



SCHSM

Southern California Home Shop Machinists

January 6, 2018

OFFICERS

President	Charlie Angelis
Vice President	Michael Vulpillat
Secretary	Fred Bertsche
Treasurer	Jim Endsley

COMING EVENTS

February Meeting
Sat, February 3, 2018, 2:00 p.m.
El Camino College

March Meeting
Sat, March 3, 2018, 2:00 p.m.
El Camino College

Club Picnic
Saturday, June 9, 2018
Alondra Park
Torrance

Preface

The January meeting of the Southern California Home Shop Machinists was called to order at 2:00 p.m. on Saturday, January 6, 2018. We met in classroom AJ115 on the first floor of the Industry and Technology Building at El Camino College in Torrance, California. There were approximately 32 members in attendance and no visitors. Club membership stands at 64 members.

Club Business

Donated Casting Sets

President Angelis opened the floor to discussion regarding what to do with the four model engine casting sets donated by Jerry Logan last November. There are two 15cc Seal kits and two 30cc Sealion kits. Refer to the November newsletter for a detailed description.

Using one or more of the kits for a club project was ruled out. It was decided by majority vote to offer them at auction to club members



Eldon Barkley giving a presentation on lathe faceplates and related accessories.

during the February, 2018 club meeting. The casting sets are to be auctioned individually with no minimum opening bid.

Club Apparel

Jim Endsley passed around an order form for members wishing to order denim shirts, polo shirts, or hats with the club logo.

Presentations

Lathe Faceplates and Related Accessories

Eldon Barkley gave a presentation on lathe faceplates and brought examples of many different styles. He described a conventional faceplate with t-slots used for mounting the work, and explained different ways in which workpieces can be mounted.

He contrasted the conventional faceplate with a driving plate. A driving plate has one radial slot extending through its periphery to accept the leg of a lathe dog for turning between centers. He also explained the proper selection and use of centers and lathe dogs.



Eldon's driving plate and lathe dogs.

Eldon also showed how he bolted a sacrificial piece of plywood to the driving plate (a common faceplate would also work,) then mounted a wooden workpiece to the plywood. Using this set-up, he turned a split foundry pattern for the curved-spoke flywheel on his Atkinson Cycle engine.



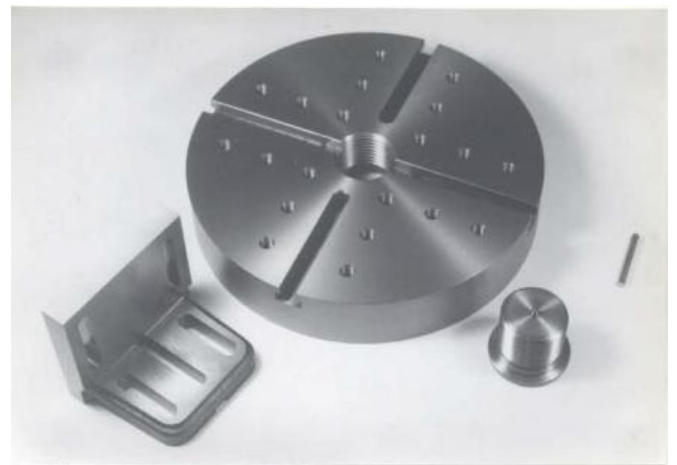
L: One half of Eldon's split pattern sitting atop a sacrificial plywood mounting plate. R: Complete split pattern with flywheel casting.

He showed three small faceplates, a spur center, and a cup type live center - all commonly used for woodturning. Eldon said he has no qualms about turning wood or plastic on a metalworking lathe as long as the appropriate precautions are taken to cover and protect the lathe.



