The NEMES Gazette

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The Newsletter of the New England Model Engineering Society
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Our next meeting is at 7:00 PM on Thursday 6-July-2000 (first Thursday of every month) at
The Charles River Museum of Industry
154 Moody Street
Waltham, Massachusetts

Annual dues of $20 covers from Jan to Jan. Please make checks payable to NEMES and send to our treasurer. (Address in letterhead).

This Months Contents

The President's Corner

By Ron Ginger

July Meeting

It has become a tradition to have the July meeting as a Poster Session, so that's what we will have on July 6. Just to refresh everyone's understanding, a poster session is kind of like a big guy's Science Fair. Everyone brings in something to show. It can be a simple part of something or a finished 'thing'. If the thing you are working on is too big to bring, then bring in plans or photos. A poster is NOT required, but several guys have made them and they were very interesting.

I always enjoy this program because we get to see so many interesting projects, and to talk to many of our members that just are not willing to stand in front of the entire group and talk. We will not have any formal speaker for this meeting, just a chance for everyone to look around, talk about their projects, and just enjoy the evening.

At the June meeting I mentioned an interest in nametags. The July meeting is a perfect example of the kind of meeting where these would be most valuable. When we started up a couple of years ago George Lagasse made up a set of nametags. Some of us used them for a while, but mostly they got lost. I think it would be a good idea if we all started to wear badges with our names on them, but this time, suppose we each make up a unique 'signature' badge? I'd like to throw it out as a bit of a challenge to everyone - let's see some interesting nametags you guys!

Museum

The Museum will be closed for the entire month of July to finish up the construction with a thorough cleaning and painting. We will still be able to hold our meeting on July 6, but the museum will not be open that month for regular visitors.

The museum workshop downstairs needs some reorganization. The goal is to have it neat and orderly, so it becomes part of the museum that visitors can wander through, with a poster by each machine, describing it and what it does and a sample of both the raw material and a finished product.

I propose that we help the museum out by making this a Club Project. Bob Neidorff and Jeff DelPapa have been meeting with Ed Mann, Karen LeBlanc, and others to formulate a working plan. The machine tools need to be repositioned and space found for orderly storage of small tools, keeping in mind that this is still going to be a working shop too. Once a plan has been drawn up, we would like to see massive club participation in ensuring that the project is completed by October, in time for the celebration of the Museum's 20th Anniversary.

Once the shop is organized, the way may be open for us to use it, one Saturday a month, say, for group instruction, like the informal session on knurling that took place in Rollie's shop the last time we had a swap meet there.

Annual Meeting

I'm sure you all know that we try to keep this group to a very low level of formality, but we do have just a couple items of business to attend to, and our Director at Large, Mike Boucher helps to keep us honest in our duties. So the June meeting saw the re-election of our standing slate of officers, and the formal election of our new treasurer, Rob McDougall. Thanks to all the officers for continuing to help us keep this group working.

Ron

NAMES 2000 Trip Report

By Ron Ginger

There are some guys that just never miss the chance to go to a Model Engineer Show. For the 10th year Roland Gaucher and I made the trek off to Detroit, accompanied by Norm Jones who has merely done this 7 years, and newcomer Dave Osier on his 3rd trip. A bit of a drive for me, as I got to Detroit by way of Tennessee and North Carolina, while Rollie, Norm and Dave drove directly to Detroit in just 12 hours.

On Friday morning we did the annual pilgrimage to Production Tool. This is a showroom bigger than your typical super market, with aisles of tools, right up to big CNC milling centers. We all found something we 'needed' here, but it all fit in to small bags, so little added weight went in to the already over loaded mini van.

We got to the arena before noon, and most of the tables were already taken. We found some space alongside Ray HasBrouck, dropped our boxes on the tables, hung up the NEMES sign, and headed out to the vendors to see where the best deals were. I didn't get a complete count of all the purchases, but we all found at least a few tools we just had to have.

