



Volume 22 No.12

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### Calendar of Events

December 6	Toys for Tots	Community Church	6:30 PM	Presentation to Sheriff
December 11	Wood Sale	Kiln	4:00 PM	
December	No Board Meeting			
January 3	General Meeting	Yacht Club	7:15 PM	Tool maintenance – Bill Nance
January 8	Old Splinters Lunch	Classico's	11:45 AM	
January 26	Board Meeting	Sloan's	8:15 AM	All members welcome

### Board Meeting Highlights

The TVWC Board met on December 1, 2018. Twenty-nine members were present. The following items were discussed and, as appropriate, acted upon.

Treasurers' Report Current balances are: Club Operations - \$1841; Wood Operations - (\$680); Special Wood Fund - \$2258; Kiln Amortization Fund - \$4350; Toys for Tots - \$1230. Total Ending Balance: \$8999.

Service Projects We have had 31 service projects year to date. Since last meeting 5 projects are still open while five others were closed. B. Brown reported that a wheelchair ramp was installed but has since been removed.

Membership Report With four new members joining the club last month, we now have 175 members in the club. Table will be set up at the January meeting for membership renewals. Members not renewing by April will be dropped from the roster.

Programs The Programs Committee is looking for one new member. The January meeting will feature Bill Nance who will make a presentation on tool maintenance. The Club has purchased a DVD that illustrates various woodworking skills. A 10 to 15 minute segment of one of these skills will be shown at future general meetings. More information will be available on our website and in the Resource Book. N. Miller suggested, as a future program, to have an experienced woodworker present the process they use to

complete a project from start to finish. It was suggested to use a toy from the TFT program as an example for this process.

Club Kiln The present load of lumber drying is the kiln will be completed this coming week. The moisture content is presently at 13%.

The kiln monitoring system is ready to go. The system has been set to access the computer from home. Once the current load in the kiln is finished, the monitoring system will be hooked up and placed into operation.

Wood Inventory There is approximately 800 available bf of lumber in the kiln which includes maple, white oak, hickory and a small amount of walnut.

Wood Sale The next wood sale will be held on Tuesday, December 11. We will empty the kiln at 4:00 pm and the sale will start at 4:30 pm.

Wood Cutting The next cutting will probably take place in January. Once we receive the maple and sycamore logs from Don Yeager, a cutting date will be established. There is the possibility of getting poplar logs from B. VanBrunt's neighbor.

Toys for Tots Update This Year's Toys for Tots program has 77 members making 475 toys. Including the donated toys, we should have close to 1000 toys to give the Sheriff. Collection boxes for donated toys will be picked up Monday. Our club will present the Sheriff with a \$1230 check for the TFT program.

New Member Buddy Program R. Cirincione initiated discussion on a procedure to provide a positive welcoming experience to new and prospective members of the club at our general meetings. A motion was made and passed to start at the January 2019 meeting with a special welcoming committee. A sign will direct new and prospective members to the welcoming table where two members will greet them. The new and prospective members will then be assigned a

current member to assist them in filling out the New Member Information Form and help explain the purpose of the club. L. Donnelly has volunteered to organize this activity. A number of members volunteered to serve as greeters.

Wood Purchasing D. Brunson discussed the possibility to procure 6,000 bf of mixed lumber. The Board felt one 22ft. long trailer load would be worth pursuing. To determine the interest among club members, Dave was asked to work with D. Hoffman to send out a similar survey that was used for the Yeager logs. This will help identify the kinds and amounts of wood members are interested in buying. Members should be given a price of the lumber to more accurately determine their needs.

Special Service Project B, Brown was asked if the Club would be willing to make a 22-foot bridge for a disabled veteran. This veteran is bound to a wheelchair and the bridge would allow him to travel from his yard to a proposed sanctuary for his enjoyment. The Board gave its support of this project.

## Welcome New Club Members

David Knight  
Jeff Poirier  
Richard Salmon  
Martin Shoffner

## General Meeting

Dick Hoffman presented a talk on wood workability covering areas of dimensional and color stability, outdoor use, gluing and finishing. Many wood samples were available for member examination. An abbreviated copy of his presentation can be found later in the newsletter for members review. If anyone is interested, Dick can provide a copy of his slides as a PDF.

