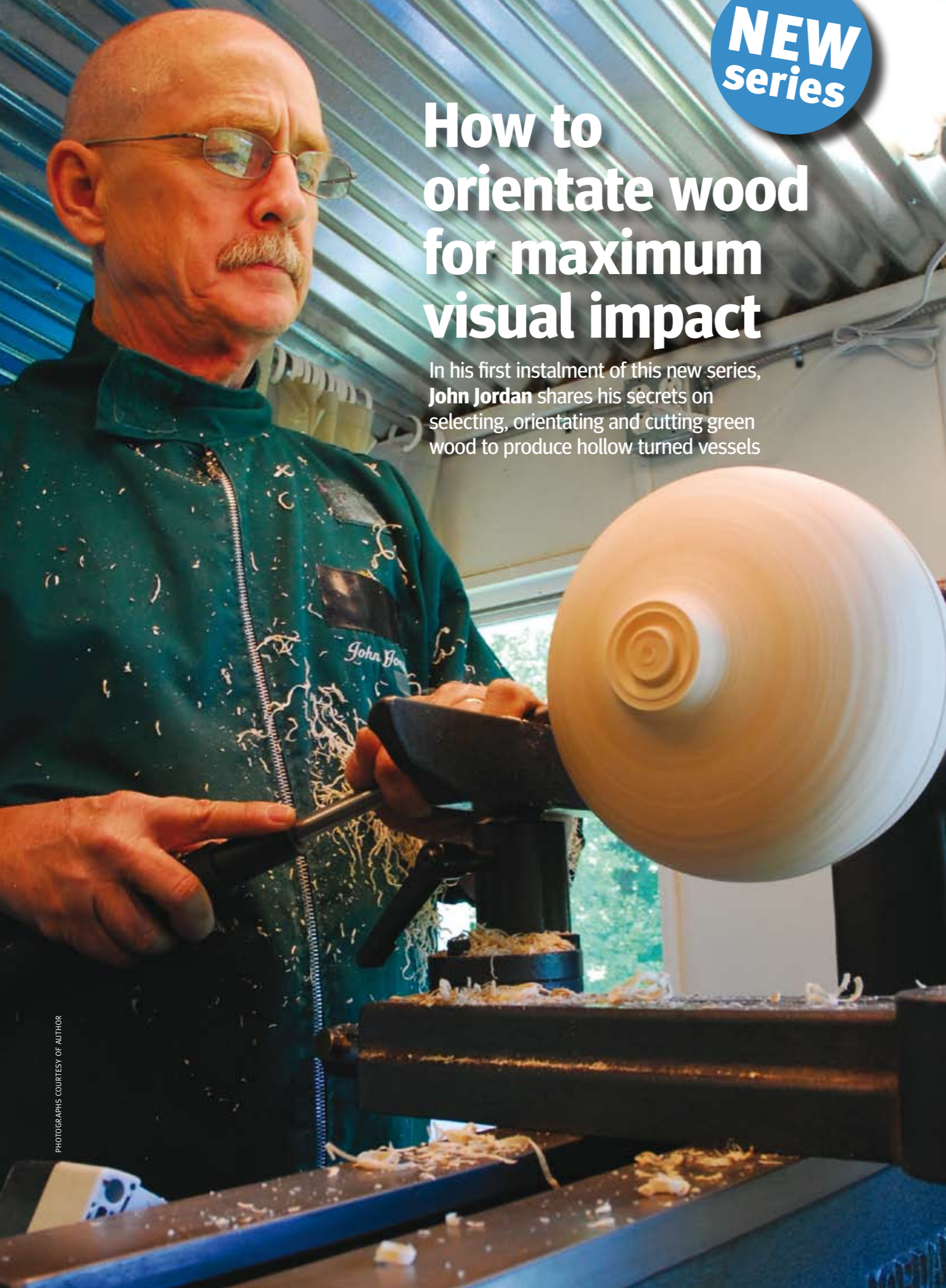


NEW
series

How to orientate wood for maximum visual impact

In his first instalment of this new series, **John Jordan** shares his secrets on selecting, orientating and cutting green wood to produce hollow turned vessels



PHOTOGRAPHS COURTESY OF AUTHOR

Many nicely designed, shapely, well-turned bowls and vessels fall short when it comes to wood selection and using the wood to its best advantage. The problem is not that the pieces are not successful, or pleasing, but simply that with a bit more care and consideration in the selection and treatment of the material, good pieces can become really good, or even great. In this article, I will discuss the considerations that are involved when selecting and using the wood for one of my hollow turned vessels.

Selecting wood

I use fresh, green wood from logs or log sections exclusively for my work, which are turned from start to finish with no roughing or re-turning involved. I want to emphasise that it is indeed possible to make finished, refined work from green wood – the wood need not be cracked or strangely distorted. There are many reasons for working this way, as I will go on to show.

