



THE TURNING TIMES

An East Texas Woodturner's Publication

Volume 18, Issue 8

August 2010

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Visit us at www.easttexaswoodturners.org

The Turning Times is published monthly as an information source for members of the East Texas Woodturners (ETW). ETW is a chapter of The American Association of Woodturners (AAW) and is committed to serving woodturners in the East Texas area surrounding Tyler, Texas. The ETW Chapter joins with the AAW in its dedication to providing education, information and organization to those interested in woodturning.

Meeting at TJC West

August 14th, 2010

The Prez Says:



Hello ET Turners,

Steels and Turning Tools – Both have been around for a long time and woodturning would be very difficult, if not impossible, without steel. Hopefully, this will be informative and helpful as you acquire and use today's steel woodturning tools.

History - The first recorded woodturning was from Egypt and has been dated from about 1300 BC. It consisted of a 2-man lathe, one turning the wood with a rope and the other using a sharp tool to cut the shapes in the wood. Presumably, this tool was made from some type of steel. All steels begin with making an alloy of iron with a carbon content of between 0.2% and 2.1%. Several processes have developed to produce steel.

The first known steel implement came from a region of Turkey and is dated from about 4000 BC. Other ancient steel items came from East Africa in about 1400 BC and from China around 300 BC.

Wootz or *Damascus* steel (characterized by visible bands on the surface) came from about 300 BC in India and was made in crucibles by combining iron

ore, charcoal and glass or sand. When heated, the impurities mixed with the molten glass to produce a slag on the surface, while the charcoal produced carbon which combined with the molten metal to form a carbon steel button in the bottom of the crucible. Skimming off the slag left a button which could then be forged into tools or forged with other buttons to form ingots. Tools made with this *Wootz* or *Damascus* steel were renowned for their sharpness and toughness.

Henry Bessemer, in 1855 patented a fast technique of steel making where air was blown through molten iron ore to remove most impurities and carbon. Then carbon was added back to produce the desired carbon levels.

Modern steel is made using an open-hearth process. Slower than the Bessemer process, it allows time to continually check the carbon content as it is being removed. Thus, a very controlled carbon content is obtained. Also, desired elements can be added to form different alloys. The open-hearth process makes it very easy to control the composition and uniformity of steel. An example is High Speed Steel (HSS) used in machine milling and turning to shape metals. Percentages of the elements molybdenum and vanadium are added to carbon steel during the open-hearth process to produce HSS.

Continued on page 4....

Calendar of Events

- Aug. 12-13, 2010**
All-day classes with Michael Mocho
- Aug. 14, 2010 9:00am**
Regular Club Mtg. - Michael Mocho
- Aug. 27-29, 2010**
SWAT Symposium, Waco, TX
- Sep. 1, 2010 1:00pm**
SC Mtg. TJC Rm 101
- Sep. 11, 2010 9:00am**
Regular Club Meeting
- Sep. 18, 2010 9:00am**
MOST Day, PAC Shop (Mineola)
- Oct. 9, 2010 9:00am**
Regular Club Meeting
- Oct. 16, 2010 9:00am**
MOST Day, PAC Shop (Mineola)
- Nov. 13, 2010 9:00am**
Regular Club Meeting

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CLASSIFIEDS

Classified Ad Policy: Classified ads run for 3-months unless the editor is notified they are no longer needed. At the end of the 3-month period, the ad will be dropped from the newsletter unless specifically renewed prior to the period expiration.

For Sale: Woodturning Aprons – Made of material that sheds those pesky shavings - \$25.00. Please contact Kay Leonard at 903-592-6009 or at kay199417@gmail.com

Wanted: Pen and small turning projects equipment including mini lathe. Please email me with offers and prices. **Don Wade** azledon@msn.com

For Sale: Craftsman 2.5HP, 10" radial arm saw, Model #113.199200 (Serial #4109.M0899). B-I-L bought new in 1980 to build a house. Used sparingly since. I upgraded all the safety items in '06, including new mechanical blade guard, power switch, anti-kickback pawls, and 1.5" thick MDF saw base and fence. Includes saw, manual, MDF table slab. 110 volts, can be switched to 220 volts. I just don't use it much anymore. New at Sears for \$759; Will sell on eBay for \$300 in July. ETW member price: \$200 [Click here for picture](#)

Pat Martin, cmmplm@sbcglobal.net

For Sale: Jet Mini Bed Extension, in box, never used - \$50.00; Sears 10" Radial Arm Saw with cabinet stand - \$100.00; Delta 1/2" Spindle Shaper with cutters - \$225.00 Norman Dixon, 903-753-6980, normandixon@cablelynx.com

Wanted: Late model Oneway chuck. Call Marvin Cade at 903-539-8845

For Sale: Craftsman lathe - Good shape - Works well. \$75 Darryl Roberts (903) 526-1991 darryl.roberts62@yahoo.com



SWAT and Wood World have joined together to provide support for the Beads Of Courage program. Bring your turned lidded boxes to the SWAT Symposium and receive a chance to win a prize. For more information see **Tom Crosby** at the August 14th meeting.