From Our Members Shops



*Dick presenting to the group*



*Intarsia by Dick Hinze*



*Members looking over wood samples*



*Poplar Model Toy Plane by Joe Geithmann*



*Wood samples*



*Beech candy dish by Chris Campbell*



*Cedar Beads of Courage Box by Marshall Pierce  
Used CCC cutter to make sides*



*First Old Splinters Lunch*

### **Old Splinters Lunch Group**

By Lloyd Donnelly

A new Tellico Village Woodworkers Club group has been formed-- the "Old Splinters". It is a lunch bunch that meets the first Tuesday of every month to enjoy a meal, share some war stories, tell some jokes, and rekindle friendships.

Four club members, Bill McKeel, Larry Bollinger, Jerry Jeffrey, and Lloyd Donnelly recognized how much our club has grown and how some of the closeness that existed in the "old days" has been lost. They also knew that some of our members have health issues and can't participate in club functions like they used to. Monthly luncheons seemed like a good way to help close some of the relationship gaps.

To get the ball rolling they contacted 5 of our senior members and invited them to the first Old Splinters luncheon in September. Bill Peterson, Ted Lethen, Harry Schmidt, Wes McNeal, and Charlie Anderson attended (along with Bill, Larry, Jerry, and Lloyd). Everyone had a great time. They met again in October (see photo) at 11:45 a.m. at Classico's and decided to continue this practice every month. The group has been expanded to include Ken Mack, Tom Daly, Joe Williams, Dave Ritzenthaler, Don Kimbrel, Dick Hinze, Rich Opitek, Joe Collins, Herb West, Dave Brunson, and Dave Jones. Rides are provided to and from Classico's for anyone needing them. The next lunch will be at Classico's on January 8th at 11:45 am. Because the first Tuesday in January falls on New Year's Day, they will meet on the second Tuesday for January only.

## **Wood Survey Results**

The results of the "Wood Survey" sent to all members along were presented at the November meeting. Also presented were decisions and actions taken by the Board based on feedback from the survey.

### **Suggestion to improve the sales process**

#### **▶ Speed up the sale**

- By calling numbers at a time and give members 2-3 minutes before calling the next 5 number
- A day ahead of the sale, or the morning of, have volunteers sort wood into lots of several boards (2, 4, 6 etc.). All lots of the same size would have the same grades of boards. This would allow larger purchases of similar wood, and speed up sales
- Have knowable volunteers measure and price boards (lots), eliminating measuring inconsistencies.

#### **Board Decision/Action:**

At the last sale we had someone watch and call 5 new numbers when the prior 5 numbers were close to being finished. This definitely helped speed things along. Otherwise keep the process the simple. Grading and presorting would add complexity with little gain.

### **Other Suggestions**

- ▶ Have fewer wood sales and try to obtain more out of ordinary woods. Limit common woods so we don't carry a large inventory of logs.

#### **Board Decision/Action:**

We will be more selective on logs we accept (however recently we have had an unusual quantity available ...this is unlikely to continue.)

- ▶ **It would be great if members could put their own wood in the kiln.**

#### **Board Decision/Action:**

Because we try to fill the kiln to minimize cost and to maximize air flow, generally the only space available is at the side of the wood stack. Adding additional member wood in this area would restrict air flow. However, adding wood only in the bug kill cycle would not be a problem so the Board will allow this as long as there is room available. Also, several of the local lumber yards (Everhart in Tellico Planes) will dry wood for a fee.

- ▶ **Cut some 6/4 and 8/4 lumber for members without prior requests.**

**Board Decision/Action:**

We will start doing this where possible.

- ▶ **Where possible acquire crotch section of logs for cutting veneers.**

**Board Decision/Action:**

We will start doing this where possible.

**There is sufficient demand to purchase bulk from a sawmill or to buy premium logs.**

- ▶ Walnut & cherry price varied from \$1.50 to \$4.00 with the average of \$2.50/bf with demand in the 600-bf range
- ▶ Maple price varied from \$1.00 to \$3.00 with an average of \$2.00 bf with demand in the 500-bf range.
- ▶ Poplar price varied from \$1.00 to \$2.00 with an average of \$1.50 bf with demand in the 400-bf range.
- ▶ Plane sawn white oak price varied from \$1.00 to \$3.00 with an average of \$2.00 bf with demand in the 300-bf range
- ▶ Plane sawn red oak price varied from \$1.00 to \$2.00 with an average of \$1.25 bf with demand in the 300-bf range
- ▶ Qtr. Sawn white oak price varied from \$1.00 to \$3.50 with an average of \$2.00 bf with demand in the 300-bf range
- ▶ Qtr. Sawn red oak price varied from \$1.00 to \$2.50 with an average of \$1.50 bf with demand in the 300-bf range
- ▶ Qtr. Sawn sycamore price varied from \$1.50 to \$4.00 with an average of \$2.50 bf with demand in the 300-bf range. (after survey demand was in the 800-1000bf range).