Sourcing green wood

It is nearly impossible to get truly dry wood in sizes suitable for work of reasonable size. Green wood is easier to work and from my point of view, much more fun; the colours are bright and fresh, the sapwood white (although many woods will stain and spalt if desired), it is readily available and in most cases, inexpensive. It is always worth trying a variety of sources for finding dry wood, including country sawmills, beaches, building sites and fire cutters can be a good source as well. Sourcing wood is not as difficult as it might seem, once you get started you may find the problem is getting too much – get together with friends and share the work and the wood.

Properties of green wood

When using green wood, a good, clear understanding of the properties of the wood is required. Far too many woodturners treat wood as a mystery when it is actually a very predictable material, about which we know virtually everything. The most pertinent of these properties to this discussion is how much the wood moves in each direction as it dries. This is well documented for most species of wood but can be easily determined by turning a couple of



ABOVE: Ready-cut blanks for my hollow forms

BELOW: Marked out blanks ready for cutting

small, quick bowls. Left out on the bench for a day or two, these bowls will dry and the movement will give you a quick education on a significant property of that wood. You can look up the actual numbers of a typical example, but what you really want is a practical example of the wood you have.

Advantages of using green wood

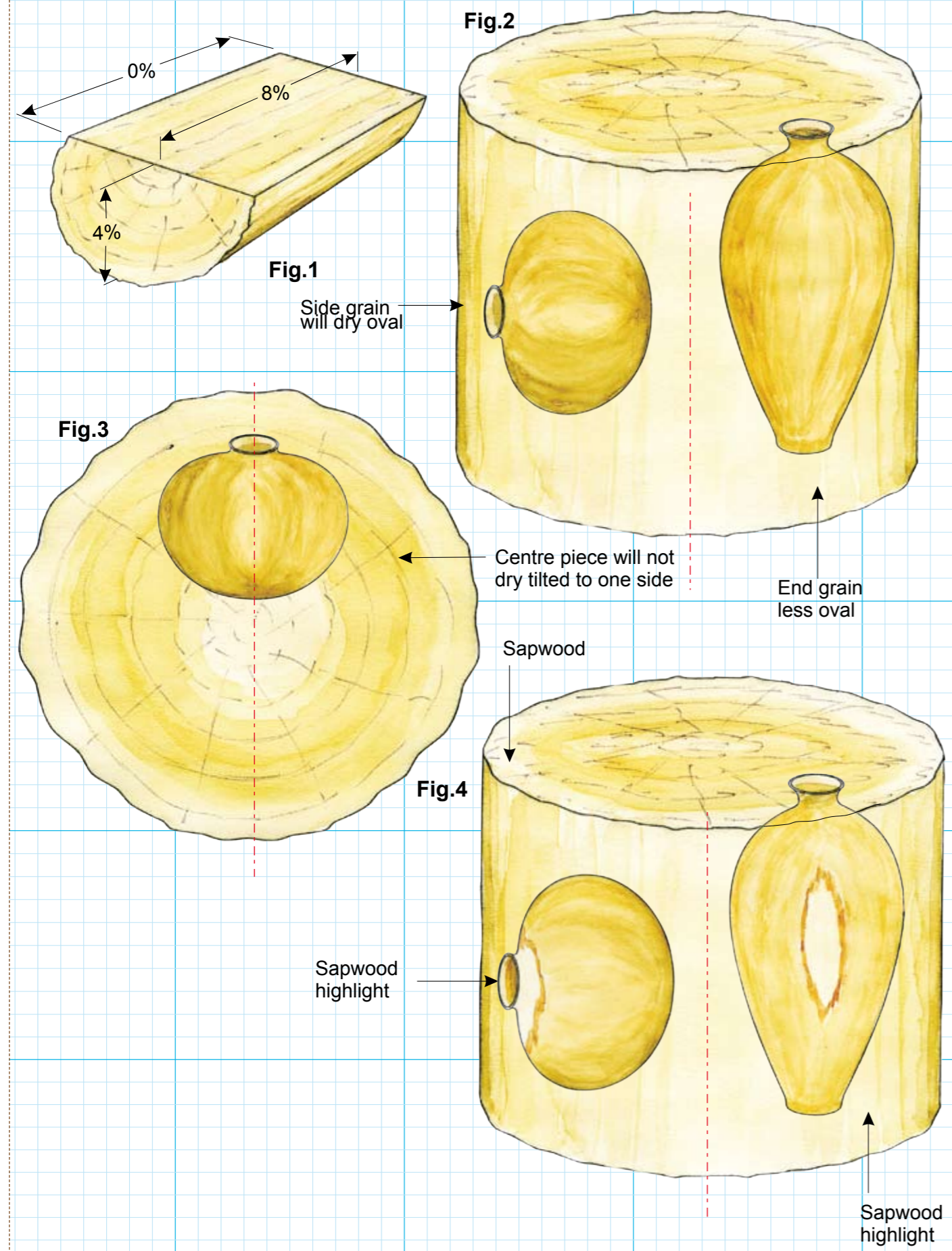
The greatest advantage of using green wood to me is that unlike working with pre-cut blanks or planks, I have complete control regarding how the piece is orientated. I can carefully orientate the grain direction to take advantage of colours, grain patterns and defects. My only concern is the piece at hand, and I'll waste as much wood as needed to get the initial blank just the way I want it. The ability to control the orientation during cutting, and then between centres on the lathe can really elevate your work to another level – it truly does make a noticeable difference.

