



SCHSM

Southern California Home Shop Machinists

February 3, 2018

OFFICERS

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

COMING EVENTS

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

April Meeting
Sat, April 7, 2018, 2:00 p.m.
El Camino College

Club Picnic
Saturday, June 9, 2018
Alondra Park
Torrance

Preface

The February meeting of the Southern California Home Shop Machinists was called to order at 2:00 p.m. on Saturday, February 3, 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 27 members in attendance, and we welcomed 3 new visitors:

Jim Gabelich is a pharmacist and self-taught home shop machinist who has built a Gauge 1 steam locomotive which he runs on tracks set up on the grounds of his residence. Jim has a 9x20 Grizzly lathe and other machining equipment. He has been doing model engineering for about 10 – 12 years and is currently working on a 2 cylinder PM Research steam engine.

John Denney has an acute interest in home shop machining and has equipped his shop with Sherline equipment. He machines parts for a variety of model engineering projects, including repair of musical instruments.



Bob DeVoe showing a V-anvil Micrometer.

Steve Wakker is a history teacher and home shop machinist. He has two lathes in his shop, one being an Atlas/Craftsman.

Club Business

Election of 2018 Officers

President Angelis ran the elections for officers to serve during the 2018 term. The results are as follows:

President: Charlie Angelis (Incumbent)
Vice President: Michael Vulpilat (Incumbent)
Secretary: Position not filled.
Fred Bertsche to serve as
Interim until position is filled.

Treasurer: Jim Endsley (Incumbent)

Donated Casting Sets

The four model engine casting sets donated by Jerry Logan were auctioned off to club members. They brought a combined total of approximately \$400.00. The proceeds went into the club's general fund.

El Camino College News

Ed Hoffman announced that Mr. David Gonzalez recently became Dean of the Machine Tool Technology Department. Mr. Gonzalez has an extensive background in a variety of technologies.

Ed also announced that the Department is looking for new teachers to teach machine shop math, blueprint reading, and other metalworking subjects. The Department is also trying to fill an upcoming position for a lab technician to repair and maintain the lab's metalworking machinery. Applicants must have mechanical and electrical experience.

Club Apparel

Jim Endsley gave an update on the club apparel order that he is coordinating. He also passed around an order form so any members who hadn't already could order shirts and hats.

In Memoriam

Ron Gerlach informed the membership that one of our most beloved members, Howard Weimer, passed away on December 26th, 2018. See a tribute to Howard later in this newsletter.

Jay Leno's Garage

Don Huseman gave an update on his efforts to arrange a tour of Jay Leno's Garage. Don actually spoke to Mr. Leno in person and was told that, unfortunately, there are several reasons having to do with liability and other constraints that prevent him from inviting the general public into his facility. Mr. Leno – an avid steam power enthusiast – was very intrigued, however, when Don told him that he'd built a steam-powered pencil sharpener.

Hasbrouck Drawings

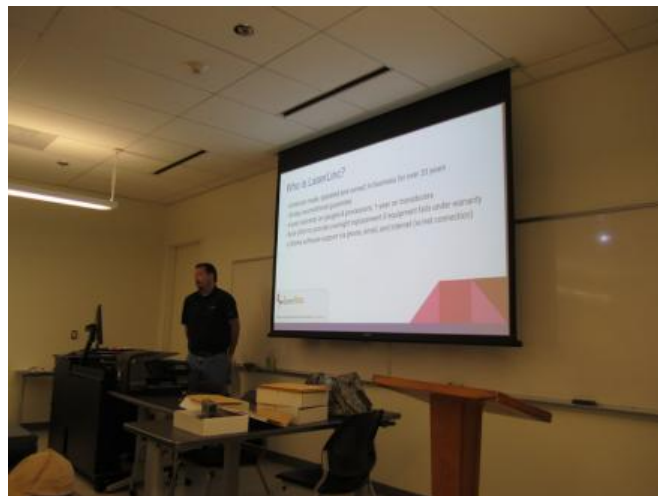
Fred Bertsche announced that fellow member, Lorry Widger, left with him to share with the club some drawings for various steam engines designed by Ray Hasbrouck. All of the designs are made from barstock. One or more of the designs might be suitable for a club project.

