of an envelope. When I get to something I'd like to keep or share whether documented on a chalk board or bar napkin, I get a snap of it on my iPhone for posterity or to send.

My basic point is that whether you have access to a 3D modelling workstation or only a paper tablet, you can think through your task and make plenty of mistakes inexpensively long before you get to the wood. Solving problems on 'paper' lets you really think through the 'what ifs' and 'if I could only...'. I certainly don't want to compromise the creativity, spontaneity,

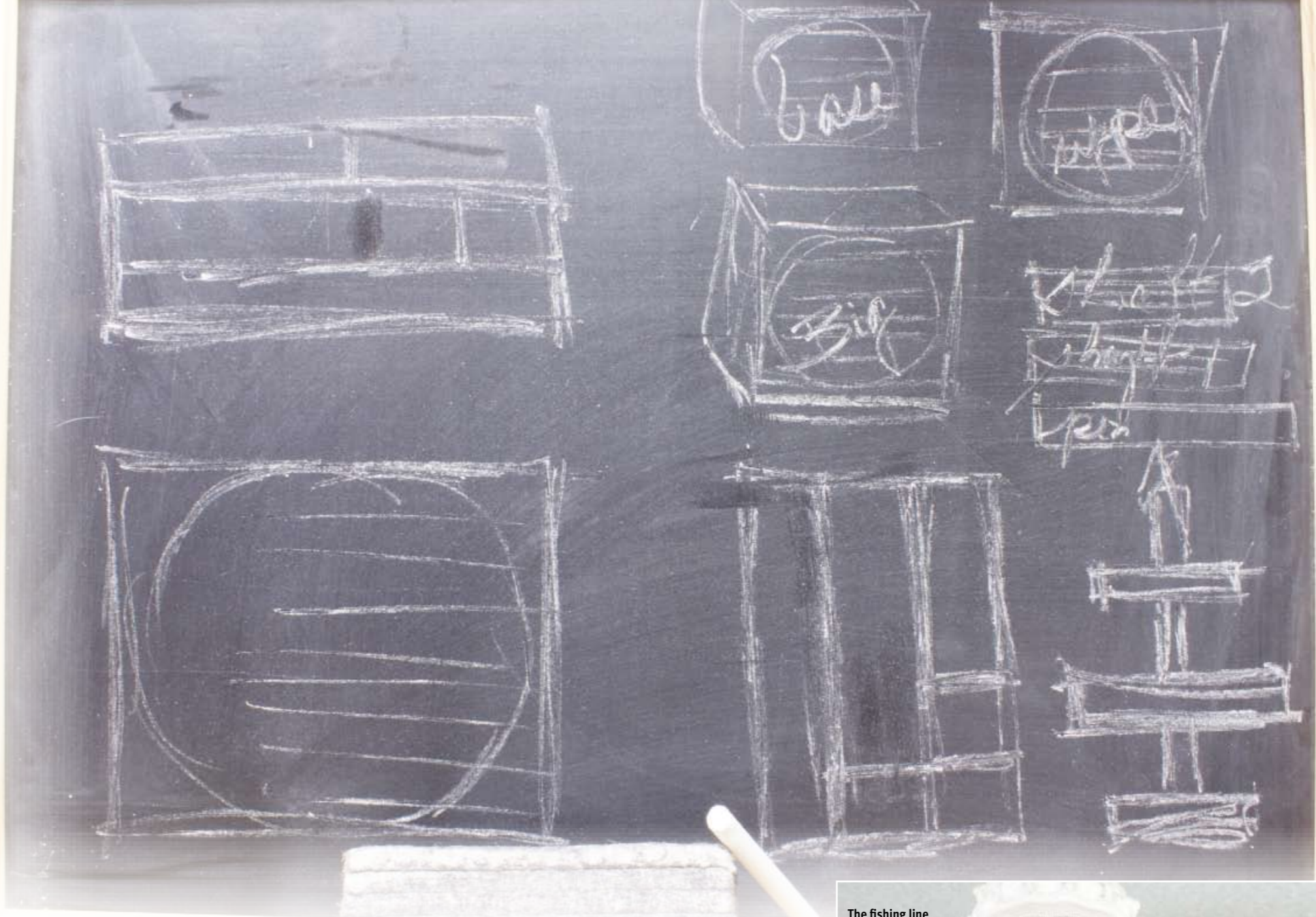
design on the fly, or the lucky accidental creations. I only want to suggest that there is a lot to be gained by having thought through the end goal, the potential problems, and some of the methods to solve them. The absolute beauty of this is that you can do it anywhere and anytime. You don't need to be in the workshop. You can be having a rest with a cup of tea, stuck in an airport waiting for a flight connection, or working through problems in your mind while sitting through a boring meeting at work.