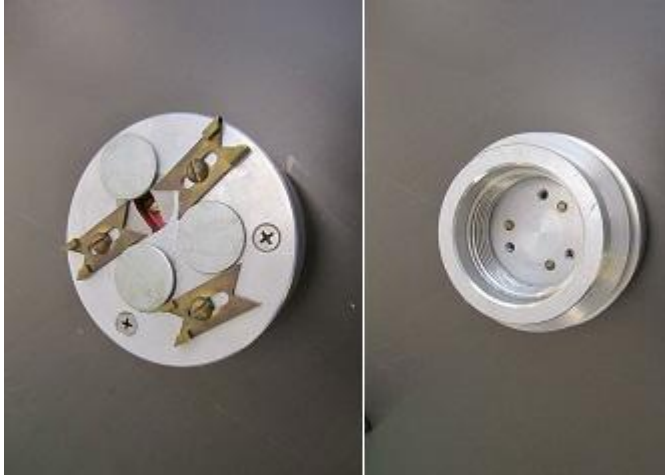
Top Row: Three woodturning faceplates. Lower L: Spur Center. Lower R: Cup type live center.

Eldon showed a specialty faceplate that he machined himself using castings purchased on-line from Metal Lathe Accessories. (Go to <http://www.statecollegecentral.com/metallathe/S-5879.html> for information and pricing.) This faceplate features a deep rim which allows it to lie flat on the workbench to aid in setting up workpieces. It also accommodates an angle plate (for which a casting is available separately) for additional workholding flexibility. Metal Lathe Accessories includes a drawing for a centering fixture made from barstock. It threads into the hub of the unmounted faceplate and facilitates accurate positioning of workpieces.



L: MLA Optional angle plate. C: MLA faceplate. R: MLA Centering fixture.

Eldon also showed a magnetic faceplate, or chuck, he made to hold thin or oddly-shaped workpieces. It threads onto the lathe spindle as would any threaded chuck or faceplate. Referring to the photograph below, the magnets were let into the main aluminum body, beneath the three visible metallic discs. The discs are merely steel dust covers, placed there to keep metallic dust and shavings from sticking to the magnets while in storage. They are removed when the chuck is in use. The three brass clamps are positioned against the workpiece to keep it from shifting or sliding around during the cut.



Eldon's magnetic faceplate/chuck.

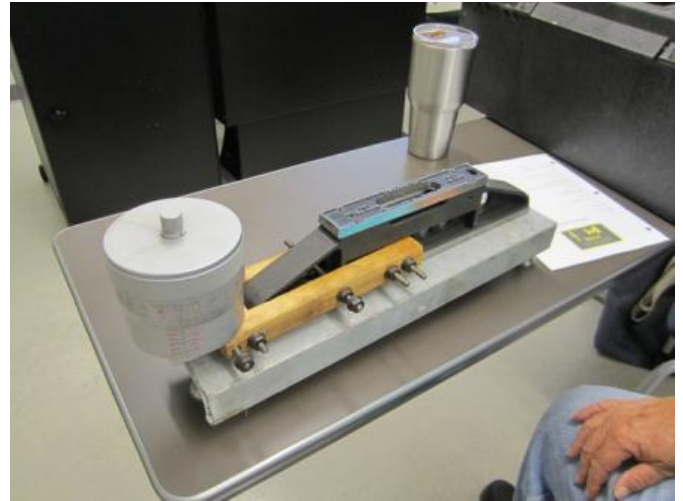
Eldon finished up by showing a tool he made to remove stuck dead centers and other attachments from the lathe spindle. It goes through the hollow lathe spindle and taps the stuck center out from behind.



Eldon's tool for removing stubborn centers from his lathe's spindle.

Show and Tell

Don Huseman showed an experimental set-up he made to show the correlation between the micrometer's movement and the movement of the precision machinist's level. Don demonstrated how one increment of bubble movement on his level corresponds to only .0001" of change in the micrometer's reading. His efforts were to demonstrate the sensitivity of the level, and to show how tricky it can be to change the micrometer a mere "tenth."



Don Huseman's experimental set-up.

Norm Wells showed an assortment of low-cost knife sharpeners that he uses with good results. In all cases, the knife is drawn through a pair of sharpening stones or cutters that are fixed at the correct angles.



Norm Wells' assortment of knife sharpeners.

Bob DeVoe showed an engine flywheel that was mass produced by a company for which he used to do consulting. Bob shared a very interesting problem that turned up during the manufacturing run, and took us through his investigation into the matter.

The flywheel was made of ZAMAK (formerly trademarked as ZAMAK and also known as Zamac) using the die casting process. Two magnets constructed from laminated sheets of iron were accurately positioned in the empty die and



Top: Bob DeVoe's problem flywheel with magnets inside the casting, near the inner diameter of the rim. Bottom: Magnets

then cast into each flywheel. The magnets were components of the engine's magneto system.

