



SCHSM

Southern California Home Shop Machinists

February 1, 2020

OFFICERS

President	Charlie Angelis
Vice President	Michael Vulpilat
Secretary	Ron Gerlach
Treasurer	Jim Endsley

COMING EVENTS

Mar Meeting
Sat, Mar 7, 2020, 2:00 p.m.
El Camino College

PREFACE -

The February meeting of the Southern California Home Shop Machinists was called to order a little past 2:00 p.m. on Saturday, February 1, 2020. We met in classroom AJ115 on the first floor of the Industry and Technology Building at El Camino College in Torrance, California. There were 24 members in attendance.

CLUB BUSINESS –

Charlie briefly discussed the picnic which is confirmed June 20th at Alondra Park. Next up was the election of new officers. Ron Gerlach and Willie Jordan had contacted an assortment of club members since the last meeting in an attempt to persuade one or more to run for president or at least for vice president. The result of all the arm twisting was Doug Walker agreed to be a candidate for president and John Miller agreed to be a candidate for vice president. This made for a simple election process and both candidates were voted in with unanimous approval from all eligible members present.

Next up for discussion was the club web site which was created by and continually maintained by Graham Hollis. The registrations for the SCHSM.org and SCHSM.com domain names need to be renewed every year and Graham has announced he will no longer continue to do this or to maintain the web sites. The primary task at this time is to find a volunteer to take over this task and get that person on board soon enough so that Graham can transfer the domain names before the end of March. Mike Lucek, otherwise known as Choochoo Mike for his involvement with old steam train restorations, has offered to take on this web site roll. He has created other web sites in the past and felt that he was up to the task. A hearty thanks goes out to Mike for stepping up and assuming responsibility.

A brief discussion ensued about the Newsletter. Last month's issue was not posted to the web site due to the uncertainty surrounding the web site and also due to the fact that posting this first-for-2020 newsletter would have required some time from Graham to create a new 2020 folder. The January Newsletter was provided via Firefox-Send. The email sent out had a link that club members could click on to allow them to view or download the document. The link in the first email quickly timed out and a subsequent email was sent with a new link that apparently was working satisfactorily for those that tried it. Once Mike has the new website up and running, the Newsletters will again be posted there for access by club members.

Jim Endsley made an announcement about the UCR Engineering Department car making group. They are involved in the SAE sponsored competition and are in the process of building a 4-wheel drive electric car. Jim's step granddaughter is a member of this group. She and some others will be coming to the March meeting to make a brief presentation on what the group is currently doing and offer to set up a tour of their facility for the club members.

PRESENTATIONS – Larry McDavid –H&E Gear Tour– Larry presented a series of photos he took during the recent tour to the facility. He prefaced the presentation by saying that he did not claim to know much about each of the unique gear cutting machines that appeared in the photos and invited anyone with knowledge or insights into the operation of these machines to speak up. Indeed, there was a very unusual assortment of



purpose-made machines that were in operation at this facility in Long Beach. The club group on the tour consisted of 16 members. They were treated with a personal tour by the company owner, Edgar Cruz. Mr.



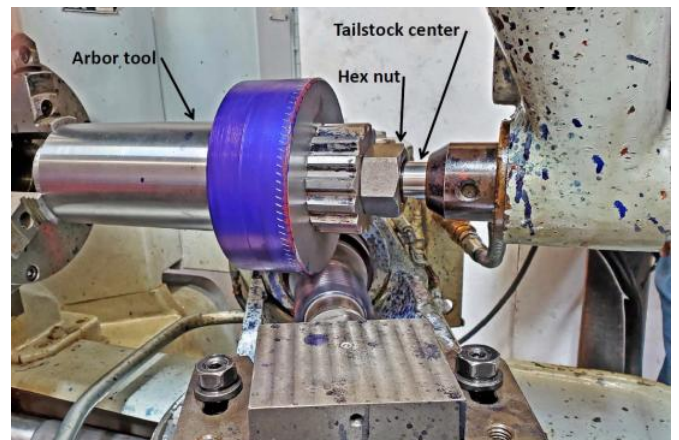
Cruz had setup several gear hobbing and cutting demos for the purpose of the tour. It became apparent that there was a tremendous amount of math and setup time involved in the



preparation for any of these gear cutting operations. The hobbors have drive spindles for both the cutters (hobbors) and the gear blanks. These spindles need to be synchronized with a series of change gears for proper operation. Besides the exacting synchronization requirements



there is also a necessity for absolute minimal backlash in the change gear trains. Mr. Cruz explained some of the details during the tour. Besides the actual gear hobbing machines there



were various tools for cutting internal keyways on the finished gears. Some of these gears were quite large and the hubs were even longer. Cutting long keyways was another very special capability that the company possessed.