What is to be gained by having a plan? You can think through everything from how much stock you'll need, your workholding methods, and the tools and cuts you'll use. You'll find ways to optimise the use of your materials, especially the expensive ones. You can also find a way to foolproof your project, i.e. have recovery methods for mistakes you might encounter. You can make an assortment of 'components' that you can mix or match to optimise the final product. Follow through some of the examples that follow to get you thinking along these lines. My thinking and planning of the example projects led me long ago to assemblies of multi part turnings. See if you find value in the process.

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## THE SPUTNIK ORNAMENT

Turn just about everything but do have a special interest in ornaments. Whether I make a pierced eggshell, wooden turned, or other bodied ornament, I usually like a stubby hanging finial on the top and a long graceful 'icicle' finial on the bottom. I like to work in Blackwood for finials for a couple of reasons. The density gives me the ability to hold crisp detail and it also doesn't require a finish. Adding a finish to a turning usually will soften the details by filling crisp detail cuts. Blackwood can be cut, sanded, Micromeshed, and buffed if desired to the highest gloss desired so no additional finish is needed. Let's use the Sputnik sea urchin shell as an example to think through the problems and get to some solutions.

My goal is to take the Sputnik urchin shell and create a top and bottom finial to make my ornament. The problems at hand are that the top and bottom holes in the shell are irregular

and pretty large. Also, bonding wood to shell presents a lot of problems. First is the adhesion between the wood and the shell. The second is the two different expansion rates with moisture over time. Last, but not least, is the fragility of the shell. Being brittle and having its natural knit lines, it is therefore susceptible to breakage under load.

My version of Sputnik urchin sea shell ornament prior to assembly. Conservation of precious materials, mix and match parts, and no shell loading are a few of the advantages

The fishing line hanging thread bears all of the weight of the ornament. You can see that the urchin shell only sits on the ledge bearing its own weight held captive between end caps



Selecting absolutely on axis grain blanks of a much smaller size lets the finials be 'economical'. The real beauty is being able to turn as many as needed until pleased with the resulting ornament appearance with any extras going in the future use bin



◀ THE SPUTNIK ORNAMENT (CONT.)

Experimentation

Experimentation led me to make my ornaments as an assembly with no attachment to the shell. I also use this method for my other un-pierced shell ornaments. There are three big advantages. The material savings are enormous especially when using exotic woods. Both upper and lower finials need to fit into the holes in the shell but also be turned to the delicate sizes I'd like in the finished product. Another advantage is the non-loading of the shell. The shell is not part of the load-bearing situation. It needs to only sit there bearing its own weight and look pretty. No attachment problems and little reason to break. Perhaps the most attractive aspect is the creative flexibility. Each shell is unique and I want to turn my shell interface to follow the contour of the shell. If the shell fitting and finial are a single piece, I'm committed. Either the end cap or finial look or fit can ruin things. As an assembly, I can mix and match as I wish to get to the end result before committing to glue. Don't like the look of the finial, I make another but put that one aside for future use. Note that an assembly allows me to create 'V' cuts that are very sharp but are created by the interface of the components rather than cut into a single piece of wood.

I hope you'll see the power of a plan and the assembly concept. A Sputnik shell is selected as desired and the irregular holes on both ends are rounded. The two diameters needed to make the end caps are known. Each turned with an eye to following the flow of curve of the shell. Standard finial hole drilled, test fit, and finished through final polishing. At that point, I've created the end caps that follow the contour of the shell. Any interfering spikes are ground away only as far as necessary to allow the end caps to seat on the opening. The end caps have some depth so that any gaps in the shell to wood interface are visually blocked.

