

This session is to introduce you to bow making and help you choose your first bow design. We'll discuss woods, how to lay out your bow, and how to straighten out any unwanted curves. We'll also point you towards good sources for more information. I expect to more or less follow the outline of topics below. *Before the clinic, please go to the WSC website documents page, and read through "Wood Bow Clinic #1 - Stave Prep". This describes how we prepared staves during a previous clinic.*

INTRODUCTION TO WOODEN BOWS:

- 🏹 Not today's "normal" bow - today, most are laminations of glass or carbon fiber, wood is decorative.
- 🏹 We need to go back to 10,000 year old engineering - *Mollegabet and Andemann-Holmgaard, single-wood "self bows"*
- 🏹 Bows are all about tension and compression, and how much of each their material cross section can take - before breaking or being crushed beyond recovery - *explain "back", "belly" and "set" in bowspeak - show How Hillish.*
- 🏹 Stress maximized near handle, least at limb tips. *demonstrate bend of constant section vs taper*
- 🏹 Tapering width and depth matches stress to strength along limb - *"tiller" is bowspeak for bend.*
- 🏹 Thicker limbs force back and belly to stretch/compress more, thin limbs bend easier
- 🏹 Long limbs spread forces over more wood cells, reduce stress.
- 🏹 Short limbs increase string angle, increasing weight near full draw *"stacking" in bowspeak.*
- 🏹 Overbuilding reduces wood compaction, increasing resilience and performance - *Meare Heath "Paddle Bow"*
- 🏹 Other woods and tensile-strong materials can add strength and avoid breakage *"backing" in bowspeak.*

FIRST BOW WOODS (and some I've made with them, see TBBIV "Bow Wood" p17

- 🏹 Red Oak, strong, easily available, low cost, home store boards need culling, *"Traba Edoceo"*
- 🏹 White Ash, tension strong, explosive, usually straight grained *"Ashiki series, AshWalnut, Ash/Locusts"*
- 🏹 Maple, nice to work, clean grain, *"Ipema" series. "Sycamore Maple Molle", "Shadowfax"*
- 🏹 American Elm, workable, durable, nice to work, heat treats well *"Elm Sycamore > Elm/Sycamore/Hickory "Helmility"*
- 🏹 Black Cherry, easily worked, tension-weak, finishes beautifully, "brash", may be best backed *"Cheramores", "Cherkories"*
- 🏹 Black Locust "tutor wood" very sensitive to precise tillering, not for first tries *"ENI" Ebony Ivory series 1,2*
- 🏹 Hickory - wonderfully durable, hides many mistakes, fine choice for backing strong woods. *(used on numerous projects)*
- 🏹 Bloodwood (Satine) the mistress of bowyers, too beautiful to ignore, but can be brittle, tough on tools, heartbreaking. *"BWH"*
- 🏹 Purpleheart gorgeous, like Satine, without the upside. See PoorFolkBows.com *"Why I Hate Purpleheart"*.
- 🏹 Sycamore: very nice to work, soft, works well in combinations, *"Walnamore, Cheramores, Ipamas, PWS"*
- 🏹 Black Walnut: hard, compression tough, chrysalis, *"Walnamore"*
- 🏹 Ipe (Brazilian Walnut) beautiful finish, strong in compression, often backed with bamboo *"Ipemas"*
- 🏹 Peruvian Walnut - forget it; hasn't any of the density or strength of ipe. Don't be fooled. *"PWS"*
- 🏹 Bamboo, tension-tough backing, laminates can be used, requires skill & equipment, *"Bamboo Osage Takedown, How Hillish"*

TENSILE-STRONG BOW BACKINGS

- 🏹 Fabrics (linen, silk, kraft paper) easiest application, least equipment needed, helps prevent splintering, can be decorative.
- 🏹 Woods: (hickory, bamboo) requires fixturing, special glues, and equipment for prepping laminates and surfaces.
- 🏹 Natural Material (sinew, rawhide, flax) requires more craft, special techniques, sinew can add draw weight to weaker bows

LAYING OUT YOUR BOW (*To understand fully BEFORE you buy a board - know why you need straight grained wood!*)

- Find your center line: find the best-centered ring on the board face, and trace it from one end of the board to the next.
- Ensure it is at least an inch from each board side in the center 5-6".
- Find where it comes closest to the board edge, and make sure it is wide enough there for the bow front view, you may need to adjust the center point. You want to minimize places where rings run off your limbs - runoffs are weak points.
- Don't worry if the centerline is not straight - we can straighten it.
- **Do worry** if the grain runs off the board, this may doom the bow before you start.