Lidded Bowl by Tom Crosby

ETW 2010 Program Schedule

Aug. 12-13, 2010	Michael Mocho	Hands-On Classes
Aug. 14, 2010	Michael Mocho	Altered Turnings
Sept. 11, 2010	Norm Dixon	To Be Announced
Oct. 9, 2010	Tom Crosby	Captive Rings - Skew & Nails

East Texas Woodturner's Raffle Items

Tickets can be purchased for each raffle at the monthly club meetings and are priced at \$1 each or 6 for \$5

August 14, 2010:

(Monthly items are subject to change based on availability)

P&N 3/8" Bowl Gouge (Unhandled)

Jimmy Clewes Signature 3/8" Bowl Gouge (Thompson Tools)

Sindora Burl 4" x 5-1/2" x 9" - **GORGEOUS**

Third Quarter 2010 (Sept): Sorby Texturing Tool, Wagner Texturing Tool (1/4" x 16tpi), 5 TomBow Dual Brush Pens

Annual 2010 (Dec.): Oneway Stronghold Chuck with 1" & 1-1/4" Inserts; #1 (Spigot), #2, and #3 Jaws

August 14, 2010 Setup/Cleanup Roster



The following members have generously volunteered to handle the setup and cleanup chores for the next meeting. Please thank them and consider volunteering to help at future meetings.

Bobby Barron

Worth Holmes

John Leonard

Marvin Cade

YOU

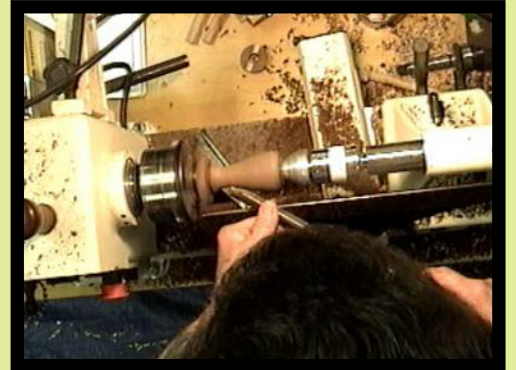
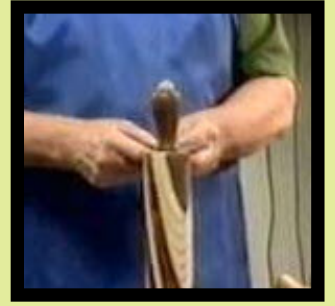
YOU

Mineola Open Shop Turning Day (MOST Day)

Due to a very busy month (Mocho classes & SWAT), we're skipping the month of August. Join us in September for more turning fun and education. - Paul & Mike

ANCHOR SEAL FOR SALE

The Club has Anchor Seal end grain sealer for sale at most Club meetings. It is available in 1 and 2 gallon jugs at \$9.00 per gallon. To obtain it, pay our treasurer, Archie Stivner, and then see Cecil Cox. If you need some between meetings, call Cecil at 903-882-5311.



**Laminated Rolling Pins
With Stand**
By Paul Coppinger



Prez Says continued from page 1

Working Steel - Carbon in steel is important because steel's strength and hardness increase with carbon while ductility decreases. In other words, as steel gets stronger and harder, it gets more difficult to work. In addition, carbon steel responds well to heat treatment. Heat treatment allows steel to have different characteristics, i.e., hardness and toughness. To understand heat treatment, it is important to discuss several important items:

- Annealing-heating steel to soften and allow shaping
- *Curie Point*-the temperature steel loses its magnetism
- Quenching-quickly cooling hot steel
- Tempering-reheating to a desired temperature.

As steel is heated, the crystals that make-up steel grains become plastic and start to stretch when pulled or compressed (hammered). This is how steel can be shaped and is called annealing. As steel is heated, it reaches a point called the *Curie Point* where it loses its magnetic properties and no longer will be attracted to a magnet.