Presentations

LaserLinc

Bryan Nehez of LaserLinc gave a presentation on LaserLinc's product line which was developed to measure a wide variety of items for inspection and quality control purposes. These items include metal rod, wire, pipe, tubing, insulation on electrical wire, and other such items. The following is an excerpt from the LaserLinc website:

Precision measurement is LaserLinc's business. Our laser- and ultrasonic-based technologies provide non-contact, accurate measurements. A partial list includes outside diameter (OD), ovality (roundness/eccentricity), wall thickness (coating thickness/material thickness), concentricity, and inside diameter (ID).



Bryan Nehez of LaserLinc.



To learn more about the operating principles of scanning laser micrometers and ultrasonic material thickness measurement, visit these pages...

http://laserlinc.com/laser_micrometer_operating_principle.html

http://laserlinc.com/ultrasonic_wall_thickness_operating_principle.html

Bryan brought a sample of LaserLinc's products which he demonstrated by measuring an assortment of items. He added that software included with the products can generate detailed reports with graphs.



LaserLinc demonstration.

Show and Tell

Bob DeVoe, following up on the LaserLinc presentation, explained an "Old School" way of checking round items for size, roundness and eccentricity. He showed a Brown & Sharp V-anvil micrometer used to measure items such as end mills and cutters having 3 flutes. On 3 flute cutters, the anvils of a standard micrometer cannot make contact with the cutter at points 180 degrees apart – or directly across the diameter. On the fixed end of Bob's micrometer, the standard anvil has been replaced with a vee type anvil onto which the part to be measured is placed. Two of the cutter's teeth rest on the sides of the vee, and the third tooth is oriented directly under the moveable anvil in order for the measurement to be taken. Bob said that by



Bob DeVoe's B&S V-anvil Micrometer.

measuring a round solid piece of material with this type of micrometer, minute deviations can be detected by taking measurements at several points around the periphery.

Bob DeVoe also showed an assortment of transfer punches used to spot clearance holes in mating parts when threaded holes are already in place. These punches come in a wide variety of diameters and thread pitches. They are basically a short transfer punch with the OD of the shank threaded to the desired thread size. The punches are screwed into existing threaded holes with their pips sitting just proud of the mating surface. The parts to be mated are aligned and then tapped with a soft hammer. This leaves center punch marks where the clearance holes need to be. Among the punches Bob brought was one example of a punch that was not threaded. It is meant for use in plain and/or threaded holes.



Bob DeVoe's assortment of transfer punches.



Transfer punch set. Handle (L) has a hex socket on one end to turn punches (R.) Handle is hollow, enabling storage of multiple punches of the same size.

Bob brought in a sampling of the specialty pliers he uses in his home shop. The tips of these tools have been designed to suit specific part holding, crimping, and staking applications.



Bob DeVoe's assortment of specialty pliers.

Millar Farewell brought in a high pressure hose that belongs to his Polaris side by side vehicle. The hose has a quick-connect coupler on each end, and each coupler has an o-ring of square section recessed deeply inside. The o-ring in one end was leaking. Millar removed the hose to replace the o-ring and found that because it was recessed so

deeply inside the coupler, it would be difficult to replace without destroying the new o-ring. Millar asked if anybody knew of a specialty tool that could be used to safely insert the new o-ring. Lewis Sullivan knew of such a tool and said he would get its details to Millar. Lewis said he would also try to share the tool's information with the group during a future meeting.



A quick coupler from Millar Farewell's Polaris side by side buggy. An o-ring deep inside needed to be replaced without being damaged.