There were two special areas this year. The Detroit Metalworking Club had a nice area set up as a production line. They had a few Sherline and Taig type machines and a couple old but small mills. They were set up to make Balloon powered engines. This was a simple oscillating cylinder engine on a pedestal, with a plastic tube to a balloon. They would run for several seconds on each 'blowup'. The exhibit was quite a hit with the crowd, to see something actually made. The plans for the engine were published in the show program, and I was told were on the Detroit Clubs web site.

Cardinal Engineering extended their vendor booth to hold a collection of home brew CNC machines. I took along my Grizzley mini mill and spent quite a bit of time demonstrating my software. There were also a couple Sherlines, and a commercial conversion of a Mill Drill. The NIST guys sent up their model hexapod but I don't think many people understood enough of what it was to appreciate it. We held a seminar for 2 hours and had quite a crowd.

The show was as usual great. My favorite models were:

Ron Colona's Offy engine. He blew the starter clutch on it the first day, so I didn't get to hear it, but it is a beautiful piece of machinery. We mentioned his book at a previous meeting, and I think it's a very well done book, well worth the $35.

George Luhrs had another of his "I don't believe it" small engines. This time a 4 cylinder, overhead valve Cirrus aircraft engine of 1/4" bore. He had one fully assembled, and one full set of parts on a beautiful display board. Some of the parts were so small they looked like dirt flecks on the display. He won the top prize in the Sherline contest with it. Bill Huxhold did not enter the contest this year, as he had been building a wood sailing ship model- of unbelievable quality, as you would expect.

I also liked the Ford Quadra cycle. This is a well-detailed model, but also not quite running yet. I didn't get the builders name. He said he was having trouble with ignition, but had just found a new coil at the show for which he had high hopes.

I asked a NAMES officer about the attendance and they thought it was just about the same as last year.

Oh, just for those that are wondering, I did NOT get a Henrob torch, and Norm didn't buy another casting set!

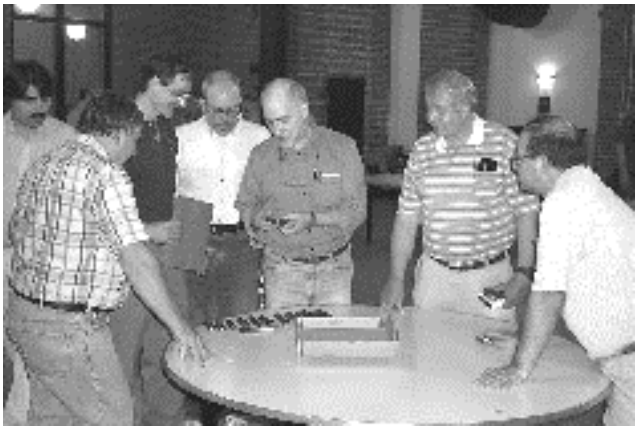
We managed a flat tire, a sprung door, and a chat with a NY state trooper just to make the travel interesting!

Ron

The Meeting

By Max ben-Aaron and Stephen C. Lovely

Here is one good reason why you should never miss a meeting. In the following photo you see a gaggle of our members around the table full of end mills that Bob Neidorff was giving away.



Bob Neidorff giving away end mills photo by Earle Rich

The venerable Ronald Ginger opened the meeting with a few announcements.

Our Secretary, Rob McDougall, was approached last meeting by someone who paid to become a member. Unfortunately Rob mislaid his name and address, so will the individual who approached him please get in touch with him again. If you think you might know this individual please tell Rob.

Rob also has a video of the Cabin Fever trip that members can borrow.

Keeper of the Bye-Laws, Michael Boucher, reminded the meeting that the Club constitution called for election of Club officials during the June meeting. The following slate was proposed and unanimously elected:

- President: Ron Ginger
- Secretary: Stephen Lovely
- VP: Steve Cushman
- Member-at-Large: Michael Boucher
- Treasurer: Rob McDougall

Kay Fisher, Gazette editor, is organizing a group purchase of the book and video on scraping. Larry Twaits has ordered one, and the project will be held in abeyance until he gets it.