Finials

Finials are made to suit. They can be turned from much smaller diameter stock than the end caps with obvious savings. Give care to grain orientation. Not for looks but for strength. The upper finial isn't critical because of its size but the lower finial is very sensitive to grain orientation. The finial at the water drop interface is a millimetre or less in diameter. Any off axis grain is a failure point now or in the future. Completed finials can be visually checked with respect to the final ornament result. If it isn't pleasing, any problem finial can be set aside for future use and another made with knowledge of the areas of dissatisfaction.



The real task to making a pleasing ornament, in my opinion, is to make everything blend. Regardless of the differences in colour and material, things should flow rather than look 'stuck on'

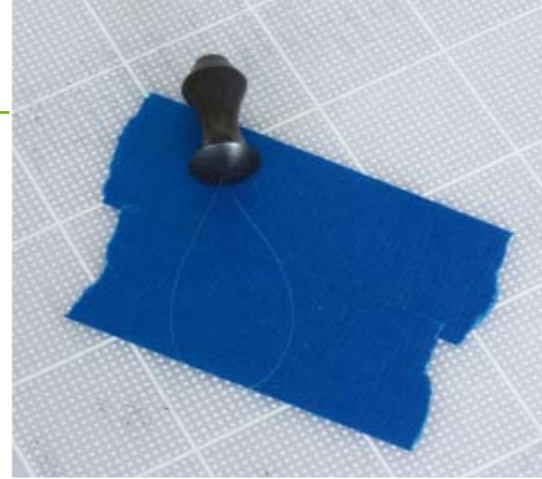
To hang ornaments I favour fish line for it's more delicate appearance bordering on invisibility. The only downside is once I cut and glue in my hanger fish line into the upper finial, its length is permanent. It can't be changed like putting a different string through a brass eyelet. When content with the look and fit of everything, it is assembly time. The glue surfaces have plenty of face grain to face grain bonding at every joint. I can orientate the grain for the best look and match as I assemble. If you aren't experienced with Blackwood, it has wonderfully beautiful grain with diverse colourations. The internal connection holding everything together can be anything. You can use a piece of birch (Betula pendula) dowel to the very thin bamboo kebab skewers that I buy in the discount grocery. I am a minimalist here because part of the 'dainty' is being very light. The internal connection can be extremely small in diameter yet be very strong in tensile strength.

Assembly

Assembly is straightforward. All of the components have been dry test fit to assure proper interface both from a mechanical and appearance standpoint. I use any epoxy handy and glue things together starting with the upper finial to the kebab skewer. Next is the upper end cap to the kebab stick flush to the upper finial paying attention to best grain look. The most important glue joint is the lower end cap to the kebab stick. At this point, I am controlling the compressive fit to the shell. I'd like it tight enough that the shell doesn't rattle but not so tight that there is any real compression on the shell. The top and bottom interface planes are less than parallel and the shell may be free enough to rotate. Once glued and set, I then attach the lower finial having set the ornament upside down. The weight of the finial keeps the positioning while setting. A finished Sputnik ornament. In essence, it is one long piece of glued up wood with a shell sandwiched gently on the stick. Still fragile to shell impact but I transport and ship them in cardboard tubes



Once content with the entire package look, gluing everything together gives you the final ornament. I like a delicate lower finial, contour hugging upper and lower end caps, and a disappearing hanging method so it appears to float in space



With the end goal of delicate and lightness, I like to use monofilament fish line as a hanger. No clunky and unsightly brass screw eyes. Two or four pound test is more than adequate

standing upright on the end of the finial. No problems to date.

THE LIDDED BOX

Turning lidded boxes has many challenges. The shape is only one with the join appearance and action being other needs. Most box turners go to great effort to minimise the kerf loss at the joint to maintain grain match and create a base and pull that are visually pleasing. The method I most often use is an assembly. The problems that an assembly solves for me is the ability to create pulls and bases as needed and until I'm happy. It solved the 'committed' problem of creating a box but not liking either the base or pull. It also creates working space to do some after-turning decoration. There is no reason that the grain can't align since I can make the base and pull from exactly the same material save the kerf and insertion stud dimension. If I mess up and don't like either of those, I can make another and get a close enough grain match with material from the same block. See how it mirrors the ornament mentality?



