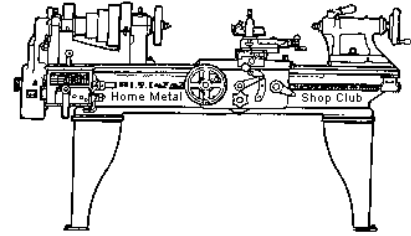




February 2019 Newsletter

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<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>Brian Alley</i>	Vice President <i>Ray Thompson</i>	Secretary <i>Joe Sybille</i>	Treasurer <i>Emmett Carstens</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>Tom Moore</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 09 March 2019 Meeting

The next general meeting will be held on 09 March at 1:00 P. M. at [Bayland Community Center](#), 6400 Bissonnet St, Houston, TX 77074. Visit our [website](#) for up-to-the-minute details, date, location maps, and presentation topic for the next meeting.

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](#).

Recap of the 09 February 2019 General Meeting

By Joe Sybille, with photos by Jan Rowland



Twenty-five members attended the 1:30 P.M. meeting at the at South Houston Branch, Harris County Library, 607 Avenue A, South Houston, Texas 77587.. There were two guests in attendance, Robert Mate and Matthew Fiedler. There are twenty-nine members in good standing with



the club.

President Brian Alley led the meeting (right photo).

Presentation



Club member Dick Kostelnicek gave a presentation on Active Tailstock Tools. He began by explaining the general purpose of the tailstock, namely, to support the outboard end of a workpiece, to drill or bore with static tool bits, and to support active tools. Foremost among operations involving the tailstock is the requirement that the tailstock axis align with the axis of the headstock. Adjustment screws on the tailstock are provided to correct alignment on the lathe bed ways as required. The tailstock contains a taper-bored spindle into which dead centers or other tools for turning work are inserted. The centers or other tools have tapered shanks and are usually removed by turning the tailstock handwheel counterclockwise.

Among the active tailstock tools Kostelnicek exhibited and discussed were a rotating tailstock chuck, a rapid traverse tailstock drill, a tailstock depth stop, a tap handle support, and a quick-change tailstock turret. He made nearly all of the parts for each of the active tooling discussed.

If one were to turn tubing on a lathe, one would find a rotating tailstock chuck helpful. The jaws on the rotating chuck can hold fast the tubing better than a oversized live center. The rapid traverse tailstock drill allows rapid pecking for deep drilling to remove chips quickly. On occasions where one requires several identical lengths from bar stock, the tailstock depth stop is a handy tool to use. The depth stop, when mounted in the tailstock, allows one to advance a bar through the headstock mounted chuck for a repeatable amount of exposure prior to cutoff. For assistance tapping holes in work chucked in the headstock, a tap handle support used in conjunction with a T-handle ratcheting tap wrench is a convenient tool to use. Lastly, for quick repeatable tasks a quick-change tailstock turret is invaluable. One can load several different tools in the turret holder.

Another active tailstock tool Kostelnicek made is a lathe tailstock dog. It is used to prevent taper shank tools from slipping in the tailstock spindle. He uses it in conjunction with a commercially available Morse taper extension.

During his presentation, Kostelnicek posed the question:

When drilling a straight deep hole via a drill bit, is it better to

1. Rotate only the work as in a lathe.
2. Rotate only the drill bit as in a drill press.
3. Rotate bit and work in opposite directions.

The answer is left to the reader from his or her experience.

A pdf file copy of the presentation may be found at [this link](#).

Photos of several active tailstock tools are shown below.



Safety Moment

The safety video emphasized the importance of operating equipment with the proper safety guards in place. Operator safety is compromised when machine guards are removed.

Show and Tell

John Hoff showed a few pictures of a custom made after-cooler he is building for his air compressor. Hoff will use the after-cooler to reduce significantly the moisture content in the compressed air. Unique about his after-cooler design is that he took a small window air conditioning unit and gutted it. He then fashioned a tank into which is circulated a coolant bath. Placed within the coolant bath will be a coil of copper tubing with an inlet from the discharge of his air compressor. The discharge of the coil in the coolant bath will be led to a manifold for air distribution as needed. See photo at right.



Hoff also described the making of a set of dies for an air diaphragm for a machine he is designing.

Martin Kennedy described two books and then donated them to the club library. The books are (1) Greenly, Henry, Model Engineering: A Guide to Model Workshop Practice. Bradley, Illinois: Lindsay Publications Inc, 2004. (2) Heald, C.C., editor, Cameron Hydraulic Data. Liberty Corner, NJ: Ingersoll-Dresser Pumps, 1995.

Brian Alley exhibited a caliper with fine graduations.

Problems and Solutions

A member wanted to know what caused the end of a split point drill bit to melt as he drilled a hole in stainless steel. Several suggestions were offered. Too high drill speed was the likely culprit.

Articles

Skill Saw Metal Cutting

by Vance Burns



Cutting metal is part of the fun in metal working. Certainly the process naturally moves toward the final product, but the steps along the way are individually captivating.