Eldon Barkley showed a large Greenlee knockout punch that he modified. The main drawbolt didn't have sufficient travel for the application at hand. This necessitated cutting the existing threads approximately 1" farther up its shank. Eldon explained that he single-pointed the threads using his lathe. To pick up the existing threads, Eldon adjusted the compound slide so that it was parallel to the spindle axis. After preloading the halfnuts against the leadscrew in the proper direction to eliminate backlash, he made minute adjustments using only the cross slide and the



Eldon Barkley modified this Greenlee knockout punch by cutting threads farther up its shank.

compound slide in an “XY” fashion to bring the tip of the cutting tool into position between two of the existing threads. He backlit the tool tip and workpiece, and used a magnifying glass to enhance his view and facilitate placement of the cutting tool.



Eldon Barkley showing how he cut extra threads in a Greenlee knockout punch.

Ron Gerlach gave an update on his current project – the restoration of his 3 horsepower International Harvester Company Model M engine that he recently bought at auction. He estimates the engine to be approximately 100 years old. Ron made a replacement butterfly assembly for the carburetor. It was comprised of a lever, a shaft, and the butterfly itself. The original lever was a casting that had been damaged. Ron fabricated a new lever from steel components which he silver soldered together.



Ron Gerlach made a replacement butterfly assembly (Top) for his IHC Model M engine.

Ron also made new valve stems to replace the originals which had become excessively worn. The original valves were manufactured in two pieces – the head and stem – then pressed together. The head end of the stem was then peened over, or mushroomed, to lock the head in place. The head portion of the valves were in good shape, so Ron removed the old valve stems from them and made new ones out of precision ground linear shafting of the appropriate diameter. He pressed the new stems through the valve heads and peened the end to secure them in place. He refaced the valves to true them up and provide a good sealing surface.



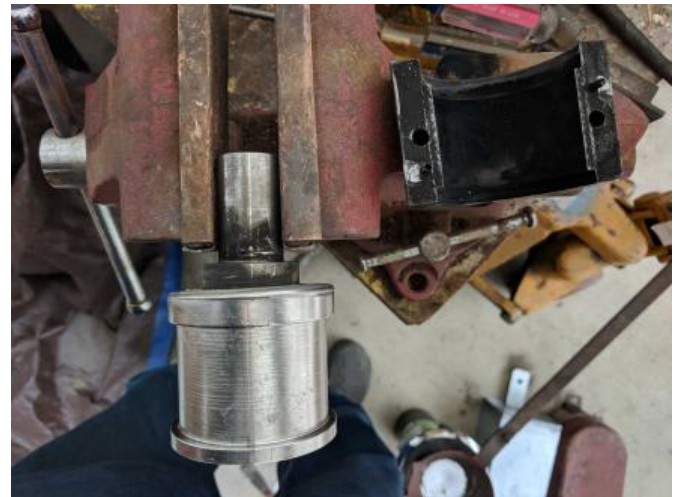
Ron Gerlach replaced the stems on these valves. Inset: top of stem peened to lock valve's head to stem.

The wrist pin in Ron's IHC was worn out, so he made a new one out of precision ground linear shafting. Ron reports that this material is very durable, has a beautiful surface finish, and is nice to machine.



Ron Gerlach made this wrist pin from a length of linear shafting.

Lastly, Ron showed a beautifully-made, segmented mold that he designed and machined in order to cast Babbitt bearing inserts for the large end of his IHC's connecting rod. The interior faces of the mold are coated with a layer of soot from an acetylene torch to prevent the Babbitt from adhering. The mold is assembled and then filled with molten Babbitt. Once the Babbitt has solidified, the segments of the mold are removed from around the casting, and the center core rod extracted. The casting is machined to final size and split into two inserts. Shims are used to key the inserts in place and adjust the fit. Ron said that the bearing inserts he made with this mold were a complete success.



Michael Vulpillat gave an update on his volunteer work aboard the USS Iowa. He advised the group of a new tour called "Full Steam Ahead," which gives access to some areas of the ship not open to those holding a general admission pass.

Matt Rulla showed a speed handle he made for his mill vise. This design follows and improves upon the vise handle he showed during the January, 2018 meeting. It has three spokes evenly spaced around its hub. The hub started life as a half inch drive, six-point socket. Each spoke has a large ball on its outboard end to provide a comfortable grip and some extra inertia for spinning the handle.



