

WORKING WITH GREEN WOOD

Tri County Woodturners

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This handout:

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Working With Green Wood

- Why turn green wood
- Terminology
- How wood moves
- Turnings least likely to crack
- Drying turned pieces
- Some examples

TURNING GREEN WOOD

- Positives
 - Readily available in large sizes
 - Wet wood turns easier than dry wood
 - Little or no dust
 - Warps to interesting shapes
- Negatives
 - Messy water spray
 - Warps to undesirable shapes
 - Difficult to sand (abranet)

Twice Turned Cherry Bowl



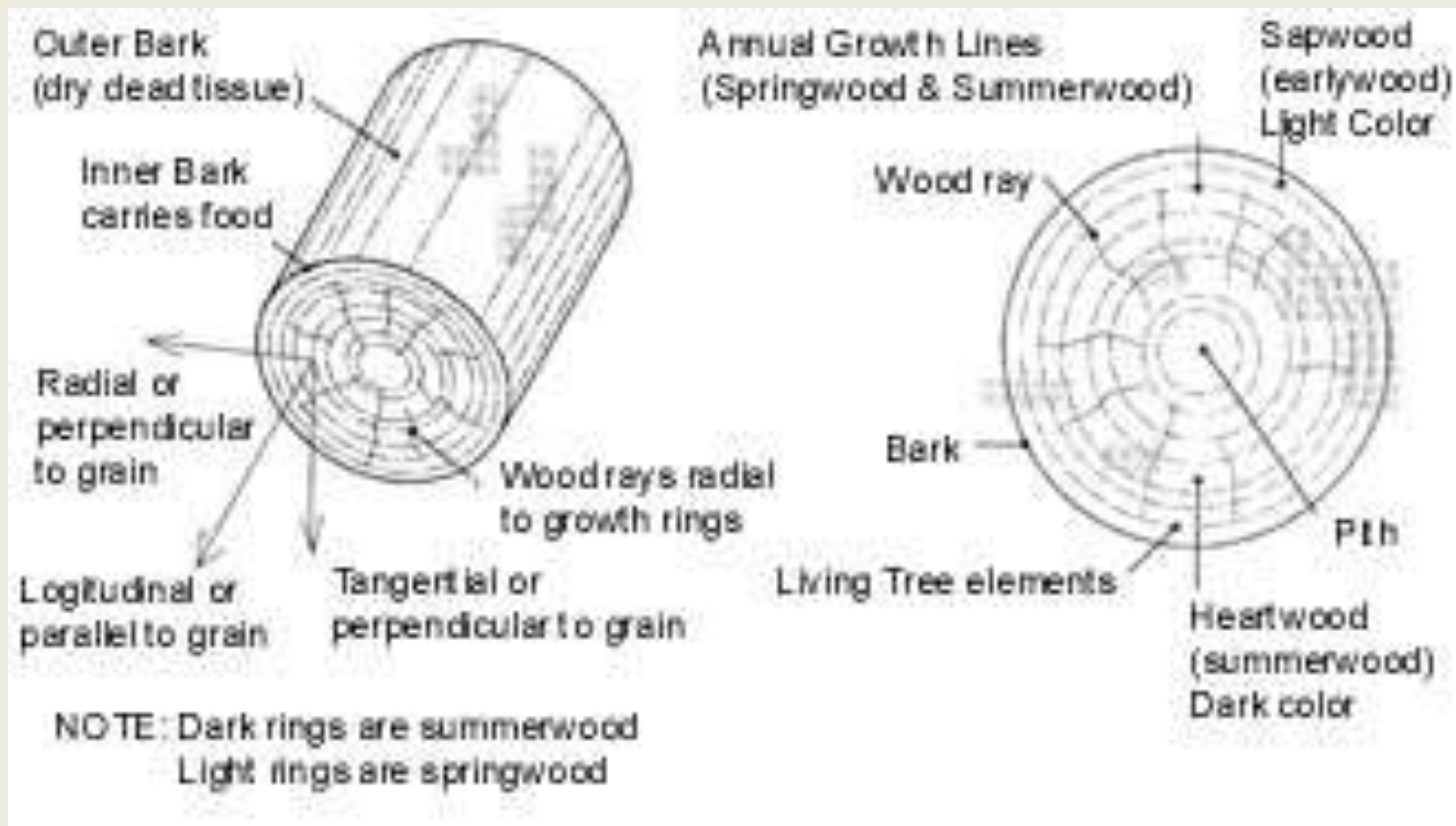
Green Turned Maple Burl



Green Turned Osage Orange



Some Terminology



Green Turned Black Walnut



Why is it that?

