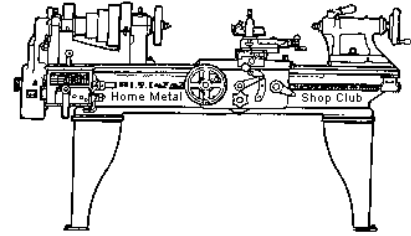




March 2019
Newsletter

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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 06 April 2019 Meeting

The next general meeting will be held on 06 April at 1:00 P. M. at the Bayland Community Center, 6400 Bissonnet Street, Houston, Texas 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 March 2019 General Meeting

By Joe Sybille, with photos by Jan Rowland



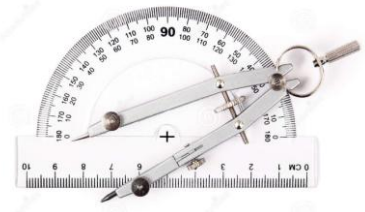
Seventeen members attended the 1:00 P.M. meeting at the Bayland Community Center, 6400 Bissonnet Street, Houston, Texas 77074. There were two guests in attendance, Mrs. Alley, mother of the club president Brian Alley, and Wayne Evans. There are thirty-one members in good standing with the club.



President Brian Alley led the meeting (right photo).

Presentation

Club member Dick Kostelnicek gave a presentation on Measuring and Setting Angles. A clean up of his shop offered the opportunity to find angle measuring and setting tools that he seldom employed, and gave him the idea to make the current presentation. He began by explaining that an angle is the positional relationship between two crossing straight lines. Even non coincident parallel straight lines cross at infinity. Angles are independent of length scale, but the angular relationships in objects such as triangles depend on the curvature of space. The space that we encounter in our shop is, however, considered flat.

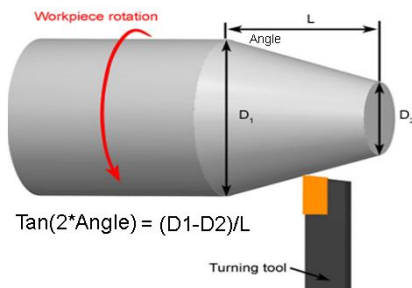


There are generally two ways to measure angles, namely, empirical and abstract. Directly matching the angle to a standard is the empirical method. Inferring the angle from indirect measurements such as several distances is the abstract method.

An example of using the empirical method that is familiar to many readers is the use of the protractor to measure the angle between two crossing lines. Protractors come in many shapes and sizes. No matter the shape or size, the purpose of the protractor is to measure the angular separation between two intersecting lines. Once the point of intersection is located, measuring the angular distance becomes elementary. Several types of protractors are shown in the photos below.

The use of a sine bar is an example of using the abstract method to measure an angle. The sine bar is used to create a right triangle of known lengths when placed on the workpiece under investigation. With these known lengths, one may determine the angle by taking the arc sine of the ratio of the side opposite the angle divided by the fixed length hypotenuse of the formed triangle. Among other ways to determine an unknown angle on a workpiece is a method described by Robert Swinney on page 61 of [The Home Shop Machinist](#), July/August 2001 edition. This method uses a machinist's square and a disk of known diameter. Other tools to measure an angle using the abstract method include a protractor angle finder and electronic accelerometers.

During his presentation, Kostelnicek posed the question: How would you measure or verify a taper that is set up on-axis in a lathe (left drawing)? The answer is left to the imagination of the lathe user from his or her experience.



Photos of several instruments used to measure and set angles are shown below.





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

Safety Moment

The safety video offered ten recommendations to follow to promote workplace safety. The recommendations are listed below.

01. Everyone is responsible for their own safety and the safety of others.
02. All accidents are preventable.
03. Follow company rules, regulations and procedures.
04. Asses the risks. Stop and think.
05. Become proactive about safety.
06. If you are not trained for a task, do not do it.
07. Manage all lifts.
08. Do not take shortcuts.
09. Practice good housekeeping.
10. Be prepared.

Show and Tell

John Cooper showed a few pictures he took while visiting the HousTex Manufacturing Trade Show held at the George R. Brown Convention Center on 26, 27, and 28 February, in Houston, Texas.

Articles



Drill Bit and Tap Guides

By Dick Kostelnicek

Drilling and tapping straight holes by hand can be problematic. Tap pilot holes should be perpendicular to a surface. The hand tap should be guided parallel to its pilot hole while applying torque and breaking chips by reversing. At the left is my drill & tap guide for large imperial threads. It is made from 2x2x1/4-inch steel square tubing. Along the top and bottom surfaces are tap guide

holes measuring 0.25 through 0.50 inch diameter by 1/16 – inch intervals. This guide allows you to direct a tap into pilot holes or drill clearance holes that are perpendicular to a surface. The holes on the other surfaces provide bushings for fine thread pilot drills. These guides can also be used for coarse pilot holes as their diameter is just a bit smaller than those for fine threads. A similar but smaller guide for #6–5/16–inch taps (not shown) is made from 1X1–3/16–inch square tubing.

A round drill and tap guide for numbered taps is shown at the right. It covers taps between #1 and #12. Each hole serves for both tapping and drilling since the round block is tall enough that a loose fit of the clearance drill does not detract from maintaining perpendicularity to the surface. Note that #1 through #6 taps have the same shank diameter and therefore use the same guide hole. There are two identical holes for each taps shank size. One is near the center of the block and provides drill / tap stability while another, close to the edge, facilitates tapping near an inside shoulder.