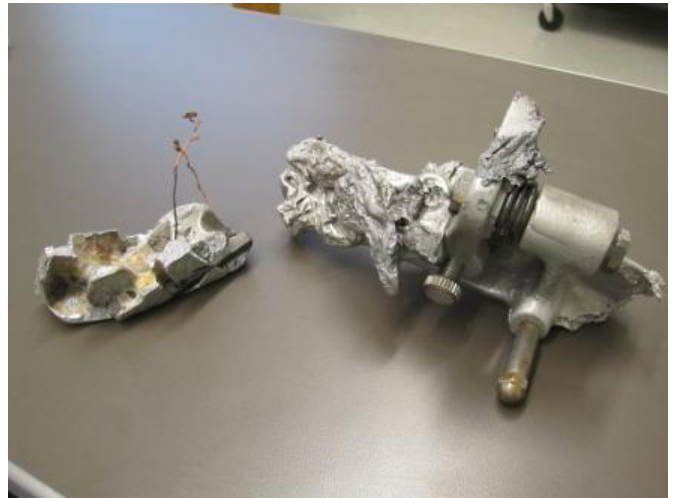
Matt Rulla's home-made vise handles. Lower: Original design. Upper: Speed Handle.

Willie Jordan reported that his CNC milling machine project is nearing completion. He added that the Linux Expo in Pasadena, CA is approaching and asked members to consider staffing a club table during the Expo to display some of their home CNC projects.

Don Huseman gave away several new, unusually-sized hacksaw blades to members who needed them.

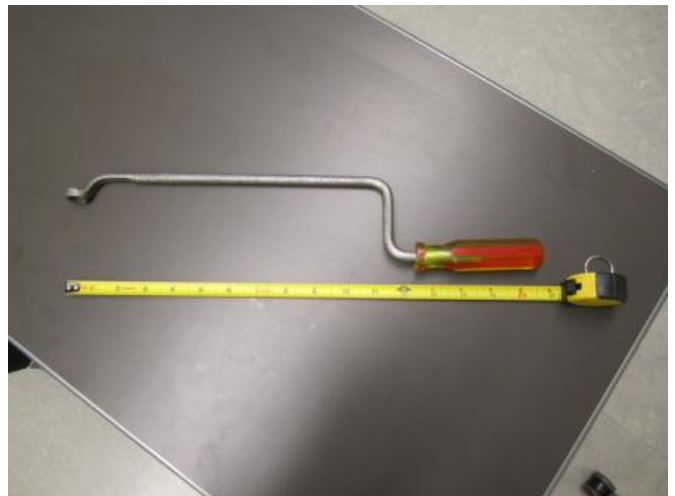
Whatzit?

Bob Devoe brought in some artifacts that he salvaged from the ruins of his recent home shop fire. He believes they belong together and had once been components to some sort of shop tool. However, Bob cannot figure out what they had been prior to the impromptu heat treatment. Please take a close look at the photos and if you have any idea as to what they may have been, please let Bob know.



Two different views of Bob DeVoe's Whatzit. If you think you know what these once were, please get in touch with Bob.

Lewis Sullivan showed an unusual long-reach box-end wrench that has a plastic screwdriver-type handle and two off-sets along its 17" length. Although Lewis knew what the wrench was designed for, he presented it as a "whatzit" in an attempt to stump the panel. Quite a few of the older guys knew exactly what it was, since they



Lewis Sullivan's Whatzit.

were repairing cars long before the invention of electric radiator fans. The wrench was designed to reach around the fan blades of the older belt-driven radiator fans in order to loosen or tighten the bolts securing the fan's hub to the water pump flange. This, my friends, was a major knuckle saver!



In Memoriam

Howard Weimer

Howard grew up during the Depression Era, and as a youngster learned engine rebuilding and repair from his father. This was the beginning of a wonderful career.