- Experienced turners rarely have pieces crack unexpectedly
- New turners often have pieces crack

SUCCESSFUL GREEN WOOD TURNERS

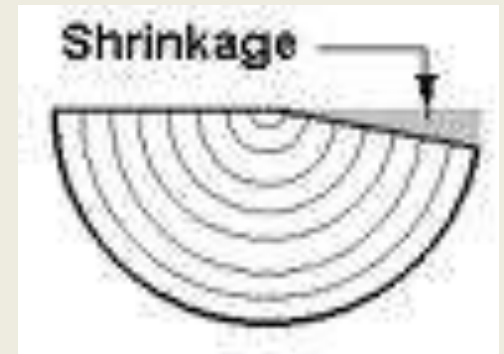
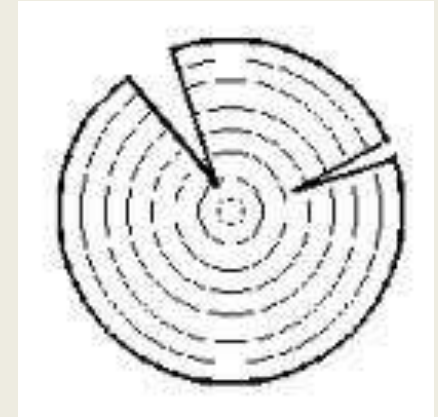
1. Use Un-cracked Wood (don't laugh)
2. Work Relatively Fast
3. Balance The Grain
4. Turn Pieces With Flowing Curves
5. Turn Even Wall Thicknesses
6. Control The Initial Drying

Begin with Good Wood

- Treasures from the firewood pile usually have cracks you don't see until they open up. Wood left in large pieces must crack as it dries.
- Use fresh cut blanks and protect them from drying.



Wood storage



I cut logs in $\frac{1}{2}$ lengthwise through the pith. The length is at least 4" longer than the blank I want. Coat the end grain with wood sealer. Stack in a shady place off the ground

Use the Wood Soon

Wood has a shelf life

- End checking begins in days
- Color loss occurs within a week
- Sapwood starts to discolor in a week
- Major cracks can happen in a month

When the blank is cut there are 2" of waste on each end. Hopefully any end checking will be cut off.



Don't let the piece crack while turning

- Work efficiently
- Mist the turning when necessary
- Cover with plastic if you have to stop turning

It takes practice to hollow a 14" NE Bowl in 20 minutes. As you progress toward faster turning, keep the wood from drying out while on the lathe by hydrating with a plant mister. If you leave for more than minute cover the work in plastic.