This *Curie Point* is the temperature that steel changes its crystal form allowing a carbon atom to attach to the inside of the crystal. This new crystal form is harder and under stress. If allowed to cool slowly, the carbon atom returns to the outside of the crystal and the crystal is back to its original state. If cooled quickly, quenching, the carbon atom is "frozen" in the middle of the crystal resulting in a very hard, brittle, highly stressed form of steel. Reheating the metal to a temperature below the *Curie Point* will relieve some of this stress producing a controlled hardness and durable form of steel. So in summary, putting the steel in the stressed state is hardening; removing some of the stress is tempering and removing all the stress is annealing. This is called heat treating steel. As an example of heat treating a shop-made turning tool of carbon steel, first heat with a torch until a magnet is no longer attracted to the tool tip. Second, immediately quench in water. Third, place the torch tip below the cutting edge and heat until the tool tip color progresses from pale yellow to yellow to straw color (about 475 degrees F) – then quench immediately again in water. The edge temper will be at a hardness/durability equivalent to a good knife. To make and temper a scraper, stop after the initial quenching. This produces a very hard scraper edge that is difficult to sharpen but very durable.

Grain is important to understanding turning tools because as the grain grows larger, the edge sharpness becomes less, but the durability increases. Think about folding 80 grit versus 600 grit sandpaper to form an edge. Because the 600 grit grain of sand is much smaller than the 80 grit, the folded edge is much sharper. And as with many things, there is a tradeoff between sharpness and durability. The 600 grit edge is sharper but not near as tough as the larger grained 80 grit. The same is true of steel grains. As you add elements to carbon steel to make better alloys, the grain size increases,

producing a very durable edge, but one that will not cut as well as plain carbon steel.

All the above brain dump leads up to what I want to discuss this month...how to buy turning tools. Prior to the '80s all turning tools were made from high carbon steel with a *Curie Point* of about 1400 degrees F. If ground on most high speed grinders, the edge will often reach temperatures that ruin the heat treatment resulting in a softening of the edge. This is visible by a bluing of the steel at the edge. Alloys of steel made by adding other elements during the batch making process have much higher *Curie Points* meaning that when sharpening by grinding, it is much more difficult to get the edge temperature hot enough to destroy its heat treating properties. Therefore, when acquiring turning tools, stay away from the older high carbon steels and as a minimum, buy High Speed Steel tools such as M2. All of the name brand tool makers today have gone to M2 or better grades of steel to avoid this grinding problem.

Continued on page 5....

Our Friend Will Be Missed



Randall Stephens Jr.
1934 - 2010

Randall, a long-time ETW member, passed away on Thursday, August 5, 2010.

Memorials in his honor may be made to the **East Texas Food Bank**, 3201 Robertson Rd., Tyler, Texas 75701 or the **Noonday Baptist Church**, 16701 CR 196, Tyler, Texas 75703 or the **Salvation Army**, 633 N. Broadway, Tyler, Texas 75702.

Also today, another class of turning tool steel is available – powdered metal. When steel is being formed in the processes above, certain elements can be added to produce unique alloys. The percentages of these elements are limited by the chemistry of the alloy. Adding too much of an element results in floating of the excess element on top of the molten alloy like grease on top of a hot soup. To get these higher percentages into the alloy, metallurgist have discovered that by grinding both the steel and the elements into powder, mixing them to the desired percentages, then heating under very high pressure in a shaped crucible, a new alloy is produced with additional unique properties. The result for woodturners is tools that hold an edge very long.

Although not a steel, carbide is beginning to be used for turning tools. Carbide is actually tungsten carbide meaning it has equal amounts of tungsten and carbon. It is a powder that can be formed under heat and pressure to produce a material 3 times stiffer than steel and much denser than steel. It produces a very long lasting edge but is even less sharp than powdered steel. And it is expensive. Because of its hardness, it can not be sharpened by high speed grinding with a typical grinding wheel. It requires a diamond coated wheel to power sharpen or a diamond honing stick to hand sharpen. To get around this sharpening problem, most carbide turning tools today have tips that can be rotated to a fresh edge or easily replaced.

In summary, high carbon steel can be honed (not ground) to a very sharp edge but will dull easily. HSS is a tougher steel but can not be sharpened to as fine an edge as carbon steel. Powdered metal tools have the greatest toughness meaning they stay sharp longer but they produce the least sharp edge of the steel cutting tools. And finally, carbide can be used very effectively for roughing cuts but doesn't cut as fine as steels.

When buying tools, I suggest buying all you can afford. The best starting point for new turners is to purchase name brand

M2 HSS tools. As you improve in your turning, you will be able to appreciate the more expensive powdered metal tools. One final thought – most name brand manufacturers, and some of the Chinese brands, offer turning tool sets with 6-8 tools. I recommend **NOT** buying these sets because usually you will only use 2 out of the set. The rest will stay in a drawer and may never be used. In a future article, I will discuss the specific tools you need to start turning, then what can be added to enhance your turning as your technique advances.

