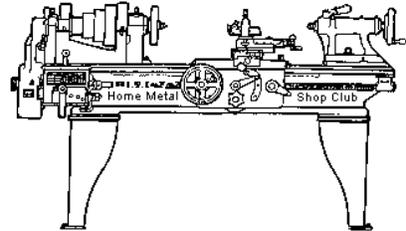




**October 2022**  
Newsletter

Volume 25 - Number 10



<http://www.homemetalshopclub.org/>

The Home Metal Shop Club has brought together metal workers from all over the Southeast Texas area since its founding by John Korman in 1996.

Our members' interests include Model Engineering, Casting, Blacksmithing, Gunsmithing, Sheet Metal Fabrication, Robotics, CNC, Welding, Metal Art, and others. Members enjoy getting together and talking about their craft and shops. Shops range from full machine shops to those limited to a bench vise and hacksaw.

If you like to make things, run metal working machines, or just talk about tools, this is your place. Meetings generally consist of **general announcements**, an **extended presentation** with Q&A, a **safety moment**, **show and tell** where attendees share their work and experiences, and **problems and solutions** where attendees can get answers to their questions or describe how they approached a problem. The meeting ends with **free discussion** and a **novice group** activity, where metal working techniques are demonstrated on a small lathe, grinders, and other metal shop equipment.

President <i>Vance Burns</i>	Vice President <i>Ray Thompson</i>	Secretary <i>Joe Sybille</i>	Treasurer <i>Gary Toll</i>	Librarian <i>Ray Thompson</i>
Webmaster/Editor <i>Dick Kostelnicek</i>	Photographer <i>Jan Rowland</i>	CNC SIG <i>Martin Kennedy</i>	Casting SIG <i>Vacant</i>	Novice SIG <i>John Cooper</i>

This newsletter is available as an electronic subscription from the front page of our [website](#). We currently have over 1027 subscribers located all over the world.

## About the Upcoming 12 November 2022 Meeting

The next general meeting will be held on 12 November 2022 at 1:00 P. M. on-line at Zoom.us. Zoom ID: 847 5574 3445 Passcode: 077540. Richard Douglas will give a presentation on ISO Insert System Classification.

## General Announcements

[Videos of recent meetings](#) can be viewed on the HMSC website.

The HMSC has a large library of metal shop related books and videos available for members to check out at each meeting. These books can be quite costly and are not usually available at local public libraries. Access to the library is one of the many benefits of club membership. The club has funds to purchase new books for the library. If you have suggestions, contact the [Librarian Ray Thompson](#).

We need more articles for the monthly newsletter! If you would like to write an article, or would like to discuss writing an article, please contact the [Webmaster Dick Kostelnicek](#). Think about your last project. Was it a success, with perhaps a few 'uh ohs' along the way? If so, others would like to read about it. And, as a reward for providing an article, you'll receive a free year's membership the next renewal cycle!

Ideas for programs at our monthly meeting are always welcomed. If you have an idea for a meeting topic, or if you know someone that could make a presentation, please contact [Vice President Ray Thompson](#).

Members are requested to submit to the club secretary the name, address, telephone number, and website address, if any, of any metal or other material stock supplier with whom the member has had any favorable dealings. A listing of the suppliers will appear on the homepage of the club website. Suppliers will be added from time to time as appropriate.

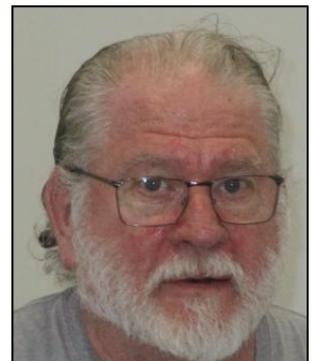
The club is looking for a member to serve as webmaster. After over ten years of service, our current webmaster would like to pass the webmaster torch to a successor.

## Recap of the 08 October 2022 General Meeting

By Joe Sybille



Fifteen participants attended the 1:00 P.M. meeting. There were 8 participants virtually and 7 participants in person at TxRxLabs. President Vance Burns led the meeting. See photo at right.



## Presentation



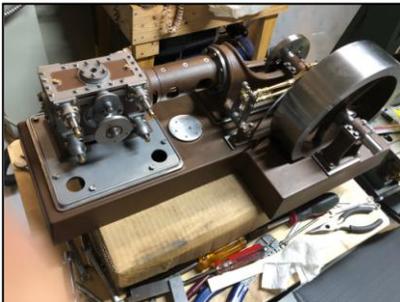
Club member Phil Lipoma gave a presentation on his building a model **Corliss Steam Engine**. Years ago, Corliss engines were used as stationary engines to provide mechanical power to line shafting in factories, machine shops, mills, and many businesses where there was a requirement for rotating equipment to accomplish a task. Most of the engines built were between 50 HP to 500 HP. The Corliss engine offered variable valve timing controlled by a governor. This method of controlling steam input was up to 30 percent more efficient than the slide valve controlled steam engine.