Curves

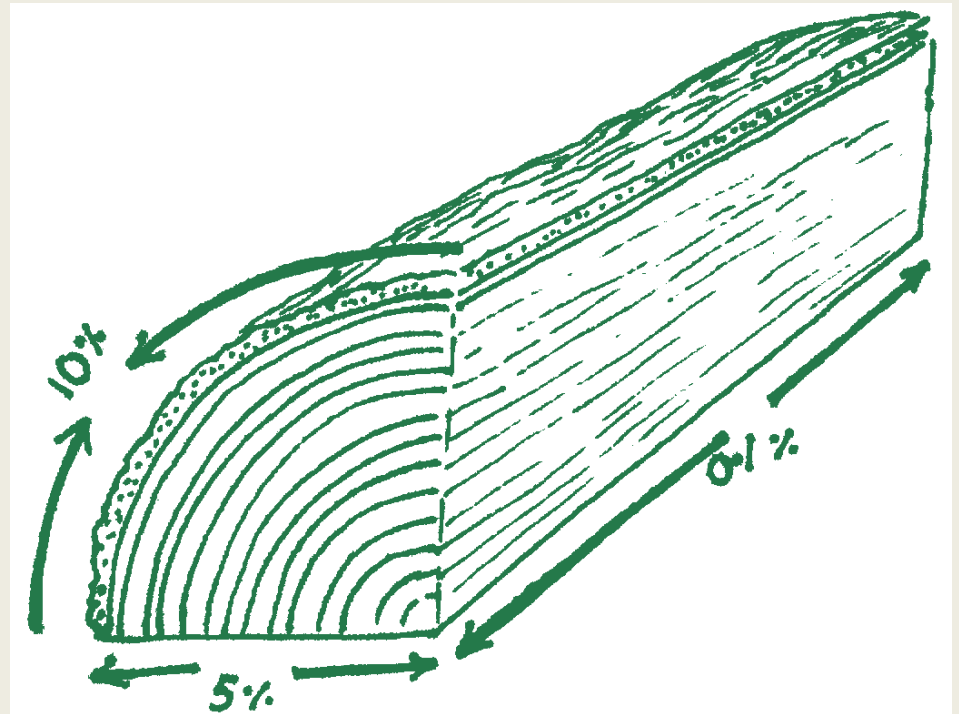


- All wood warps and moves as it dries. Pieces that have even wall thickness and flowing curves allow the wood to move as it dries. Green wood with near right angle curves often cracks because it can't move as it dries

Wood Shrinks as it Dries

- Longitudinal shrinkage
 - negligible
 - 0.1% in the example
- Radial shrinkage
 - Center to bark
 - less than tangential
 - 5% in the example
- Tangential shrinkage
 - Around the growth ring
 - Greater than radial
 - 10% in the example

