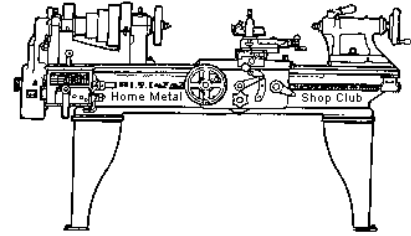




November 2021
Newsletter

Volume 26 - Number 11



<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 11 December 2021 Meeting

The December general meeting will be held on 11 December 2021 at 1:00 P. M. on-line at Zoom.us [and](#) in person at TxRxLabs, 6501 Navigation Street, Houston, Texas 77011. The Zoom meeting ID = 878 2914 6471 and the passcode = 680295.

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 who could make a presentation, please contact [Vice President Ray Thompson](#).

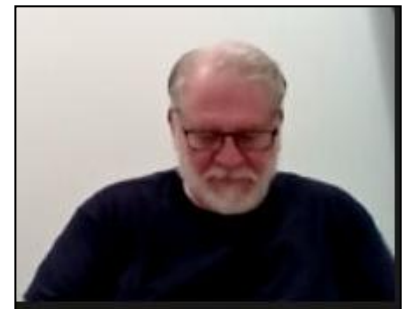
Members are requested to submit to the club secretary the name, address, telephone number, and website address, if any, of any metal or other material stock supplier with whom the member has had any favorable dealings. A listing of the suppliers will appear on the homepage of the club website. Suppliers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

Recap of the 13 November 2021 General Meeting

By Joe Sybille

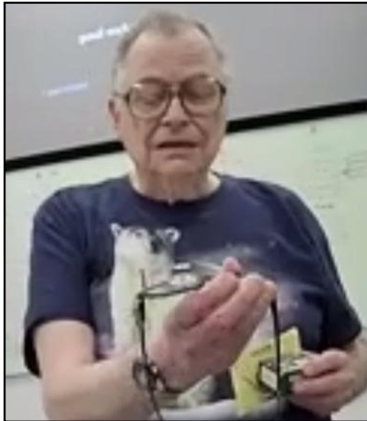


Four participants attended the in-person meeting at TxRxLabs. They live streamed the meeting to six participants attending virtually. There were two visitors, Wilfred Nijs, of Brussels, Belgium and Paul McNeely.



President Vance Burns led the meeting (right photo).

Presentation



Club member Richard Pichler gave a presentation on magnification devices. Among items shown were eyeglasses, magnifying lenses of different types, head strap magnifier with lights, and assorted microscopes.

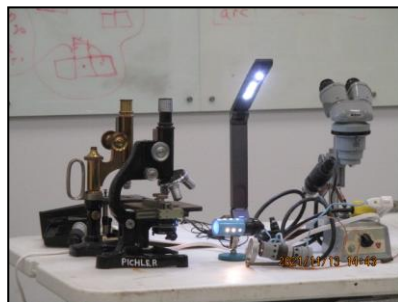
Pichler began by discussing at length how eyeglasses magnify images, and he followed that with what happens when one has cataract surgery. Many times after this surgery one must still get corrective lenses of different magnification for each eye.

Next, he discussed hand held magnifying lenses. On occasion, Pichler has used hand held magnifying lenses for working on his model N-scale train set. The parts of this scale are 1/87th of an actual train, and the magnifying lenses enable him to see the extremely small parts.

Lastly, he showed about six different light-based microscopes, many of which he acquired at garage sales. Major parts of a light-based microscope are eyepiece, lens tube, objective revolver, stage, light source, a means to focus, and a base. Magnification is determined by multiplying the eyepiece magnification (typically 10x) by the objective magnification (typically 4x, 10x, or 40x). The maximum useful magnification of a light microscope varies between 1000x and 1500x. Electron microscopes, with typically higher magnification, were not discussed.

Among the microscopes shown was one that is over one hundred years old, has many brass parts, and still works today as well as it did when it was first crafted. Unique among his collection of microscopes is one with an extended arm. This type of microscope is useful for examining the object of interest that is too large to place on the stage of a microscope. For example, artist use the extended arm microscope to reach parts of a painting to ascertain the exact color to make a repair. Another use for this microscope is to find imperfections in a large circuit board. Without the extended arm, one would be limited to using a hand held magnifying lens with reduced magnification. Consequently, cold solder joints on a circuit board would likely go unfound.