FIRST BOW DESIGNS

• **Starter Bow Considerations**

- **Document** what you do - a bowyer's notebook can be invaluable in remembering details, measurements, problems.
- This is not likely to be your last bow - consider it tuition. If it survives great, if not study why and start again.
- "If you ain't breakin', you ain't makin'" George "Jawge" Tsoukalas
- "Simplify" with largely straight edges, stick-on (or no) arrow shelf, pinnock or string notches *Show Bear Weatherrest*
- "Overbuild" somewhat wider and longer (66-68"), to reduce stress and vulnerability to stress
- "Be sensible" - keep the grip simple- your first effort is all about tillering. Elaborate shaping may simply be wasted.
- "Be Real" your first bow may end up weaker than you expect - each error costs wood on both limbs.

• **Paul Comstock's "First Bow"** Paul helped kick off the wooden bow revival in the 1980's, with his classic little book "The Bent Stick" (Paul Comstock, PO Box 1102, Delaware OH 43015, \$13.95). His "Dimensions for a Starter Bow":

- Width Taper from 1.5-1.75" at fade to mid-limb, to 1" at tip (narrowed to final width during tiller).
- Thickness thru handle at least 3/4", taper straight from 5/8" at fade, 1/2" mid-limb, 3/8" tip.
- Tillering Process (Topic for a later session)
 - thickness to within 1/8", flat and smooth, take on to tillering stick. Tips will be relatively stiff.
 - Narrow tips until they bend evenly with limbs, then reduce thickness down to final dimension.

• **Tim Baker's "First Bow"** Tim brought the wood bow revival to the masses with "The Traditional Bowyer's Bible" group-authored project, now into 4 Volumes (TBBIV for short). Tim's "Your First Wooden Bow" TBBIV p.307

- Bend-in-handle bow, length of your "wingspan". Bending handle is simple, and reduces stress.
- Start with 1"x2"x6' hardwood board, with straight rings lines on top and bottom. No runoffs!
- Front view - 1 3/8" wide from mid-limb to midlimb (Assume 5" center section for grip). Straight taper midlimb to 1/2" nocks.
- Profile: Center 5" 3/4" thick, next 2" out taper to 5/8", then to 9/16" at midlimb, down to 1/2" at nocks.

STRAIGHTENING STAVES:

- If your stave centerline is not straight, you'll want to straighten it.
- The process is described on our PDF "Stave Prep" available on the WSC Website. I won't duplicate that here.
- WSC Archery has heat guns and protective gloves, and we can make clamps and other accessories available for you when your stave is cut to the initial outlines. (Bending boards before the outline is cut is very difficult).

FOR MORE INFORMATION - BOOKS & PDFS:

- *"The Bent Stick"* (Paul Comstock, PO Box 1102, Delaware OH 43015, \$13.95).
- *The Traditional Bowyer's Bible*: Baker, et al. Bois D'Arc Press, Lyons Press *Some volumes in WSC Archery Library*
- *The Art of Making Selfbows*: Stim Wilcox, emphasis on Osage, good on tools and scraping split staves down to a single ring
- WSC Website/Documents/Archery/Bowmaking: Clinic outlines, build-alongs, and Background Materials as completed.

WEBSITES

- <http://traditionalarchery101.com/archer.html> Jawge Tsoukalas articles on trad. archery, bow making and tools. Also posts local trad shoot schedules.
- <http://primitivearcher.com> website for traditional bowmaking, related skills
- <http://leatherwall.bowsite.com> site popular with trad shooters, 3D
- <http://piratesofarchery.net> coverage of hunting, equipment, for trad see "Longbowman's Hideout".
- <http://poorfolkbows.com> bow making for the lightly equipped/apartment dweller. Some creative approaches.
- <http://www.tradgang.com> site for traditional bowhunters
- <http://www.tradtalk.com> detailed equipment site,