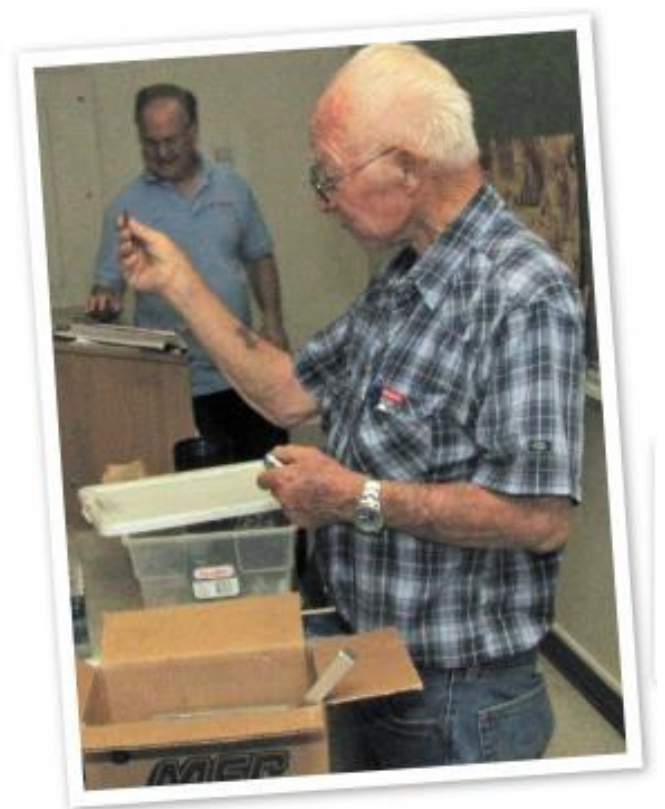
Howard joined the U.S. Air Force in 1950 and attended aircraft and engine mechanics school while stationed at Shepard Air Force Base. He completed the class with a score of 4.8 out of a possible 5. He completed instructor school and for the next two years taught aircraft and engine mechanics. In doing so, Howard spent 200 hours inside the North American B-25 Mitchell, an American twin-engine medium bomber manufactured by North American Aviation. During this time, he never left the ground. Instead, he was

teaching future aircraft mechanics how to run up the engines.

In 1952, Howard volunteered to be relocated to Germany, but ended up in Yokohama and later Tachikawa, a city located western portion of Tokyo Metropolis, Japan. Here he worked on the C-54 (DC-4.) The DC-4 is a four-engine, propeller-driven airliner developed by the Douglas Aircraft Company.

During his time in Tachikawa, Howard took the CAA, now called the FAA, written test. Later, he took the practical test at Northrop Aeronautical Institute in Inglewood, California. With Howard's usual luck, he paid \$10.00 to take the test. In order to take this test today, you would have to go to school, which would cost approximately \$10,000.00 in tuition! These two tests gave Howard a license that qualified him to work on, and certify, any aircraft in the world.

July 27, 1953 marked the end of the Korean War and Howard took advantage of President Eisenhower's offer to get out of the military early. Douglas Aircraft hired Howard as a jig builder, and he worked in that capacity until 1958.



