

# KNOT KNEWS

OF THE COLLINS WOODWORKERS GUILD

Monthly Club Newsletter

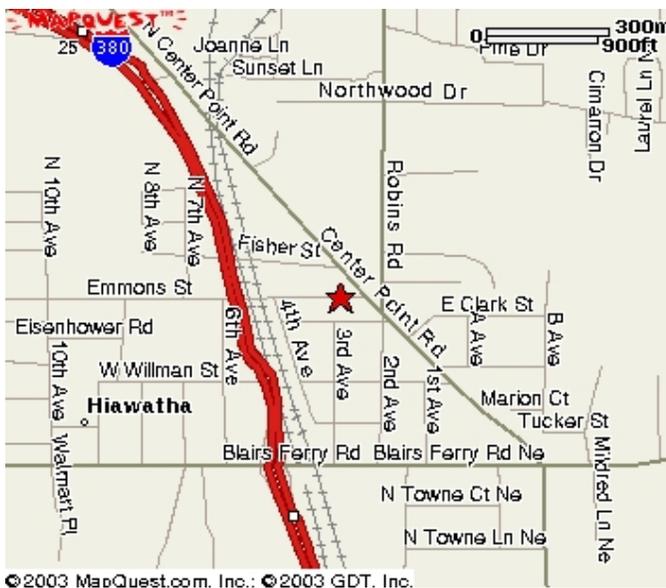
Cedar Rapids, Iowa

Volume 8, Issue 7, April 2003

## Tour of Artistic Leaded Glass Tuesday, April 15, 5:30 p.m. 100 Emmons Street, Hiawatha

Robert Fassler of **Artistic Leaded Glass** has invited our club to tour their shop in Hiawatha. We will start the meeting at 5:30 p.m. to allow extra time for guests to arrive. Robert will give us a tour of their facility and an presentation on the subject of leaded glass.

This meeting was arranged by Dave Huovinen.



### TIP OF THE DAY BY: LEE JOHNSON

Keep a bottle of 409 in the shop to clean your dirty saw blades. When sap deposits build up on the surface and in the gullets of your table and chop saw blades, the efficiency of the dust and chip dispersal drops off dramatically. When the time comes – pop them off and into the sink with a liberal coating of 409, and a little elbow grease, the sap will be removed. Rinse and dry - then back into to active duty.

### TOOL STEEL PHYSICS BY: JOEL GILLETT

Lee Johnson has been working on me for a couple of months to write short article on hardening tool steel. This is very similar to what I demonstrated a club meeting in April 2002.

There is a lot to know about the chemistry and physics of steel. Entire books are available on the subject. I'm going to limit my discussion to that small part of the field that relates to hardening woodworking tools... and only some of those.

There are three important characteristics that most of us worry about: Hardness, toughness, and resistance to corrosion. Hardness determines how good of an edge a tool will take. Toughness will involve how easily that edge will crumble. Resistance to corrosion is important if the tool is likely to rust.

A lot of times cheap chisels are made of mild steel and can't be sharpened. They also can't be hardened. Others are made of steel that includes chromium, vanadium, and a lot of other elements to prevent rust. These are better than mild steel but won't take a really great edge or the edge will crumble. I will ignore these too. These tools aren't entirely bad. If you have a chisel that you toss into the back of your pickup in case you need it some time - resistance to rust is important. You also have to open paint cans with something!

Most tools that are designed to cut wood are made of high carbon steel. That is what we are interested in hardening. There are three steps that are important.

*(Continued on page 2, Tool Steel)*

**VOLUNTEERS NEEDED  
BY: DARRIN CROW**

Ushers Ferry Historic Village, for those of you who may not know, is a living history museum operated by the City of Cedar Rapids in Seminole Valley Park. The Village is made up of about thirty historic homes and businesses that have been relocated to the site. The Village's mission is to interpret life in a small Iowa town at the turn of the 20th Century. Because Ushers Ferry is a living history site, we believe in teaching through living. that is, we believe in getting our visitors involved through demonstrations and hands on activities.

We rely extensively on the work of our volunteers to interpret in the buildings, help maintain the build-

**DARRIN WILL SPEAK TO OUR CLUB AT THE APRIL MEETING IN HIAWATHA.**

ings, and create items for the Village. This spring we are finishing up our new Visitor's Center. As we work on it, we still have a need for hands to help with some of the finish work and the painting. We are also beginning the process of building display cases and free-standing display units. Out in the Village, we are working to finish up and staff our woodworking shop. This building will feature our treadle lathe and some of our other period woodworking tools. We are always looking for people who would like to help us staff that shop and demonstrate turn of the century wood working.