Blacksmiths of old were metal scroungers, and the nature of the raw materials accessible to them was that they could combine the available materials into larger pieces, as needed. Most common was wrought iron and using the tools available to them. Wrought could be combined in small quantities to amass larger samples. This could be carried forward into creating very large scale objects, well into double digit tons with double digit numbers of blacksmiths.

We don't join metal in that way anymore. There is such a profusion of types and forms, we just rock back on our haunches like a Roman emperor and pluck the grapes of

abundance from catalogs and stock piles. We don't join to make larger, we weld, bolt or fuse, and we typically decrease our stock, cut and shape through reduction.

I found myself in this situation recently, buying preformed plate and taking possession of metal that was the right thickness but too large – a happy situation. Post-acquisition, my next goal was dimensionalizing my new mass of ferrous metal. I didn't want to replenish my Oxy Acetylene, the most obvious choice for dimensional reforming. That is an added expense, and I don't use it often enough to justify the outlay. I tried to angle-grinder the process but realized it was taking forever and my blue jeans were getting quite toasty from the spark spray. Gonad protest soon convinced me this was not the path I choose. I switched to the cutoff grinding wheel which worked but since my air grinder did not have the oomph needed, progress was very slow. When something takes for-bloody-ever you have a lot of time to reflect, that limbo in which you are free to meditate, to drift from thought to thought. That is also how you cut your finger off, but I digress.

I remembered seeing something in a Weld Monger video, WeldCon or something. I looked up skillsaw powered metal cutting blades. Now skillsaws are generally pretty anemic horsepower wise and being able to cut thin metal with one was quite an accomplishment. I was doing quarter inch plate so this wasn't hopeful but I figured time away doing research would save at least one finger, maybe more. Win Win!

Lowe's of course had nothing clearly called out on their website. I cannot hide it; Lowe's has disappointed me more than once. Safe to say, our connection is on the skids. I don't want to depress my readers, but I don't see this getting any better until Lowe's takes our relationship seriously.

That seductress, Home Depot, is always welcoming. I can get lost in her isles for hours. I went to the tools section and searched for just the right tool, just the right size and packed with promise. They have a brand called Diablo which I understand is made by Festool. I could never afford Festool, but the Diablo brand is surprisingly affordable. The tool I wanted to try was \$30. They say the tool is good for three-eighths but, I suspect that is a horse-power rating rather than the thickness of cut. I saw a guy using one that sliced through half inch but he had a beefy saw motor. I believe the same technology is used in the 14 blades for chop saws.

I suspected this would be an effort in frustration, for I saw myself stripping all the carbide teeth off the blade in a nanosecond and fracking up the plate and starting over. But she was so sweet. Home Depot urged me to proceed, to ply myself at her new self-checkout, and I found myself sitting in my truck with the Diablo nestled in my bag. She made me feel good, and I was trusting in her charms.

Getting the blade setup and mounted was just like any other circle saw blade mount, so I move toward the plate. I looked to see if the plate was sending me any signals, panic in its little metal heart but it just sat there, waiting for me to get it together. I'd mangled both points of entry, left and right with my grinding experiments. This wasn't looking good, but I knew it was going to be a disaster so, how it evolved didn't matter much. I pulled the trigger and was a little disappointed the skillsaw still worked. I lined it up and pushed it, trepidatiously towards the work. I'm not entirely sure I had my eyes open at the moment it hit the plate but to my surprise, it was cutting, and not just grinding its heart out against an impossible foe, it was cutting through it like butter. It was actually freaking cutting! I was so impressed I missed the fact that the hair on my arm was on fire. The swarf from the blade is REALLY hot. I had on gauntlet gloves and what made it past the high top gloves was really searingly hot. The few that hit me in the face were, you guessed it, hot, like bring me back to reality, get my attention, did I make a mistake getting up this morning, hot. I wanted to stop and get better attire, but the darn thing was just eating up the plate. I mean it would not stop, its voracious appetite was insatiable. When I started to come back to my senses I realized I could not course-correct as one can with a wood skillsaw. Once this thing took a direction that was the course, duty bound. I was free handing it (as one might with any wood saw) and that is a no-no. So I backed up and tried to set her aright. She doesn't like that either. Safe to say the successive cuts were much better once I knew her preferences.

She has certain requirements, sort of saw foreplay if you will. She does not like to go slow and will let you know about a misstep. She does not like to go too fast. Well, I misspoke, She is a thirsty little blade, but the skillsaw I used was not up to the likes of this filly. Still, too fast was a problem as well. I must say that once I got the rhythm it was near effortless. The cuts are sharp and precise; the metal appearance looks almost like a shear cut, and the metal itself is cold to the touch.

She does one thing, cuts in a straight line. She's not going to cut the port hole in your submarine but she will cut what is thrown in front of her. Just respect her abilities and wear long sleeves and full face shield. Did I mention the swarf was hot?