Lipoma has spent about three hours a day for about two years working on the engine. He built the model from plans by John Lehn of Lehnco, Inc., Baden, Pennsylvania. There were eighteen drawings (18"x24" sheets) with details of every part of the engine. According to Lipoma, constructing the engine has tested every one of his machining skills. Several parts such as the flywheel, bearing pedestals, governor, and cylinder were made from purchased castings. Other parts were scratch built from 12L14 steel.

The cylinder has a 1 ¼" bore. He used wet and dry sandpaper to finish the cylinder bore. Friction between the cylinder wall and the piston was a concern. He reduced the friction by using graphite to make the piston. Lipoma's goal for the piston fit was a 'close fit' is good enough. Testing has revealed the blow-by in the cylinder is within acceptable limits. The flywheel weighs between 20 pounds and 25 pounds. Machining the flywheel casting posed several challenges in that it was difficult to hold securely.

Making the valves posed a unique set of challenges. Lipoma made a fixture for valve hole patterns and imbedded strong magnets within the fixture to hold the parts in place. For the oilers, instead of using plastic tubing, he used brass fittings and glass tubing sourced from a local glass shop.

Several views of the engine from early stages to final completion are shown below.





Slides depicting the order of construction may be found [at this link](#)

## Safety Moment

The safety video depicted a person suffering a fatal injury by walking around a railroad crossing barrier and getting struck by a passing train.

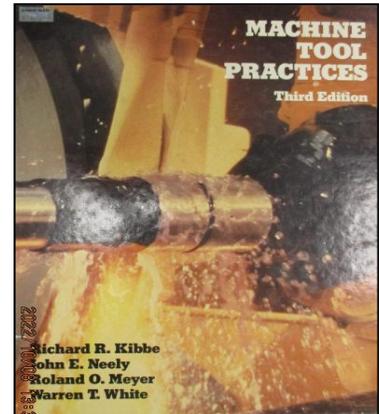
Another video depicted a worker falling from a crane. The worker wore no safety harness and was not tied off. Unfortunately, this person did not survive the fall.

## Show and Tell

*Richard Douglas* showed a 1" arbor he acquired recently. He required the arbor to attach his shell mill. Also, he showed pictures of artwork crafted from worn horse shoes. See photos below.



Richard Pichler exhibited a book 'Machine Tool Practices'. See photo at right. Pichler also showed how the alignment differed between two rulers 12 inches long. Other than the zero mark and the 12 inch mark, there was little agreement between the two rulers. See photo below.



## Problems and Solutions

A participant would like to finish the ends of a piece of pipe 3.5" diameter by 48" long. The challenge is his lathe distance between centers is 36". Several suggestions were offered, including removing the tailstock and using a steady rest to support one end. The other end would be supported by the chuck.

## Article

### Squaring a 3.5" Diameter Tube by John Cooper

Quite a while back I built a bar bender, mainly to make S hooks for hanging stuff. I think I got the plans from Tom's Techniques. It was designed to be mounted on a vise and Tom's vise was attached to a very heavy table. At that time I only had my Harbor Freight vise which was attached to my wooden workbench. Since the bender was capable of bending up to 3/8" rod I needed something I could attach to the floor. Shortly after I got my mill I bought a Kurt vise to replace the Bison vise that came with the mill. I thought it would make a perfect vise to hold the bender. I cut out a base to clamp the vise on out of scrap steel and purchased two 1/4" thick, 14" diameter plates which I welded together for the bottom of the stand. At another scrap yard I found a 3.5" piece of pipe to make the stand. I cut the pipe to 36" on my band saw but when I started to set up for welding it to the bottom plate I found out it was not quite square. After finding out how much trouble it was to shim it square I decided to machine the ends but nobody I know has a lathe that has a steady rest that will hold something that large. HMSC to the rescue. Someone, I don't remember who, suggested using the mill when I asked about solutions during the club meeting, but they were thinking that I would need multiple passes to square an end. It turns out that was not doable as my bed is only 42" long. But I had purchased a 3/4" endmill sometime back for another project and it has a 4" depth of cut so that I could square an end in one setup.

Setup: the biggest problem was getting the pipe parallel to the X axis of the table. I did not need it to be perfect, just closer than what the saw left. My solution was to use a set of V blocks pushed up against a set of 1/2" thick parallels that were jammed in place in the table slots by some metal shims (see photo). Since the V blocks were a matched pair the center of the V would be the same distance from the end on both blocks. In order to clamp it down I found some 1" square tubing that I drilled two holes in so they matched up with two of the slots (it turned out to be 5"). None of my threaded studs were long enough so I had to use coupling nuts to get the needed height.

I was concerned about deflection of the milling cutter so I made several passes until I did not detect any metal removal. I've checked the result with an engineer's square and the ends of the pipe have been trued.

I will post pictures of the finished vise stand some time after I return from Fabtech in Atlanta.