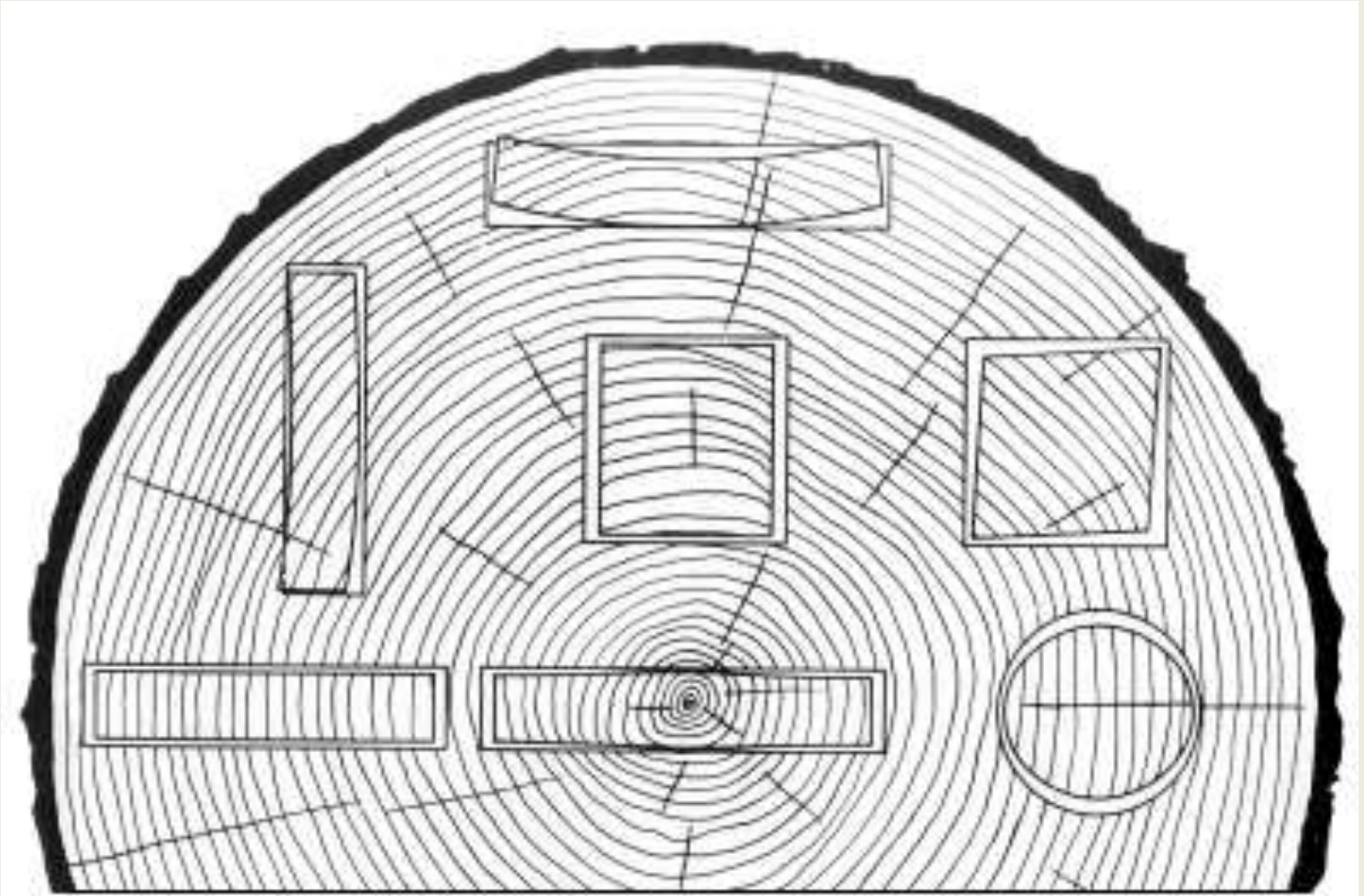
Shrinkage varies by species



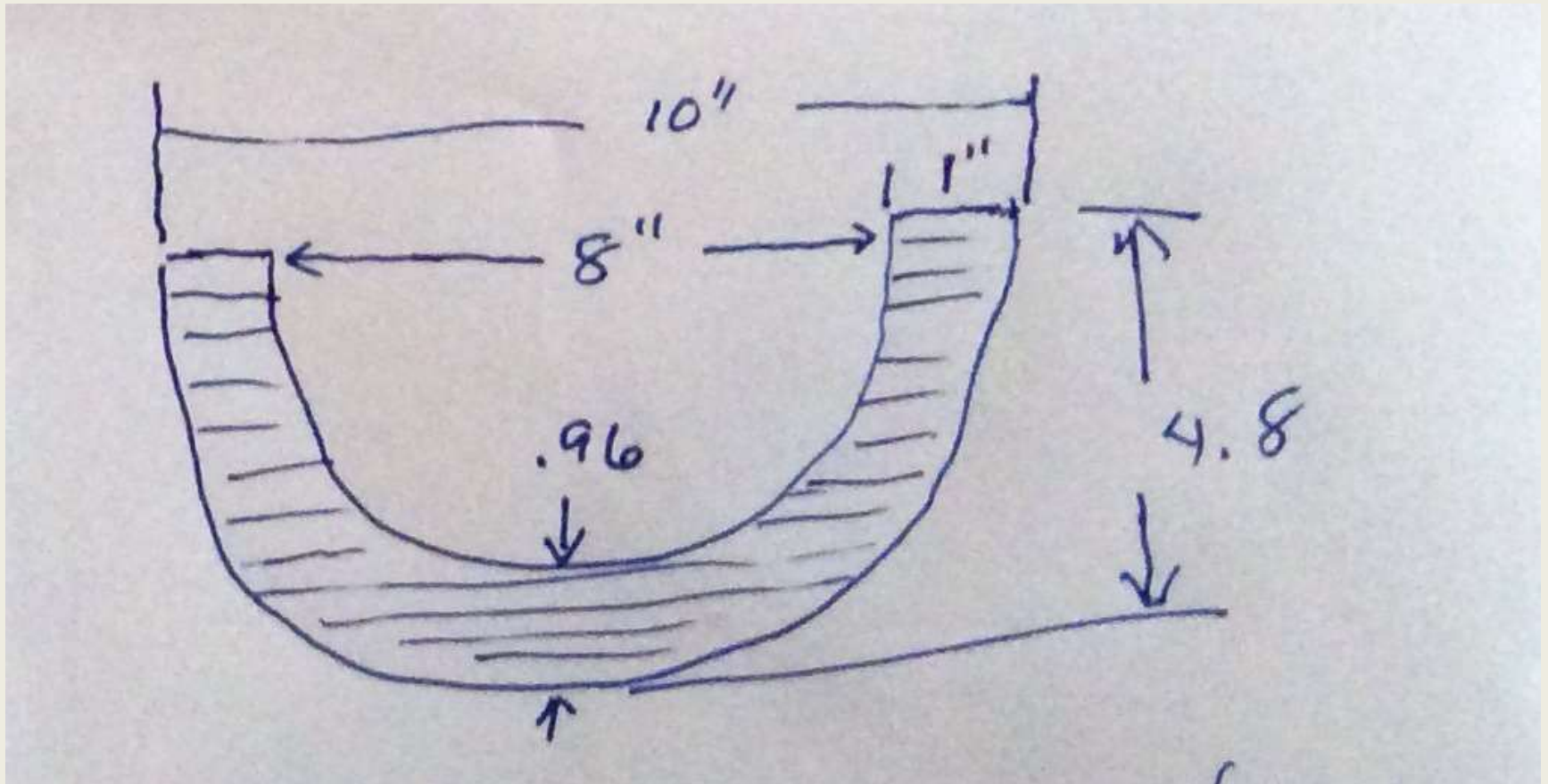
Shrinkage from green to oven-dry moisture content