Create as many bases as you like until you are happy. Notice the face grain to face grain glue surface as well as the glue trap to eliminate squeeze out



Having a base that is free from the box not only gives you a lot of freedom in shape because of the turning access but it is far easier to sign. Grasping the base and anchoring your hands makes signing a breeze

The combination of both male and female interfaces on the lidded box body. Notice that the female is on the top section where the increased wall thickness at the top will be less noticed



Ability to mix and match parts until you are happy with the result. No permanent commitment until you perform the glue up. Ability to create sharper detail than can be cut if desired by using the interface surfaces at a interface seam. Simpler workholding. What is not to like about this method?

If you do a good job of planning your materials and matching grain alignment, there is little reason for anyone to suspect that your lidded box is made from many pieces

There is no reason that an assembled lidded box look any different than the traditional box. Grain match and minimal joint loss are all easily done



There are advantages to having the female on the base and pull. The wall thickness of the top and bottom of the box can then be as thin as you wish. Done the other way requires more wall thickness for a pocket for alignment and strength



Whether male or female on the box, there is plenty of room for access for after-turning decoration. Far easier to hold and work on as well as decorating right up to and under the pull and base



The assembly of parts allows access into areas that could never be reached. I like the appearance of the coverage. Even if you don't do any after-turning work, you'll like the deep 'V non-cut cuts' that show well

I think this design offers the best solution for multi-piece assembly. The male on both ends of the lidded box allow for the thinnest of walls, easy access to every area of the surface, mix and match, and then final assembly



## ◀ THE CREATION?

Many years ago, my club ended up with a pallet load of 50 x 50 x 150mm blocks of purpleheart (*Peltogyne porphyrocardia*). It was decided to make a club challenge project with them. Make whatever you wanted using only the material contained in the block you inherited from the draw. Rather than launch into turning a batch of pens or the candy dish style bowl as many did, I spent a bit of time at the chalk board with the intention of creating something unique from the block and also

using every cubic inch that I could. Assembly mentality and a bit of planning got me to the result shown. Other than the letter opener at the very end, everything was planned on the chalkboard. Thinking through from the cuts at the bandsaw, the grain orientation of the planned glue surfaces, and the open access to the spindle turnings allowing for some decoration with a file was done several times to get to the end plan was done long before the first sawdust.



The major pieces all cut from the 50 x 50 x 150mm block of purpleheart. All of the pieces for the creation turned and finished except the finial. You can see the planned glue up scraps for the pen stand, pen blank, and finial stock. A few scraps as well



Assembled turnings give you plenty of freedom to create until you are happy. Notice the great grain orientation for gluing. Also, there is no grain match to speak of so any finial produced, #1 or #20, will blend right in to the final product

The 50 x 50 x 150mm block yielded an 200mm tall by 140mm wide candy dish. The grain matches at all three levels even to the discerning eye. A bit of hand cut spirals done with easy access and a few coats of shellac



From the trimmings and pen blank from the original purpleheart block. A single piece pen using some kit parts. The four quadrants of the base glue up are not easily seen until close examination and are even pleasing then



The balance of the scraps from the block along with one piece asking to be made into something. Too short for pen parts yet big enough to be a tease



Turned round so I could practice my hand cut spirals gave way to a handle of sorts. Not in the original plan but the last reasonable sized scrap piece that turned into a bonus



The last usable piece turned into a letter opener albeit not a very large one. The push pin in the back was used to help hold and orientate the letter opener as it was presented to the belt sander for blade sharpening

## CONCLUSIONS

I've thrown out two extremely powerful concepts for you to consider. Thinking through your turning prior to even visiting the wood supply whether a single piece spindle turning or a more complex piece. The other extremely powerful concept is the assembly. If you make your mistakes on paper, you'll save time and money. If you plan your turnings as an assembly, you can take advantage of the materials availability and cost. You won't have lost any creative freedom. You'll actually empower yourself to create and push the boundaries knowing there is a fallback plan. Continue to refine things until you are happy with the result and then mix the glue. Are the examples used in this article ideal or the best end point? Perhaps not. I use

them only to plant the seed with you. Plan through the process and design, and as appropriate, use the concept of assembly. Take these two ideas and run with them. ●

The ability to build ahead, use parts not fitting the current project in the future, and run 'production' of styles and species has many benefits. Here, finials for future pierced eggshell ornaments. Put planning and assembly into your way of thinking



Grain alignment, easily turned component parts, ability to remake parts for aesthetics or fit issues, and if well done leaves little evidence of your method except to the very astute trained eye