As this topic is so broad and because it is impossible to cover everything, it is necessary to

generalise to some degree. I am referring to straight-grained, sound, fresh wood, and I am focusing on a 'typical' relatively stable wood as an example. Limbs, crotches, burls etc, present some challenges but even these are predictable with some observation and experience. In the examples featured, the pith is usually eliminated, but there are ways to work with the pith included as well.



ANATOMY OF GREEN WOOD



LOOKING AT GREEN WOOD



Handy Hint
Rule number 1 in green woodturning: Uneven moisture loss causes checks and cracks. Keep the drying rate/moisture loss even and it will basically eliminate checking and cracking
Rule number 2 in green woodturning: ALL woods have this basic relationship: Negligible shrinkage in length, one half as much radially as tangentially

Our 'typical wood' is probably around 80% moisture content, although it can be lower or it may be more than 100% - that does not really matter, what we are concerned with is around 30%. Anything above that is 'free' water, which is the water given out which gets you wet and shows on the surface of the wood. Below 30% is the 'bound' water which fully swells the cells of the wood and as this water is lost, the cells start to shrink and our problems begin. If the outside of the wood starts to dry and shrink faster than the wood below it, checks result and then become cracks. It is very difficult to have the moisture evaporate or migrate evenly through a large block/blank/log, but it is quite simple to keep the moisture loss even in the relatively thin walls of a turned vessel.

Shrinkage rates in our typical wood might be, (as shown in Figure 1) longitudinally 0%, tangentially around 8%, and radially about half of that amount, or 4%. Or, as I like to say, none, a considerable amount, and half a considerable amount.

This means more volatile woods will have larger numbers, but the same relationship. I try not to concern myself with numbers, but instead rely on my experience/knowledge of different woods. I mostly use the relatively stable woods (smaller

numbers) for the type of work I do. What this movement means is that a side-grain hollow vessel will become somewhat oval as it dries - the difference in length/tangential shrinkage. Just how oval is dependent on the relative movement of the type of wood. An end-grain orientation will be somewhat less oval and this difference in radial/tangential shrinkage, (as shown in Figure 2).

Some woods are stable enough to turn end-grain with the pith down the centre, but I would not advise this unless the log is fairly concentric with a sound pith running down the centre. I usually drill a large hole to remove the pith in the bottom after turning and then fill the hole with a plug after the piece is dry. The hole relieves the pressure of the wood constricting as it shrinks and is a fairly reliable method. Some woods may be stable enough to not require any additional attention, but I would suggest experimenting with what is available to you.

ABOVE: Wormy boxelder blank and lidded vessel in wormy boxelder

BELOW: Walnut vessel with inset showing detail around opening



THE WOODPILE

I keep my logs covered tightly with plastic tarps to prevent drying, but in the warmer months bugs and fungi/moulds will stain/discolour the wood and spalting may begin. That is not usually what I want as I like the fresh, bright colours, but that is my personal preference.

The first thing to do is saw a few inches off the end of the log to get rid of any checking and get a good clear view of what you are working with. Be sure to cut enough to get rid of all the checking, and if in doubt, cut some more and inspect it carefully.

“Be sure to cut enough to get rid of all the checking, and if in doubt, cut some more...”