Species	Radial	Tangential		Species	Radial	Tangential
	(%)	(%)			(%)	(%)
Camphor	2.6	4.6		Maple, Red	4	8.2
Cherry, Black	3.7	7.1		Oak, Laurel	4	9.9
Elm, American	4.2	7.2		Oak, Water	4.4	9.8
Elm, Winged	5.3	11.6		Oak, Live	6.6	9.5
Hackberry	4.8	8.9		Persimmon	7.9	11.2
Pecan	4.9	8.9		Sweetgum	5.3	10.2
Holly, American	4.8	9.9		Sycamore, American	5	8.4
Madrone, Pacific	5.6	12.4		Tupelo, Black	5.1	8.7
Magnolia, Southern	5.4	6.6		Bald cypress	3.8	6.2
Magnolia, Sweetbay	4.7	8.3		Cedar, Eastern Red	3.1	4.7

Warp is Predictable sort of

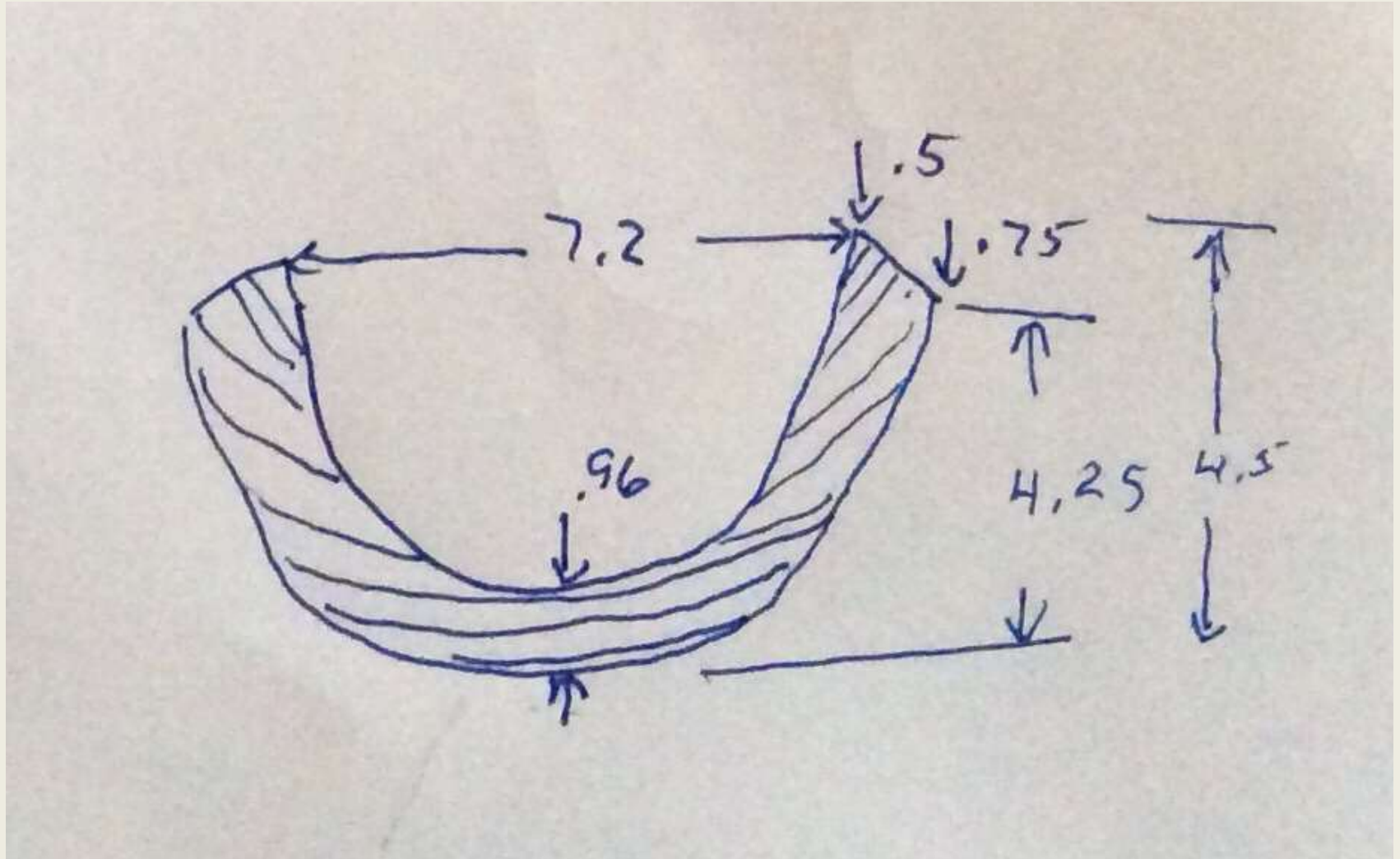


Shrinkage 10"D 5"H bowl cross section cut with the grain example
4% radial 8 % tangential



Cross grain shrinkage example

10% tangential 4% radial



Curves

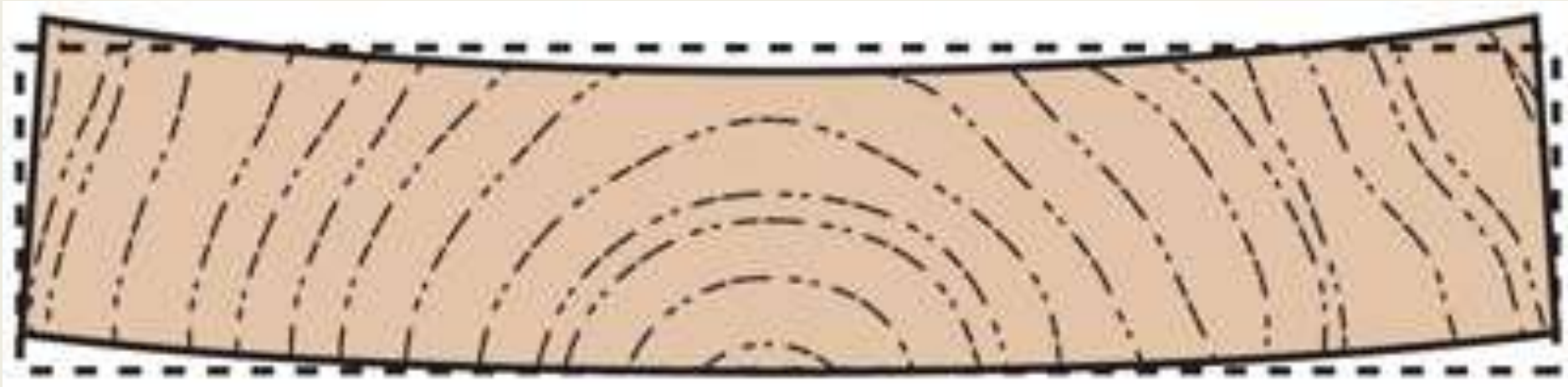


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Curves Bend-Sharp Angles Crack



Growth rings move to straighten



- Vessels with balanced grain warp symmetrically
- Symmetric warp evenly distributes the drying stress
- Balanced grain contributes to successful drying
- Balancing grain minimizes the affect of sapwood

Wall thickness

- Thick wood takes longer to dry than thin wood