**Board Decision/Action:**

We put out a notice to all members that we will buy ambrosia maple, walnut, maple and sycamore logs and asking for commitments.

- We had 25 member respond and pre-pay \$2.50/bf.
- We purchased roughly 400/bf of ambrosia, 700 bf of walnut and 1000 bf of sycamore logs.
- Sale will be to pre-buyers first and any extra will be opened to all members at \$2.50/bf.

In the future we will combine orders for premium wood on a quarterly basis and either buy logs or purchase in bulk from a lumber mill (Cline Brothers Lumber).

Kiln sales will continue for those who want only a few boards at a time.

**There is no single best time for wood sales.**



**Board Decision/Action:**

We will start having kiln sales on two different days, a primary day and any remaining wood will be sold on a secondary day (with some discounting). Based on results, Tuesdays and Thursday late afternoons work best.

Primary/secondary sale days will alternate each sale date (i.e. the first kiln sale will have the primary sale on Tues. and the secondary sale on the Thurs. The next kiln sale will have the primary sale on Thursday and the secondary on the next Tuesday. With each kiln sale the primary and secondary days will flip.)

We will try this for a few sales and then re-evaluate.

## Dick Hoffman's Presentation on Wood Workability

# Wood Workability

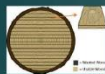
## SO WHAT IS WORKABILITY?

## Wood Workability

- ▶ Characteristics
  - ▶ **Movement** : how much wood shrink or moves
  - ▶ **Color** : how natural wood colors age with time
  - ▶ **Suitability** : how does the wood perform given the project
  - ▶ **Hardness** : how easily can the wood be dented
  - ▶ **Machinability** : how easy is it to cut, plane and sand
  - ▶ **Glue-Up** : how strong is a glue bond and are special steps needed
  - ▶ **Finishing** : how easy does finish hold on the wood.
  - ▶ **Price** : Domestic and Exotic

## 3 Cuts of Lumber from a Log

### Flat or Plain Sawn



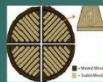
#### Advantages:

- Lower Cost
- Simplest to cut
- Less waste

#### Disadvantage:

- Cups, twists & bows
- Unwanted movement

### Quarter Sawn



#### Advantages:

- Smoother surface
- Decreased expansion and contraction
- Twisting, cupping, and warping resistance
- More resistant to moisture penetration
- Enhanced paint retention

#### Disadvantage: Cost

### Rift Sawn



#### Advantages:

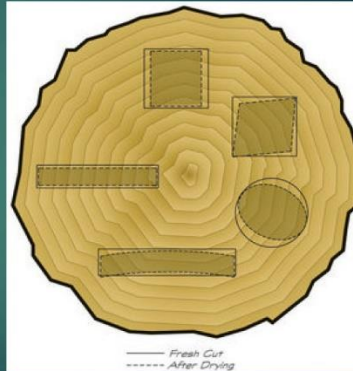
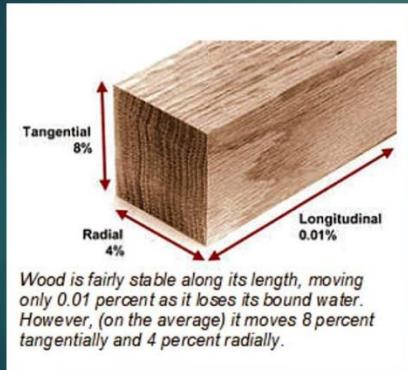
- Same as Quarter Sawn
- Stability superior to Qtr Sawn
- Highlights rays and flecks

#### Disadvantage:

- Lots of waste
- Higher cost



# Understanding Wood Movement



## Wood Movement

- Chart Shows movement for Woods
- ▶ 1% change in moisture content
  - ▶ For each tangential " of wood

