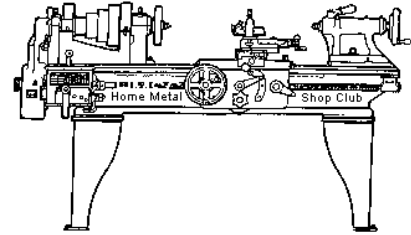




**April 2016**  
Newsletter

Volume 21 - Number 4



<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>Norm Berls</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>Unfilled</i>

This newsletter is available as an electronic subscription from the front page of our [website](#). We currently have 874 subscribers located all over the world.

## About the Upcoming 14 May 2016 Meeting

The next general meeting will be held on 14 May at 12:00 PM (Noon) in the meeting rooms of the Parker Williams County Library, 10851 Scarsdale Boulevard, Houston,

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!

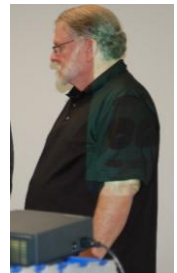
Ideas for programs at our monthly meeting are always welcomed. If you have an idea for a meeting topic, or if you know someone that could make a presentation, please contact [Vice President Norm Berls](#).

## Recap of the 9 April 2016 General Meeting

By Joe Sybille, with photos by Jan Rowland



Eighteen members, including one new member, John King, attended the 12:45 PM meeting at the Spring Branch Memorial Library, 930 Corbindale Road, Houston, TX 77024. Welcome to the club, John. One visitor, Jon Le Grand, attended the meeting. There are 42 members in good standing with the club.



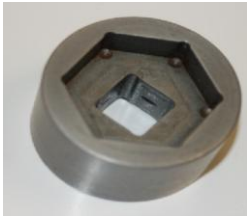
President *Vance Burns* led the meeting.

## Presentation



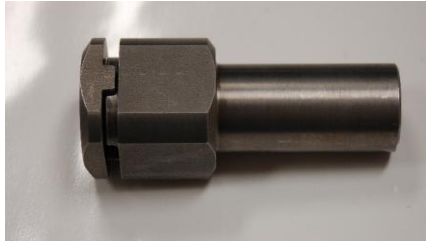
Club member, Dan Harper, continued his presentation on indexing. This time he discussed the use of a rotary table to facilitate indexing requirements for his several projects.





Dan described how he made a six point 30mm socket to fit the forks on his motorcycle (Left photo).

He then described how he made an arbor to hold a gear blank (left photo below). The gear blanks were used to make two gears with thirty-two teeth each. (Center photo below) The sample gears Dan displayed were made of Delrin and revealed fine details indicative of a skilled machinist. Next, he described the intricacies of making a tapered arbor for an involute gear cutter (Right photo below).



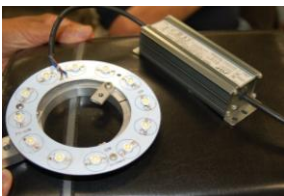
Dan's presentation can be viewed [at this web link](#).

## Safety Moment

*Vance Burns* showed a video on ladder safety. A quick review of portable ladder safety is available at [the following link](#).

## Show and Tell

*Allan May* showed a tool that he designed and made to twist up to four wires into a cable. The wires may be insulated or bare (Photo at right).



*John Cooper* exhibited a light for the mill of his Smithy combination lathe/mill. He assembled the light from parts purchased on line (Photo at left).



*Rich Pichler* showed and explained the use of a tool rest whereby one could, using a file, form a square end on round stock. Rich also showed an arbor that he made for a gear cutter. He concluded by showing an indexing tool that he found at a garage sale



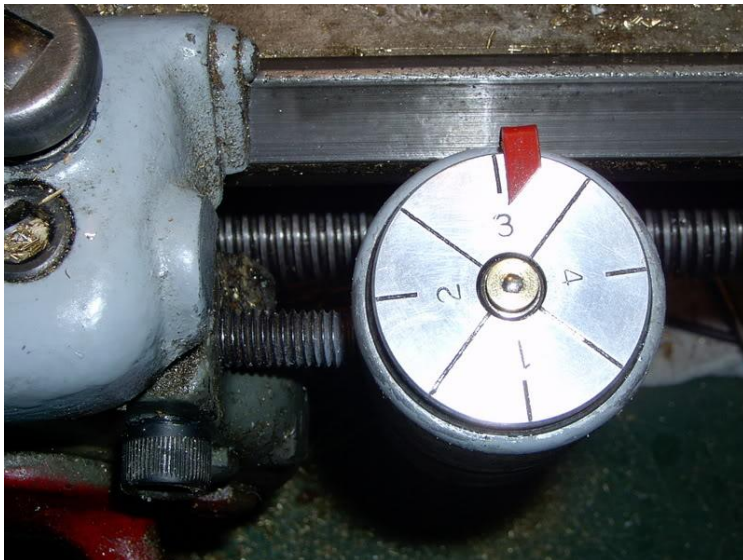
## Problems and Solutions - *Ask the Blacksmith*