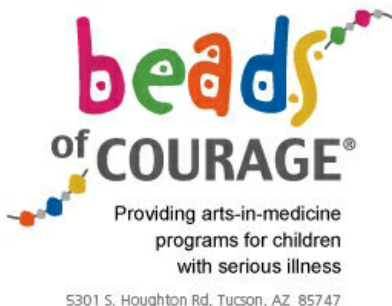
Don't forget that the August meeting will consist of 3 hours of **Mike Mocho** demonstrating. There will be **NO** Show and Tell, **NO** business, **NO** announcements, etc. We **WILL** then have our raffle after the demo at about 12 pm.

Happy Turning – PAC

ETW Member Tips

Ed Heuslein has had many requests concerning the basket weave effect on one of his pieces in the July S&T. Check out www.ROTARYCHISEL.COM or contact Don Hines at createch@vcn.com or 307-266-2797

Kelvin Burton wants to share the following website with anyone interested in making their own deep hollowing tools: <http://www.turnedoutright.com/2008/10/07/deep-boring-tool/>



The ETW Steering Committee is recommending that members participate in the **Beads of Courage** program. This program aids children undergoing treatments for cancer. **Tom Crosby** will be the ETW representative for this program. Check with him for more information or go to <http://beadsofcourage.org>.

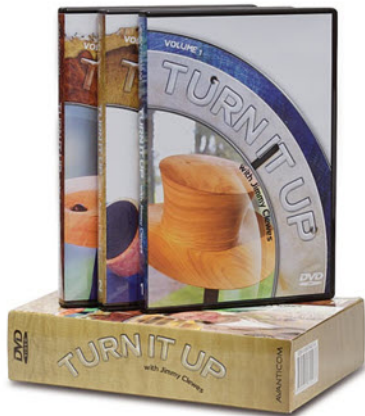
Mentor List

Mark Anthony	903-963-7128	Van	emark_anthony@gmail.com
Charles Brooks	903-216-5564	Whitehouse	cbrooks@suddenlink.net
Paul Coppinger	903-638-6008	Mineola	paulcop68@thecoppingers.net
Tom Criswell	903-509-1042	Tyler	tom_criswell@yahoo.com
Tom Crosby	903-567-4701	Canton	ctomsturnings@aol.com
Norm Dixon	903-753-6980	Longview	normandixon@cablelynx.com
L. V. Filak	903-885-2550	Sulpher Springs	lrfilak2@suddenlink.net
Ed Heuslein	903-834-3838	Kilgore	heuslein@earthlink.net
John Leonard	903-592-6009	Tyler/New Harmony	jdl1938@gmail.com
Walter Tate	903-534-8808	Tyler	whtbjt@sbcglobal.net
Ken Terrell	903-839-4735	Whitehouse	kpterrell@suddenlink.net

The July **Show and Tell** pictures can be viewed on the East Texas Woodturner's website at <http://www.easttexaswoodturners.org/>

Editor's Show & Tell Favorite

Mesquite Finial Box
By Nathanael Landry



East Texas Woodturners Library

Now would be a good time to check if you have any items from the **ETW Library** that need to be returned. Some of your friends are waiting to enjoy them too.

PLEASE RETURN THEM



East Texas Woodturner's Supporters

The following businesses have graciously provided support for the activities of the East Texas Woodturner's club. Please show your gratitude by giving them your business when possible.

Woodcraft

1430 Marsh Lane
Addison, Texas 75001
(972)-241-0701 CST
<http://www.woodcraft.com/>

Thompson Lathe Tools

5479 Columbia Road
North Olmsted, OH 44070
440-241-6360 CST
<http://www.thompsonlathetools.com/>

Rockler

Promenade North Shopping Center
800 North Coit #2500
Richardson, TX 75080
(972) 613-8848 CST
<http://www.rockler.com/>

Craft Supplies USA

1287 E. 1120 S., Provo, UT 84606
1-800-551-8876
FAX: 801-377-7742
<http://www.woodturnerscatalog.co>

Hartville Tool

13163 Market Ave N
Hartville, OH 44632
800-345-2396
<http://www.hartvilletool.com/>

Packard Woodworks

P.O. Box 718, Tryon, NC 28782
1-800-683-8876
FAX: 828-859-5551
<http://www.packardwoodworks.com/index.html>

Wood World

13650 TI Blvd. #101, Dallas, TX 75243
972-669-9130 CST
<http://woodworldtx.com/>

Johnson Wood Products

34897 Crystal Rd.,
Strawberry Point, IA 52076
563-933-6504 CST
Wood Turning Blanks, Bowl Blanks
<http://www.johnsonwoodproducts.co>