### Example

- ▶ Moisture goes from 6% to 16%
- ▶ 8" section of wood
- ▶ White Oak Movement =  $(16\% - 6\%) \times 8" \times .0037 = .296"$  or about  $5/16"$

SPECIES	QUARTERSAWN	FLATSAWN
Alder (Red)	.0015	.0026
Ash (White)	.0017	.0027
Aspen (Quaking)	.0012	.0023
Basswood (American)	.0023	.0033
Beech (American)	.0019	.0043
Birch (Yellow)	.0026	.0034
Butternut	.0012	.0022
Cherry (Black)	.0013	.0025
Fir (Balsam)	.0001	.0024
Mahogany	.0017	.0024
Maple (Red)	.0014	.0029
Maple (Sugar)	.0017	.0035
Oak (Red)	.0016	.0037
Oak (White)	.0018	.0037
Pine (Eastern White)	.0007	.0021
Pine (Longleaf)	.0018	.0026
Pine (Ponderosa)	.0013	.0022
Pine (Sugar)	.0010	.0019
Poplar (Yellow)	.0016	.0029
Sweetgum	.0018	.0037
Sycamore (American)	.0017	.0030
Teak	.0010	.0019
Walnut (Black)	.0019	.0027

## Coping with Wood Movement

Laboratory tests show finish effectiveness in keeping moisture out

Testing by the U.S. Forest Products Laboratory in Madison, Wisconsin, compared the moisture-excluding effectiveness of different types of finishes. Tests were conducted on dry Ponderosa pine boards that were coated, then exposed to the moisture vapor of 90 percent humidity at 80° F for from 1-14 days. The results listed here show how only the most common woodworking finishes of the many tested performed.

FINISH TYPE	NO. OF COATS	% OF MOISTURE-EXCLUDING EFFECTIVENESS		
		1 day	7 days	14 days
Tung Oil	2	46	2	0
Lacquer	2	70	22	8
Shellac	2	84	43	20
Spar Varnish	2	80	36	15
Urethane Varnish	2	83	43	23
Gloss Enamel Paint	2	91	64	43
Polyurethane Varnish	2	90	66	46
Two-Part Epoxy	2	98	93	88

# Coping with Wood Movement

The tendency of wood to contract and expand cannot be stopped. You must plan for it!

- ▶ **Design** for wood movement.
- ▶ Let lumber **acclimate** to the environment in which it will be used.
- ▶ Consider **plywood**. Plywood is stable; it does not expand and contract like solid wood.
- ▶ Plan the **joinery** to avoid cross-grain assemblies.
- ▶ Attach tops with Figure 8 **connectors**, Z clips, shop made blocks or elongated screw holes.
- ▶ When fitting doors or drawers **build to the normal humidity in your area**. Low humidity allow a reveal the width of a nickel. Conversely, high humidity allow for a dime reveal.
- ▶ Use a **sliding dovetail** to apply molding across the grain. Glue only the first 2-3".
- ▶ Use **elongated holes** for screws. Glue and screw only the front few inches.
- ▶ Use "frame and panel" construction with a **small spot of glue** in the center of the width.
- ▶ Apply an equal number of **finish coats to ALL surfaces** to equalize the loss or gain of moisture.

# Color Stability

Wood	Colorfast rating	Comments
<b>RED</b>		
Bloodwood	2	Turns a very deep reddish brown—almost black.
Chakte Kok	1	Turns brown fast, but doesn't darken.
Jarrah	2	Initial color isn't quite red, and settled color isn't great either.
Tulipwood	3	Colors desaturate and shift toward brown, but maintains contrast.
Cocobolo	2	Colors can darken to nearly black, sometimes contrast is maintained.
<b>ORANGE</b>		
Padauk	2	Turns a very deep reddish brown (lighter pieces turn brownish gray).
Brazilwood	3	Initial color isn't always great, but retains colors slightly better.
Chakte Viga	3	Initial color isn't always great, but retains colors slightly better.
Buckthorn	3	Starts pinkish orange, slight shift toward brown.
Canarywood	3	Colors tend to desaturate to shades of brown, still maintains contrasts.
<b>YELLOW</b>		
Ocotea Orange	1	Drastic changes toward dark brown inevitable.
Fishaluba	1	Not great color to start with, not great color to end with.
Yellowheart	4	Retains color fairly well, though some browning occurs.