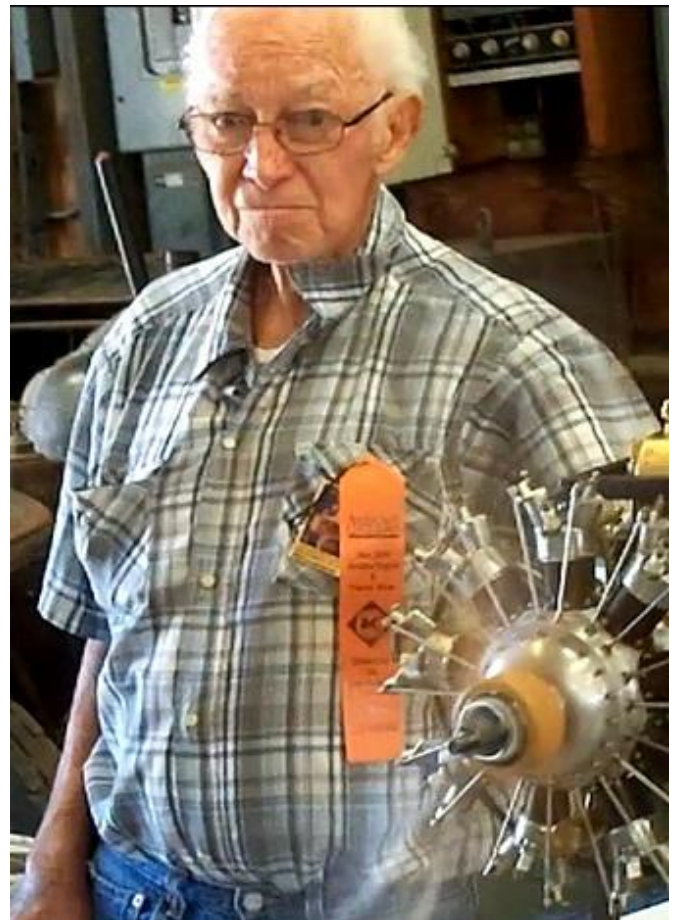


The Chrysler Corporation hired Howard to work on missiles in 1958. Howard said, "This was the most money I'd ever made, \$13,000.00. A Volkswagen Beetle cost \$1,300.00." During the first few weeks of employment, he sat around playing cards until his secret clearance was processed. Flash forward to recent times and Howard still possessed the original newspaper ad for that job. For weeks Howard and his team studied missile blueprints until they fully understood how the missiles worked. Howard became an expert in hydro pneumatics, and fuel and liquid oxygen. Howard went to the Redstone Arsenal in Huntsville, Alabama. This post is a garrison for a number of tenants, including the United States Army Materiel Command, Army's Aviation and Missile Command, the Missile Defense Agency of the Department of Defense, and NASA's Marshall Space Flight Center.

Howard was transferred to Italy in 1959 where he oversaw the installation of Jupiter Missiles and related technology. After the installation was completed, he stayed behind as Field Engineer. In October of 1962, the Cuban Missile Crisis forced all of the Jupiter missile sites into a high state of readiness. Fortunately, no buttons had to be pushed. During his stay, Howard became fluent in the Italian language. One of his favorite stories was how he took the Appian Way to get to some of those missile sites.

In 1963, after the Cuban Missile Crisis was sorted out, Howard moved on to Heidelberg and Titisee in Southern Germany where he worked on electric power production. While there he learned to speak a little German.

Capitalizing on his command of the Italian language, Howard took a job with ITT at Camp Darby, a United States military complex located between Pisa and Livorno, Italy. This was in 1964. Here he worked as the Field Engineer, but quickly jumped at the opportunity to transfer to the Italian Riviera. Working for NATO, Howard enjoyed alternating weeks of three and four 12-hour days. This allowed him plenty of time to tour the countryside. Another perk of the job was the ability to purchase gasoline coupons. This allowed traveling by car to be quite inexpensive.



Howard returned to the States in 1965 and went back to work for Douglas Aircraft Company as a jig builder. He was promoted to the position of Manufacturing and Engineering Tool Liaison. Lockheed Aircraft Corporation hired Howard in 1980 to work in Athens, Greece as an instructor to teach jig and fixture building. Returning to the States in 1981, Howard found that work was no

longer easy to get. He took a position with Douglas Aircraft as a "B" jig builder.

In 1982, Howard pursued an ad in the newspaper and secured a job with Northrop as a jig and fixture builder. He was transferred to Tooling Inspector in 1983 and worked in that capacity until his retirement in 1995.

Howard spent his retirement restoring vintage automobiles, building very complicated miniature engines, and attending model engineering exhibitions with our club. He was a regular at Vista every year, as well as the Little Machine Shop Open House. Howard was a very talented machinist with a wealth of experience. He was a wonderful person and always a pleasure to visit with. He will be missed.

I'd like to extend my thanks to Jim Long, Ron Gerlach, Jim Endsley, and John Miller for contributing the information and photographs contained in this article. Editor

Random Photos of Howard and His Projects...







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.