There was a main facility of machines that were in daily use. There was a second facility close by with more unusual machines which were not currently in operation.

The following series of images are a selection of some of the unusual machines at the company.





Though unconventional to the club members, these various hobbing and Fellows gear cutting machines were the daily work horses for this company. It was very kind of Mr. Cruz to take the time to open up his shop for the tour as well to take the time to set up some sample gear cutting demonstrations. The last several pictures show Mr. Cruz demonstrating the setup on the highly specialized mounting apparatus for measuring and verifying the dimensions and interaction of gears before they are shipped to a customer. The set on the special measuring stand is a worm and worm gear.

It seemed apparent all in attendance enjoyed the visit.

Larry McDavid –Transporting and Improving the Olympus MJLT Microscope– Larry presented a slide show that involved issues related to his Olympus Microscope.



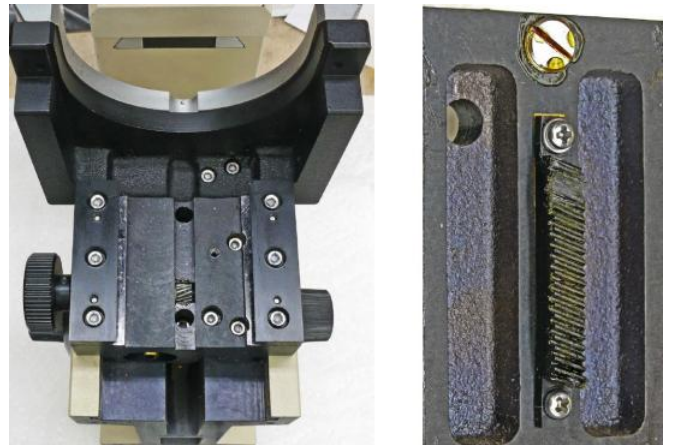
This specialty polarized microscope is quite heavy yet needs to be transported locally on occasion for his Microscope Society functions. The first part of the presentation centered around a packaging scheme that Larry worked out so that the microscope could be easily transported in his car without fear of any damage.



He first had to disassemble the heavy unit into manageable sub-parts and made custom compartments for each piece. He utilized sections of Polyethylene foam inside of double wall cardboard boxes to form the protective cavities. These boxes were obtained from Box Zero, a supplier of packaging supplies, located in Orange on Katella.



This microscope had been shipped to Larry's residence and was well packed for shipment but apparently the previous owner left the condenser assy in mid position before shipment and the weight of the part combined with the usual vibration and shocks of shipment resulted in a damaged rack where it was mated to the elevating pinion gear. The rack was made of a



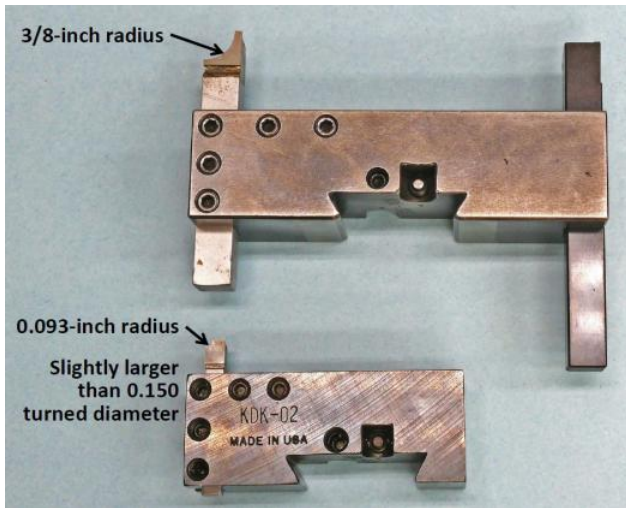
plastic material and could not take much abuse. Luckily the part was still available from Olympus so he was able to easily repair the damage.

This segued into a presentation about the making of a column securing set screw that utilized a thumb wheel in place of an Allen wrench, greatly simplifying the