# Color Stability

<b>GREEN</b>		
Lignum Vitae	2	Darker pieces can turn nearly black.
Verawood	4	Retains olive color well, may actually increase in coloration over time.
Sumac	3	Colors desaturate to a more neutral olive-brown.
Pistachio	3	Colors desaturate to a more neutral olive-brown.
<b>BLUE</b>		
Blue Mahoe	3	This wood is not blue, it's a cool gray at best. Dyes give a true blue.
<b>PURPLE</b>		
Purpleheart	2	Gives a good run for a while, but inevitably turns brown/black.
Bois de Rose	1	This wood is the worst. Expensive, endangered, and turns <i>really</i> black.
Katalox	3	Already nearly black, it is more suited for black than purple.
Kingwood	3	Starts a reddish purple, shifts toward brown/black. Maintains contrasts.
<b>PINK</b>		
Pink Ivory	1	Turns brown fast, but doesn't darken.
Tasmanian Myrtle	3	Initial color isn't the best, but only slight shift toward brown.
Box Elder	2	Much of the color fades to brown.
<b>BLACK</b>		
African Ebony	5	Starts black, stays black.
Wenge	3	Starts very dark, can actually lighten over time.
Panga Panga	3	Starts very dark, can actually lighten over time.
African Blackwood	5	Starts black, stays black.

## Dealing with Color Change

Almost all natural color will change over time...but you can help (a little)

- ▶ Some woods hold color better than others (previous chart)
- ▶ If you really want color to last, use dyes! To get color throughout a board (max ½" thick), boil it in dye for about 8 hours, changing the solution every 3-4 hours. This breaks down the tannins in the wood, allow the color to penetrate
- ▶ Be sure to use several coats of finish to block out as much air/vapor as possible. Studies have shown that the more coats of finish that are used, the less the wood is effected by changes in humidity. Using a simple rub-in oil finish or paste wax offers very little resistance for the wood; you're after a film-building finish.
- ▶ Keep the wood out of direct sunlight, and try to avoid placing it in areas of high light. (UV light tends to shift the color of certain woods.)
- ▶ As an extra precaution, you can use an exterior-grade spar varnish with UV inhibitors.
- ▶ If you are trying to maintain the color of a light-colored wood, such as [Maple](#) or [Holly](#), use a water-based finish, or a finish that doesn't yellow with age.

## Suitability for Outdoors

Good for Outdoor Use

Good for Indoor not Outdoor Use

Performance and obtainability	Rank	Wood Species	Price Guide (1 Low - 7 Very Expensive)
Very Durable and hardwearing	Not easily obtainable	1 Greenheart	5
		2 Balau	5
		3 Teak	7
	Easy to obtain	4 Iroko	2
		5 Accoya	4
		6 Green Oak	3
		7 Seasoned Oak	3
		8 European Oak - Prime S/E	3
		9 Utile	2
Durable	10 Larch	2	
	11 Idigbo	2	
	12 Western Red Cedar*	2	

Performance and obtainability	Rank	Wood Species	Price Guide (1 Low - 7 Very Expensive)
Hardwearing but non-durable	Easy to obtain	13 American White Oak	3
		14 American Maple	3
		15 Steamed Beech	2
		16 European Beech S/E	2
		17 American White Ash	2
		18 Southern Yellow Pine	1
	Strong but not hardwearing or durable	19 American Black Walnut	4
		20 Sapele	2
		21 American Cherry	3
		22 Dark Red Meranti	2
		23 Douglas Fir**	2
		24 Tulipwood (Poplar)	1
25 Scandinavian redwood	1		

## Gluing: Problem Woods

Many tropical hardwoods are so oily they're practically waterproof. If a wood glues need to penetrate into the wood in order to obtain a strong bond, then these oily woods would present a challenge in gluing.

Solution:

- ▶ Wipe the wood surface with a solvent prior to gluing.
- ▶ Sand the wood to help open up the grain
- ▶ Use synthetic, non-water-based glues (Gorilla, CA, Epoxy)

Known problematic woods

Bubinga	Katalox
Bulletwood	Kingwood
Cocobolo	Lignum Vitae
Cumaru	Osage Orange
Ebonies	Purpleheart
Ekki	Rosewoods
Goncalo Alves	Teak
Greenheart	Verawood
Ipe	

## Finishing: Exotic Hardwoods

Many trees in tropical climates have unique chemical compositions many of which are readily soluble in various solvents found in finishing agents.