- Thin areas dry, warp, and try to move while thick areas are still wet and resist the movement creating tension in the wood that results in cracks



Drying Techniques

- PAPER BAGS— makes a humidity chamber
- WOOD SEALER - coat end grain of bowl
- BOILING - Haven't tried it
- ALCOHOL SOAK – Haven't tried it
- DETERGENT SOAK - Haven't tried it
- PEG /PENTACRYL— Haven't tried it

Control initial drying

Case study

- 3 bowls from the same Laurel oak tree
 - Roughed out hemispherical bowl
 - Roughed out flat bottomed bowl
 - Finished natural edge bowl

Controlling the initial drying is all about not letting the end grain dry more quickly than the side grain. Putting the piece in a box or paper bag works well for me.

Three Bowls

- 8 Feb Winter Haven takes down Laurel Oak leaves 5 limbs 4 feet long 18" diameter.
- 9 Feb rip them in half, seal the end grain, and stack them on the North side of the shop
- 14 March rough a bowl, place in paper bag
- 19 April turn natural edge bowl, place in box
- 23 April turn flat bottom bowl, place in paper bag
- 23 April sand and finish natural edge bowl



Turning Green Wood Successfully

1. Use good wood
2. Turn the piece in one session
3. Balance the grain
4. Turn pleasing curves
5. Turn even wall thicknesses
6. Control the initial drying

Let's
turn a bowl.....