A visitor wanted an opinion on his idea to weld a thick plate to each cylinder head on a VW air-cooled engine. Each plate would cover rocker arms and intake/exhaust valves and take the place of valve covers. Access holes in the plates would allow for valve adjustments. Suggestions ranged from making the plates easily removable to the modification would cause more problems than the expected gains in performance.

## Articles

### Imperial Lathe Threading Dials

By Dick Kostelnicek



Here's an explanation of how to re-engage a thread being cut on an Imperial screw cutting lathe using the threading dial.

An Imperial lathe usually has a lead screw with 4, 6 or 8 **TPI (Threads Per Inch)**. With the spindle at rest and the half nuts disengaged, turn the carriage's hand wheel and notice that the threading dial rotates as the carriage moves along the lathe bed (see left photo). For example: move the carriage two inches and the dial makes one complete revolution (yours might move 4 inches per revolution). There are radial lines and lines along with numbers on the dial (see left photo). The lines, regardless of the numbers, show where you can close

the half nuts around the lead screw and fully engage it. The numbers have no particular meaning except to help you to keep track of a particular line as the dial rotates. They're like the numerals that are engraved on a rule that has many more lines than numbers.

Now, close the half nut when a line coincides with the fixed mark on the dial's bezel. The rotating lead screw drives the carriage along the lathe bed and the dial no longer rotates. If you're cutting threads having a half number, say  $5\frac{1}{2}$  TPI, the carriage must move 2 inches till the threading tool once again fully engages the next whole or 11-th thread ( $2 \text{ inch} = 2 \times 5\frac{1}{2} \text{ TPI} = 11 \text{ threads}$ ). In our case, this 2 inch movement is represented by one complete turn of the threading dial. So, to engage or pick up a half numbered thread, it must always be done on the same dial line that was used for the initial thread engagement.

If the thread being cut has a whole or integer number of threads, like 13 TPI, then our carriage need only move 1 inch or  $\frac{1}{2}$  turn of the dial to pick up the thread (1 inch = 13 threads.) Hence, for whole number of threads you can pick up the thread at any two opposite places on the dial.

When the number of threads being cut is even, like 14 TPI, then our carriage only needs to move  $\frac{1}{2}$  inch or  $\frac{1}{4}$  revolution of the threading dial ( $\frac{1}{2}$  inch =  $\frac{1}{2} \times 14$  TPI = 7 threads). Hence, even numbered threads can be picked up at any one of 4 equally spaced places on the dial.

Now, there are other places to pick up specific threads like every  $\frac{1}{3}$  dial revolution, but they depend on having a particular lead screw like 6 TPI.

Here's how to pick up the thread on Imperial lathes having either 2 or 4 inches of carriage travel per revolution of the threading dial and either a 4, 6, or 8 TPI lead screw. †

	2 inch Carriage Travel per Dial Revolution	4 inch Carriage Travel per Dial Revolution
Even Threads (4, 6, 8, ..., 24, 26, ...)	4 – Evenly spaced places on the dial	8 – Evenly spaced places on the dial
Whole Threads (4, 5, 6, ..., 13, 14, ...)	2 – Evenly spaced places on the dial	4 – Evenly spaced places on the dial
$\frac{1}{2}$ Threads ( $4\frac{1}{2}$ , $5\frac{1}{2}$ , ...)	1 – Place on the dial	2 – Places on the dial
$\frac{3}{4}$ Threads ( $4\frac{3}{4}$ , $6\frac{3}{4}$ )	Not Used	1 – Place on the dial

† Most Imperial lathes have a thread dial that rotates just once when the carriage moves either 2 or 4 inches. In other words, the threading dial's gear that is meshed with the lead screw has either 2 or 4 times as many teeth as there are threads per inch along the lead screw.