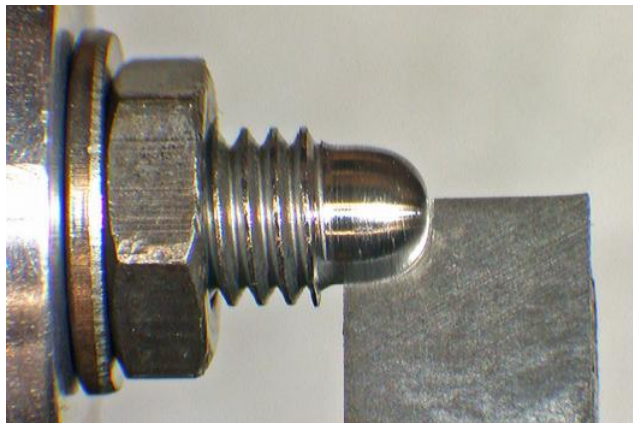
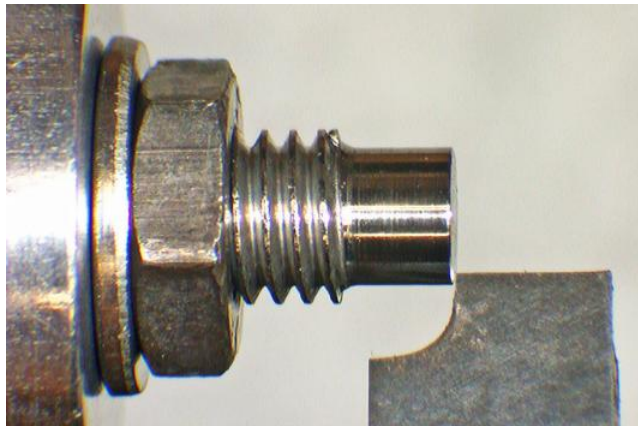
tightening and untightening. The original was a SS metric set screw that had been machined to form a full radiused tip. Larry chose to cut his radiused end with a



carbide form tool rather than a traditional radius cutting fixture. He had a series of quarter round form tools from Micro100 and had one with a radius that was close enough to be use for the application.



He showed images he had taken through the microscope mounted over his lathe. The X8 magnification provided some nice close up views of the cutting tool in place. He finished up



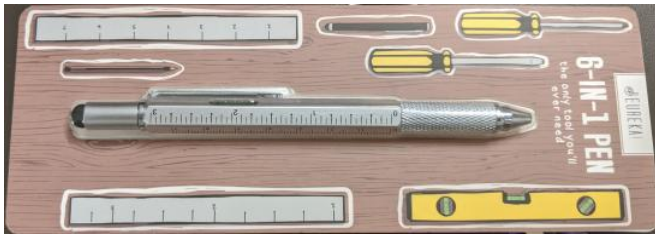
his set screw build with a pressed-on plastic knob. These knobs are made by Shear-Loc and are specifically designed to be pressed on to Socket Head Cap Screw heads

SHOW and TELL

Jim Endsley brought in a couple of welding fixtures that were given to him by his wife as a Christmas present. They look like they will be handy to keep any steel based weld jobs in position for tacking and welding. One set was for fixed 90 degree orientation where as the other set was adjustable for any desired angle. Also in the batch was a



nifty 6-in-1 tool that appears to be a level, an inch ruler, a metric ruler, a pen, a pencil, a flat screwdriver and a Philips screw driver.



Millar got up and talked about the Crossfire 3D Plasma Cutter he has on order. In preparation for the arrival of his new toy, he took a class in 3D Drawing at Long Beach City College. He cut some sample gears in the class as well as wrenches by using a file from a user group member. He cut a square hole in some steel and it actually fit onto a 3/8 square drive. He finished up by offering to do plasma cutting jobs for club members. The only restrictions are that the item must be smaller than a 24" by 24" square and using material that is 1/2" or thinner. He may regret that offer...time will tell.

Ron Gerlach brought in a couple of items. One was a Jacobs No 100 chuck, otherwise known as a Commutator Chuck. It was a 2MT tailstock mounted three jaw chuck. The jaws looked like conventional drill chuck jaws but were made out of a bronze bearing material. They had a curved ID shape and had a capacity of 1/4" to 3/4". The purpose of this chuck was to provide a tailstock support for motor shafts that did not have center drilled ends. The bronze jaws could be snugged up for a good slip fit and locked into position thus allowing a means of support that a dead or live center could give if a center hole was present. The chuck could be viewed as a tailstock mounted steady rest.



The second item presented by Ron was a finely crafted block and tackle made by Nifty-Lift which is an American made product built by

veterans. It had red anodized aluminum bodies with ball bearing pivots for the pulleys. It included a 40' chord which was 1600lb parachute chord. A novel locking device on the upper block allowed the chord to be parked and held in position.



This locking mechanism can support the full 750lb weight capacity of the system. Being a 4:1 lever system, the lock only has to withstand 1/4th of this weight. There are videos on Youtube of users stressing these Nifty-Lifts to twice their rated capacity of 750lbs so there is a healthy amount of over design in the product.

Ron bought this product to use in conjunction with a newly installed Unistrut rail and trolley system over his large lathe to facilitate the R&R of the 90+ lb 4-jaw D1-6 chuck on the machine.

Doug Walker brought in a wooden dowel that he modified on his lathe to create a Harry Potter style wand for his wife. It required the radiusing of both ends and the addition of several grooves along its length.



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.