The company for which the flywheels were made received a shipment of flywheels that its workers were unable to balance, regardless of what they tried. The matter was referred to Bob, who flew back east to meet with the customer and see first-hand what the problem was. Sure enough, the flywheels could not be balanced, despite being spun on cutting edge balancing equipment.

Bob returned and began troubleshooting the matter. He walked through the design and manufacturing process, step by step from the beginning. Eventually, he made his way to the die casting area. Bob watched as the worker installed the laminated magnets and realized that the worker was omitting a crucial step.

Prior to installing the magnets into the mold, the worker was supposed to put them into a small oven and heat them just hot enough to evaporate all the moisture and oils that had accumulated between their layers. The worker, stating that he really didn't think it was necessary, had simply taken it upon himself to omit that step.

Unbeknownst to the worker, when he introduced the molten ZAMAK, heat caused the moisture and oil still trapped in the laminations to turn into steam and gasses. This created voids within the castings, critically affecting their balance. Since the voids remained concealed within the castings, the castings looked fine to the worker and he thought all was well. Great detective work, Bob!



Matt Rulla showing several interesting items during Show and Tell.

Matt Rulla showed a handle he made for his milling vise. Not wanting to spend the money for a new vise handle, Matt looked around his shop and came up with a wrench that fit the hex on the end of the vise screw. However, the slim profile of the wrench cut into his hand. Matt's solution was to remove the open end portion of the wrench and replace it with a large steel bearing ball that he TIG welded in place. Utilizing the more comfortable bearing ball as a handle, Matt uses the box end of the wrench to tighten and loosen his vise.



Matt Rulla's custom vise handle. No, he does not carry it for protection...

Matt also showed two types files he recently bought on eBay. The first is a Simonds lathe file, which he prefers over the more common Nicholson files. It is a single-cut, long angle file with two safe edges. Matt says it's a dream to use at the lathe. The second file Matt showed is a Supertanium II, 10" 2-N-1 File, Part # 63041, manufactured by Premier Farnell Corporation. One side has a very aggressive cutting pattern,

and the other side has a smooth pattern. These files are intended for general bench work and fabrication. A 2 pack can be had for just over \$20.



Matt's "Supertanium II" file. The coarse side is facing up and has a waffle pattern to help clear the shavings.

Matt shared another eBay find, which is a six piece set of Tsubosan hardness testers. These sets are made in Japan and appear to be of good quality. The individual testers resemble small files with turned up tips. They have progressively coarser teeth as they progress through the set. Starting with the finest tester, you run it across the piece to be tested, preferably in an inconspicuous place. If that tester skates across the surface without digging in, progress up to the next coarsest tester and try it. When you come to a tester that starts to dig into the material, stop and look at the hardness range stamped on that tester. That will give you a fairly close idea of your material's hardness.



Tsubosan hardness tester set.