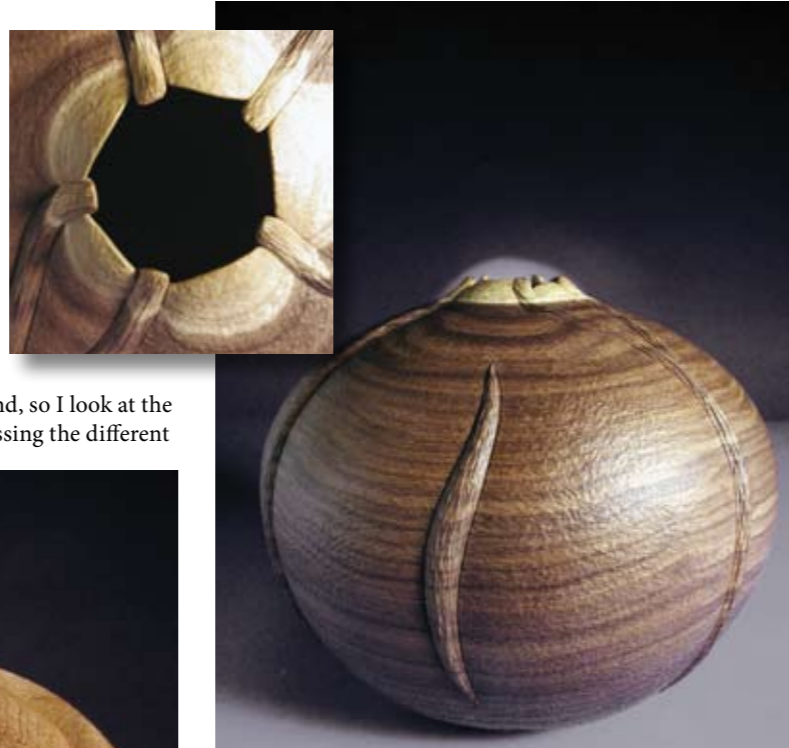
It is important to note that regardless of how large the log may be, you are only concerned with the piece you are about to make. The important point is that you have the one perfect piece rather than two or three which are not quite so nice. Realistically in most cases, there will be more than one nice piece in any one section.



LOOKING AT THE SIDE-GRAINED VESSEL

A side grained vessel needs to be centred over the pith, (as shown in Figure 3) for a couple of reasons: Firstly, the vessel will be symmetrical as it dries which is important to me as it means the vessel won't lean or tilt to one side (unless that is the desired effect). Secondly, the grain patterns will also have a symmetry that looks right, even if the grain pattern is subtle and wonderful patterns emerge if the symmetrical patterns are carved through. If there is contrasting sapwood, I often like to use it as an accent around the lip and sometimes

I want this to look consistent or even and then other times, offset to one side. If the sapwood is wide, I may cut some of the width away, and may even cut it so there is just a patch on each side but none on the opening. Logs are rarely perfectly round, so I look at the different areas, assessing the different



ABOVE: Walnut vessel and inset showing detail

LEFT: Cherry vessel and inset showing close-up detail

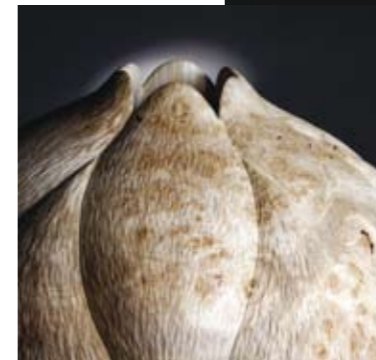
looks I may get from the sections and often I will draw with chalk or crayon. I typically orientate the opening of the vessel to the outside/sapwood area of the log, but if there is some colouring in the heartwood I might use that as a highlight or contrast at the opening, depending on the level of distortion, but usually this can be shaped up by hand after the piece has dried. Also, if the opening is orientated toward the heart, the grain patterns will be more elliptical, resulting from tighter growth rings and can add a little illusion/emphasis to the actual shape.



LOOKING AT THE END-GRAIN VESSEL

An end-grain vessel has much the same considerations, (see Figure 4). The length of the vessel should be parallel to the grain of the wood and it is best to stay an inch or two away from the pith if possible, as the most pronounced movement takes place on the tighter growth rings near the pith. I usually draw circles on the end of the log to picture where I might pick up the best colour/grain or sapwood highlights. It is important to be careful not to include too much light-coloured sapwood as this results in a sort of half-and-half look. Rather, I am usually looking for a smaller focal point/patch on the side of the piece. End-grain vessels turned from a moderately stable wood are a great way to get a finished, refined look with little apparent movement.

After laying out in chalk, the next step is to take a chainsaw, or sometimes a band saw. Usually, I will saw out a square block and then saw the corners off to produce an octagon, which is round enough to easily turn. I never saw circles on the



RIGHT: silver maple vessel

INSET: close-up detail of the vessel



LEFT red maple vessel with pith in center

INSET red maple burl vessel

band saw as cutting a rough, large piece of green wood tends to twist and bind the blade. Cutting the corners off guarantees straight line cuts and much longer blade life. I only saw as many pieces as I will use within a couple of days at most, and I will put them into plastic bags, as if they are left for much longer mould is likely to grow and the wood will stain.

The importance of these steps is critical to the success of my work and I encourage you to consider them in your own work. The importance will be more apparent as the piece is turned, then sanded and finished or carved and textured. The final steps of carving and detailing will clearly reveal the care and consideration taken in those first steps at the woodpile, and are very worthwhile. ●

NEXT MONTH... In his next instalment, John looks at turning a hollow vessel on the lathe