Oil-based finishes, such as polyurethane, are *reactive finishes* that undergo a chemical *reaction* as the solvent in the finish evaporates—ultimately causing the finish to cure and harden. The problem occurs as compounds in the wood prevent the finish from curing so it remains tacky indefinitely.

Solution: Use Shellac as a sealer/wash coat...it *sticks to everything, and everything sticks to it.*

### Known problematic woods

Blackwood	Kingwood
Bloodwood	Lignum Vitae
Bocote	Macacauba
Cedar	Padauk
Cocobolo	Pau Ferro
Cumaru	Purpleheart
Ebony	Rosewoods
Goncalo Alves	Teak
Ipe	Tulipwood
Katalox	Verawood

## Machinability ...Glue-Up...Finishing

Wood	Strength		Tangential Stability		Hand Tools		Power Tools		Gluing		Hardness		Bendability		Finishing	
	Strong	Weak	High	Low	Easy	Difficult	Easy	Difficult	Good	Poor	Low	High	Low	High	Exell.	Poor
Alder	Weak		7.3		Difficult		Difficult		Good		Very Soft		Low		Good	
Ash	Strong		7.8		Very Easy		Moderate		Excellent		Hard		Very High		Excellent	
Aspen	Very Weak		6.7		Very Easy		Easy		Good		Very Soft		Low		Poor	
Basswood	Weak		9.3		Very Easy		Easy		Excellent		Very Soft		Very Low		Excellent	
Beech	Strong		11.9		Easy		Easy		Excellent		Hard		Very High		Excellent	
Birch	Very Strong		6.1		Easy		Moderate		Good		Hard		High		Excellent	
Cherry	Medium		7.1		Very Easy		Easy		Excellent		Medium		High		Excellent	
Elm	Medium		9.3		Difficult		Difficult		Fair		Soft		Very High		Fair	
Gum	Strong		10.2		Difficult		Easy		Excellent		Medium		Very Low		Excellent	
Hickory	Very Strong		10.2		Very Difficult		Difficult		Fair		Very Hard		Very High		Excellent	
Holly	Strong		9.9		Very Easy		Very Easy		Excellent		Hard		Low		Excellent	
Maple-Hard	Very Strong		9.3		Difficult		Easy		Excellent		Hard		Very High		Excellent	
Maple-Soft	Strong		8.2		Difficult		Easy		Good		Medium		High		Excellent	
Oak-Red	Strong		8.9		Easy		Easy		Good		Very Hard		High		Excellent	
Oak-White	Very Strong		10.5		Easy		Easy		Good		Very Hard		Very High		Good	
Osage Orange	Strong		0		Difficult		Moderate		Fair		Very Hard		Medium		Good	
Poplar	Medium		8.2		Very Easy		Very Easy		Excellent		Soft		Very Low		Good	
Sassafras	Weak		6.2		Easy		Very Easy		Excellent		Soft		Medium		Good	
Sycamore	Medium		8.4		Difficult		Difficult		Excellent		Soft		High		Good	
Walnut	Strong		7.8		Very Easy		Very Easy		Good		Medium		High		Excellent	

Most of this information came from 1 website.....[www.wood-database.com](http://www.wood-database.com)



General Wood Information  
 Are Rosewoods (and Bubinga) really banned by CITES?  
 Common US Hardwoods  
 Ebony: Dark Outlook for Dark Woods?  
 Restricted and Endangered Wood Species  
 State Trees of the United States  
 The Ten Best Woods You've Never Heard Of  
 Top Ten Most Overrated Woods  
 What is Wood?

Identifying Wood  
 The Truth Behind Wood Identification  
 Wood Identification Guide  
 Hardwood Anatomy

Separating Specific Woods  
 Ash Wood: Black, White, and Everything in Between  
 Distinguishing Red Oak from White Oak  
 Differences Between Hard Maple and Soft Maple  
 Distinguishing Brazilian Rosewood from East Indian and Other Rosewoods  
 Elm Wood: Hard and Soft  
 How to Tell Genuine Lignum Vitae from Argentine Lignum Vitae  
 Mahogany Mixups: the Lowdown  
 Pine Wood: An Overall Guide  
 Poplar, Cottonwood, and Aspen: What's What?  
 Separating Spruce and Other Lookalikes  
 Sorting Out Satinwoods  
 True Hickory and Pecan Hickory