Founded by Dave and Beth Carr in 1995

October 2005

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The **September meeting** was held at **Bud Statton's** shop where he once again provided the membership with foundry do's and don'ts (see more details inside this issue). Bud is shown at right holding the model anchor he has long wanted to cast. Thanks Bud, for your hospitality and foundry hints.

Wes Ramsey to continue the Beginner series. After a hiatus of several months, Wes has decided to continue his series with an article (at right) on hardening and tempering.

October Meeting
Saturday, October 8, 2005, 1:00 pm.
Grant Carson's Tool and Die Shop.
Unit C, 7360 SW Bonita Road, Tigard, 97224

Directions to Grant's:
From I-5 use exit 292 to Hwy 217, go north about 1/4 mile toward Beaverton to SW 72nd exit. Turn left on SW 72nd Ave, go about 3/4 mile to Bonita Road, turn right. A & W will be on your left.

From Hwy 99 (Pacific Ave.) turn south on SW 72nd Ave, proceed about 1-1/2 mile to Bonita Rd, turn left.

FOR THE BEGINNER # 21

Back by popular demand, (at least 5 people asked when I would start again).
I talked about tempering some time back and got some people to comment about my method. As I explained to these people, I am just talking about most of the metals us beginners find in our shop. Most of my metal is perched at the local scrap yard. If I got anything but mild steel I would be very surprised. You have to have some carbon in the steel you want to harden or it just won't get hard. I had a fellow tell me "if you make a punch out of ready bolt that has a fine thread you can harden it." It don't work that way folks, ready bolt course or fine is mild steel, (no carbon.)
Here is an article I found on one of the tables at one of our meetings.
Hardening and tempering of steels (and I guess annealing should be included here) is a procedure for modifying the metal's characteristics to better suit the job it has to perform. In the case of toolbits it enables them to machine other materials and still retain a sharp cutting edge, whilst in the case of work pieces it can materially alter their wear characteristics and tensile strength.
Virtually all steel hardening processes (as applied by the home machinists) involve the inclusion of particular carbon compounds either at the metal's surface or throughout the body of the metal via the application of heat. It's true that metals can also be 'work-hardened' or forged or laminated but the application of this process (which involves changes in grain or crystalline structure) will not be considered here. Some types of steel (certainly all tool steels) have other trace elements such as cobalt and tungsten in addition to carbon which augment the ultimate hardness achieved and the temperature at which they can operate.
The hardening, tempering and annealing of such tool steels ('high-speed' steels as there known) are beyond the scope of the average home workshop and these steels are usually purchased as shaped bits in the ready hardened state.
More on this next month.

Wes Ramsey

Foundry work is not that hard. Just follow the simple process set up by **Bud Statton**.

Select a furnace like the one for brass shown at upper left (with the chimney vent).

Heat the crucible and stoke it with brass pieces as shown at left. (This is the same furnace without the chimney vent).

Measure the temperature frequently until it is just right (as at right).

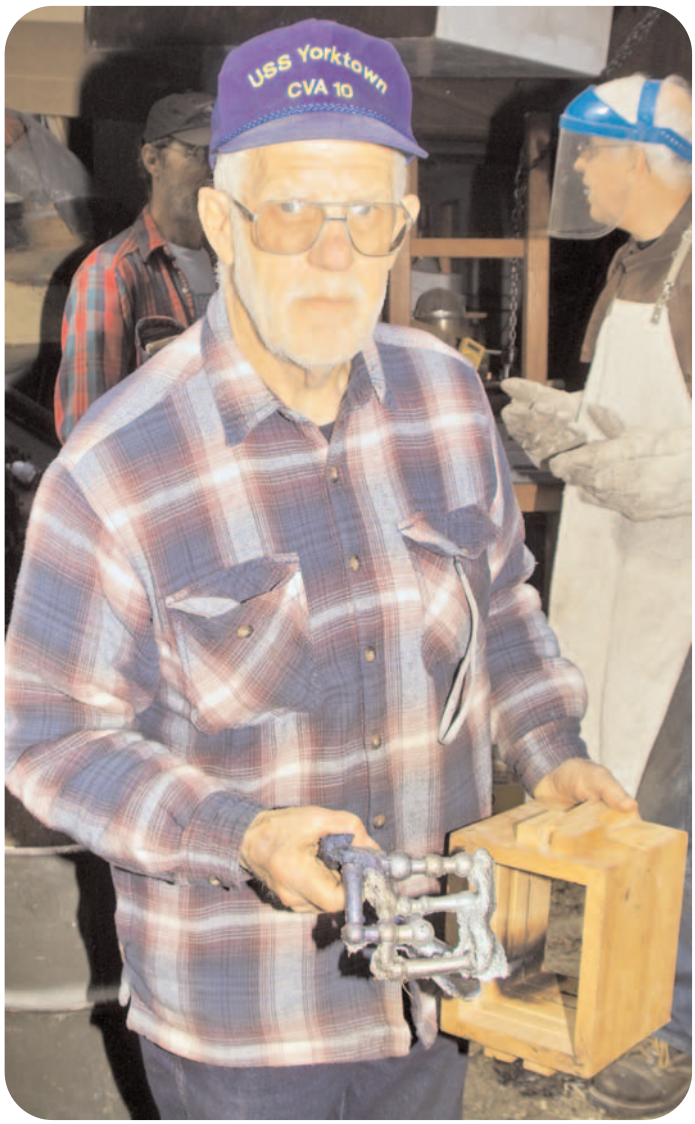
Bud Statton and **Jared Eells** (above right) remove the crucible containing molten brass from the furnace.

That seems simple enough. Oh yes. Do dress appropriately.

When necessary, grab a cohort to help pour - like **Jared Eells** at upper right.

Jared Eells (left) shows some patterns and cast parts for the Gingery lathe he is making.

Wes Ramsey (right) displays the results of his foundry work - cast handles for his cross slide vise.



Bill Mitchell is shown at left removing sand from his casting - a side frame for a 1/4 scale bogie

Shown **center left** are examples of the casting process including the wood pattern (far left) and aluminum and brass cranks.

At **lower left** is a picture of an exhibit of the models made by several members of the **Portland Model Engineers**. This display is in Tualatin High School and includes a variety of engines, cannons, machine tools and machining books.

And **lower right**, what do we have? It looks like documented evidence that foundry work is an outdoor activity. Prompt placement of the baking pan was able to save much of the leaking molten aluminum.