Beyond that, there are always little woodworking projects building items for the Village homes and for the general store. These range from turning toy tops, to cutting out button spinners, to building kitchen

shelves. On August 16, 2003, we will be having a special focus on woodworking. We would love to invite people who are interested to come out both to visit, but even more to be involved and help us made some wood chips fly. We will be talking about this at the meeting on Tuesday April 15.

If you have questions, or would like to help out with a project, please call Ushers Ferry at 286-5763 to get more information.

*(Continued from page 1, Tool Steel)*

Annealing the steel gets it soft enough so that it can be shaped with a file or hack saw. It needs to be heated and then cooled very slowly. I have done this by putting the tool into my fireplace then let the fire die. It will be glowing red while the fire burns, and in the morning, it will still be too hot to touch. The traditional way is to heat it in a forge until its bright red, then drop it into a bucket of ashes over night.

Tempering steel sets up the hardness. The steel is heated until it glows "Cherry" red. Cherry is a good description of the color.

If it gets hotter it would be brighter and more of a salmon color. A little cooler and it would be duller and more like a Bing cherry.

Heating can be done in a forge - but a blow torch works if the tool isn't too big and the wind isn't blowing. Hold it at that temperature for sev-

eral minutes then plunge it completely into water and stir it around. It needs to cool very quickly and stirring it keeps bubbles of steam off of the surface. When it cools it will be a pearl gray color. After it has cooled you can test the hardness with a file. The file will slide right off of the tool and won't cut it. If a file will cut it at all, you don't have high carbon steel and it will never become very hard. At this point it could be ground sharp but the edge would be too brittle to use.

The final step is called "Drawing" the temper. The blade will be made softer but tougher (less brittle). After it has cooled completely clean the oxide coating from a spot near the cutting edge. This can be done with sand paper but a brick or cement sidewalk will work just as well. As the tool is heated the clean spot will turn colors. As it gets hotter the color of the oxide will start out as a light yellow (straw) then get progressively darker to a bronze color then onto purple and blue. Most cutting tools will stop at a dark straw color. If it's something that won't have a really sharp edge but will take a lot of abuse (a scraper for the lathe for example) you might want to go as far as dark bronze to almost purple. Your best carving tools would stop at a little lighter straw color.



**ADVERTISE  
IN THE NEWSLETTER**

Have any extra tools in your shop that should really be in someone else's shop? Put them up for sale and place your AD in the Collins Woodworkers Guild Knot Knews. Then, take that money and spend it on new tools! What could be Better?



**COLLINS WOODWORKERS GUILD  
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Membership in the Collins Woodworkers Guild is open to all  
Rockwell Collins, Inc. Employees, Spouses,  
Retirees, and Contract Employees.

Everyone is welcome at our meetings!

Yearly dues, renewed in September, are \$15.00

Keep in touch! Don't miss a copy of the newsletter.  
Send an e-mail to our membership person Larry Lacy at  
cwg-membership@collinsclubs.com and give him your new address.

**INVITATION  
TO ALL MEMBERS**

**G**ot an idea for a meeting topic? Want to contribute to the club?

Attend one of our monthly planning committee meetings.

We meet on the fourth Tuesday of each month in the Main Plant Cafeteria at five o'clock. This year's team is Joel Gillett, Brian Schlieff, Larry Tjaden, Dave Huovinen, Larry Lacy, Lee Johnson, Wayne Hanson and Emil Krepcik.

We greatly appreciate your new ideas. For it is from them that we keep the meetings interesting, well attended, and on target.

*Visit our Web Site at:*

*Collins Clubs.Com*

**GUILD BENEFITS**

- ◆ Access to our Extensive Library and Tool Collection
- ◆ Open Exchange of Ideas
- ◆ Social Activities
- ◆ Workshops
- ◆ Opportunity to Help our Community through Toys-for-Tots and other Programs
- ◆ Educational & Informative Presentations
- ◆ Open Houses
- ◆ Tours
- ◆ Discounts at:
  - Puckett Tools & Fasteners
  - Woodsmith Store - Des Moines

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