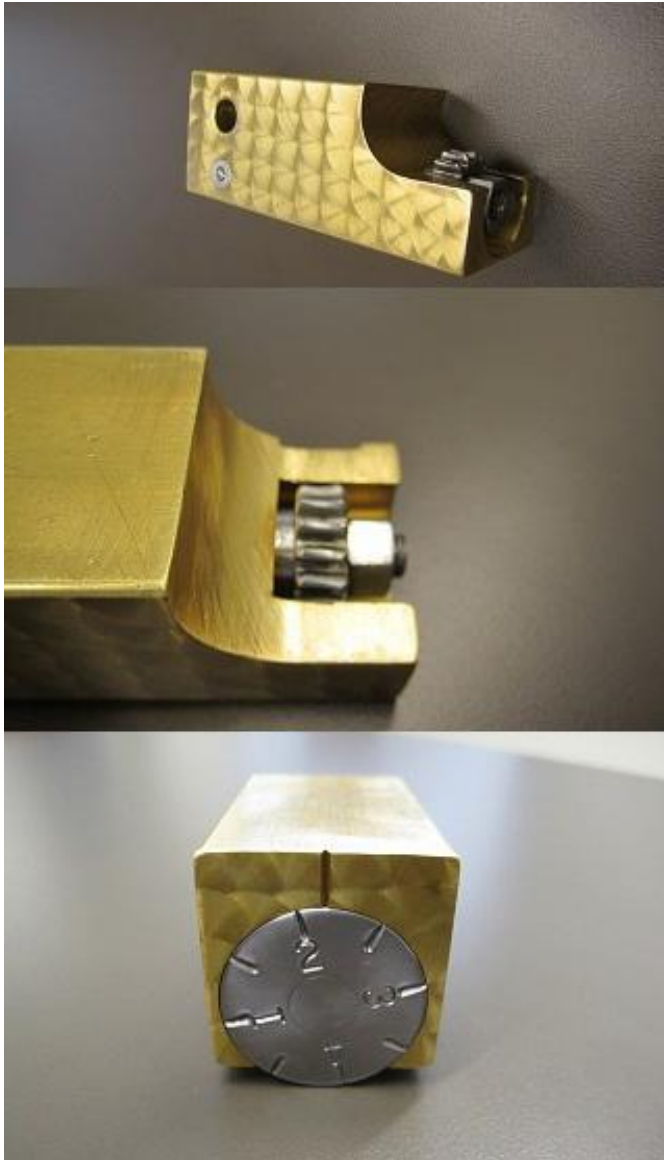
Lastly, Matt showed a Jerray brand ½" carbide 4 flute roughing cutter (corn cobb type) that he bought on eBay. Matt has a vertical mill that was fitted with a single phase, low horsepower motor. When he attempts to rough out material with a regular end mill, the mill's motor bogs down noticeably. With the Jerray cutter, Matt can sail through material without taxing the mill's motor at all. Matt said it leaves a surface finish you would expect from a roughing cutter, but it's still pretty decent.



Jerray carbide roughing cutter.

Larry Lee showed a threading dial he made for a lathe he recently purchased. He made the body from brass and adorned its exterior with an attractive engine turning pattern. Larry made the dial from barstock and stamped numbers and graduations into its face. He modified a common spur gear to more closely resemble a worm wheel so it would mesh nicely with the lathe's leadscrew. He drilled an oil passage through to the shaft and topped it off with a Gits type ball valve oil hole cover. Additionally, Larry designed the assembly to pivot on its mounting bolt to facilitate rapid disengagement of the drive gear when the

threading dial is not in use. Larry reported that it works very well. It definitely looks good!



Larry Lee's threading dial.

Ron Gerlach showed a KN brand metric thread micrometer that was made in the USSR. Ron said it is of high quality and enables him to take very accurate measurements.



Ron Gerlach's KN metric thread micrometer.

Events

Gunther's Yard

On December 3, 2017, approximately ten SCHSM members attended the annual Gunther's Yard open house in North Long Beach. We had a small display that was manned by Douglas Walker, Matt Rulla, Lewis Sullivan and others. Lewis brought and ran the Crusader model airplane engine he made years ago following plans published in Home Shop Machinist Magazine. The loud bark of its exhaust attracted quite a crowd every time he fired it up. There was a nice variety of hit and miss engines, old cars, vintage motorcycles, and Americana of all kinds on display. Pat Dobbins particularly liked riding the small rail car that traverses the site, and everyone enjoyed the hot dogs and refreshments served by the Gunther family.

SCHSM welcomes presentations by members or guest speakers on any subject related to metal working activities. If you have some knowledge or experience you feel may be of interest to our members, or if you know someone that may have something interesting to relate, please consider making a presentation at a meeting. Presentations may be a little longer and more detailed than a show and tell, and may be accompanied by slides, video, or physical displays. Probably every member has some experience they can share, and this is the purpose of SCHSM. Please contact President Charlie Angelis to make arrangements to give a presentation.

SCHSM meets in Classroom AJ115 on the first floor of the Industry and Technology building of El Camino College, 16007 Crenshaw Blvd. Torrance, California, at 2:00 p.m. on the first Saturday of every month. The building is near Parking Lot B. Enter the campus from Manhattan Beach Blvd.

If you would like to contribute an article to this newsletter, or make a comment, contact the editor, Fred Bertsche. He can be reached via the SCHSM Yahoo Group, or at fbschsm@yahoo.com.

Find us on the web at www.schsm.org.