Additional information on magnification devices may be found in articles posted on the world wide web.



Safety Moment

A member reminded those present to avoid wearing loose fitting long sleeved shirts when working around rotating equipment in the shop.

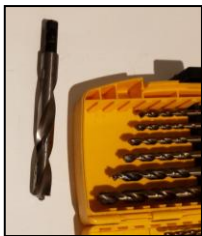
Show and Tell

Richard Douglas exhibited a holder for a dial test indicator and a knurler. The indicator holder is based on a design by Stefan Gotteswinter. The knurler is based on a design by Tom's Techniques. See photos below.



Problems and Solutions

A member requested help identifying a tool. See right photo.



A member showed a few counter-bore drills used as his solution to providing a recess in steel for socket head cap screws. See photo at left.



Articles

Making a Mill Table

by Joe Sybille



A donated bench top mill landed my way, and it presented an opportunity to hone my machinist skills. First, I needed a table on which I could use the mill. I turned to the web for inspiration and found a set of plans for a wooden table for a similarly sized mill. The mill weighs about 400 pounds, so the table would need to be substantial to support that much weight. I chose the wood table design because materials were easily sourced and relatively easy to cut and to shape. Also, wood will absorb the vibratory effects of some milling operations.

The construction plans called for a combination of 2x6's and 2x4's for the legs and three layers of 3/4" plywood for the table top. The wood pieces would be joined using screws and liquid nails adhesive. Knowing that I would require mobility for any tool in my shop, I modified the construction plans to accommodate wheels and a means to level the table.

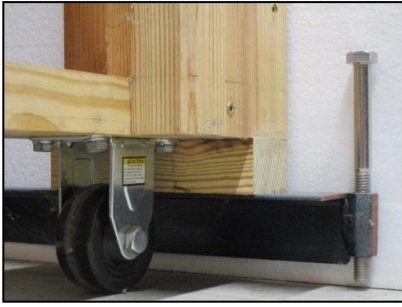
I began by planing, jointing, and cutting to length the 2x6's and 2x4's. Assembly of the table followed. Legs were glued and screwed together first. I used 4" long T-25 torx head screws. After the legs were glued, screwed, and dried, I realized I had made a mistake in the order of assembling one of the legs. Since I could not take apart this one leg without damaging the wood, I made the bottom of this leg the new top. As shown below, the 2x6's and 2x4's

were glued at right angles to one another. The shorter 2x4 legs fit within the longer 2x6 legs. This is done to facilitate the placement of a 2x6 support. This support rests atop the inner 2x4 leg and is flush with the top of the 2x6 outer leg.



The modifications I made to add wheels to the table included shortening the length of the inner 2x4 legs. To ensure equal space to accommodate the 2x6 support for the wheels I flipped the table to assemble it upside down. I figured gravity would help me with the spacing. I rested the 2x4 inner legs against the 2x6 supports flush with the top of the 2x6 legs. I then attached the inner 2x4 legs to the outer 2x6 legs. A 2x6 is attached between two pairs of legs.

Next, I cut the plywood tops to size, 30x30. I sandwiched between two one-piece sections of plywood several pieces of the same thickness plywood. I observed a curvature in the pieces of plywood. Once glued and screwed with screws long enough to join two layers, I added weights to both compress the layers to squeeze out the glue and to flatten the curvature.



Three inch wheels, two fixed and two that can swivel, were screwed to the bottom framework. I then screwed a 2x2x 1/8 angle to the bottom of each end of the table. Blocks were added beforehand to elevate the angle to clear the wheels. Welded to each end of the two 2x2x 1/8 angles is a 1/2-13x 1 3/4 threaded coupling. Through the



couplings are 1/2 x 6 inch long bolts that serve as leveling feet. Finished height of table is 42 3/8 inches. I used a bead of caulking to secure an aluminum (6061) top to the table. The aluminum top prevents cutting fluid and other liquids from penetrating the plywood table top.

Overall, I am pleased with the table. It appears sturdy enough to support the 400 pound mill. Even though wheels facilitate moving the table with the mill on it, it takes some effort to move the table. The two fixed wheels prevent unrestrained movement of the table. That is likely a good thing, for moving the mill quickly could cause an unstable event resulting in injury.

I would like to thank fellow Home Metal Shop Club member Dick Kostelnicek for his assistance with this project.