Kay also started a debate on the virtues - or otherwise- of running a shaper with the motor direction reversed. A lively debate followed.

Rollie Gaucher entertained the meeting with reminiscences about lawn mowers with damaged crankshafts. His style is inimitable, but here is the gist of what he said:

"Whenever I was in need of a lawn mower I would go down to the dump and retrieve one that had been junked. Very often they started right up and were usable and the ones that didn't usually needed very little effort to make them go."

"Eventually, I decided that for once I would treat myself to a nice new one. The mechanics at the repair place recommended Hondas, so I bought the top-of-the-line model with hydraulic drive. First time out, in tall grass, I caught a rock and bent the crankshaft as well as the blade. Based on my past experience, I boldly decided that I could fix it myself in time to finish mowing the lawn that day."

"I took the crankshaft out and tried to straighten it in an arbor press, but it kept bending at the crankpin. Then it dawned on me: if the crankshaft were to be re-installed, the main bearings would provide a fixture for holding it. So I did it and turned a piece of steel to fit over the crankpin and fit into the end of a 'persuader' - a 10-foot pipe to provide leverage and control. To hold the mower, I clamped it to the 6 x 6's of my deck with 12" C-clamps."

"My brother provided the muscle at the end of the lever. While he applied the force, I tapped the shaft with a 16 lb sledgehammer and measured the deflection with a dial indicator. We worked it back and forth, making sure that we didn't go too far, until we had it within a thou. The mower ran like clockwork and I finished the lawn."

"My father once bought a Craftsman self-propelled mower from Sears. While mowing the blade caught a fishplate that was covering an artesian well and broke the crankpin clean off. He took the crankshaft out and turned a piece of steel to be an interference fit on the stub that was left. He put the crankshaft in the lathe and turned the 'new' crankpin to size."

When reassembled, the mower ran like new and he finished mowing the lawn with it. Sears later sent him a replacement crankshaft, which sat in its box for 15 years until it was eventually installed to replace the repaired one which had worn out."

On the topic of Sears Craftsman 'Lifetime Guarantee', Mike Boucher told the tale of a wrench from Sears auto shop, where he once worked. A mechanic wanted to test the strength of Sears Guarantee, so he took a brand-new wrench and stretched it in the frame stretcher. "It stretched considerably, but the name "Craftsman" was still readable. He gave it to me to take back. The salesman gave me a strange look, but threw it into the return bin and gave me a new one without a murmur."

Rollie: "I once ordered some bevel gears for a Sears bandsaw. When I went to pick them up, the counterman tried in vain to get a price on them. When he failed, he gave them to me for free! "No price means zero cost", he said."

Don Strang said that the Moore Tool Works has been taken over by a consortium of Connecticut businessmen. They now only make Jig Grinders. They still publish two books: "Foundations of Mechanical Accuracy" (about $100) and "Holes, Contours and Surfaces" (about $55). Larry Twaits just bought a copy of "Holes, Contours and Surfaces."

Don has long been interested in the origin of the letter series of drill bits. Finally, in Colvin and Stanley's 'Machinist's Handbook' he found that the Stubbs Iron Gauge was augmented by a Steel Gauge. The Stubbs Steel Gauge started with 'A', just larger than number 1 and went through to 'Z'. It turns out that, for tapping, almost all drills from 'F" through 'Z' are recommended at one time or another.

Many of us have seen the Nova show on trebuchets. It seems that they put a girl in a trebuchet and threw her. She was supposed to land on a trampoline. She fell out of the net and fractured her femur. Moral: don't volunteer to be trebuchet ammunition."

Lew Hills invited all members to the 10th Precision Steering Regatta (remotely controlled

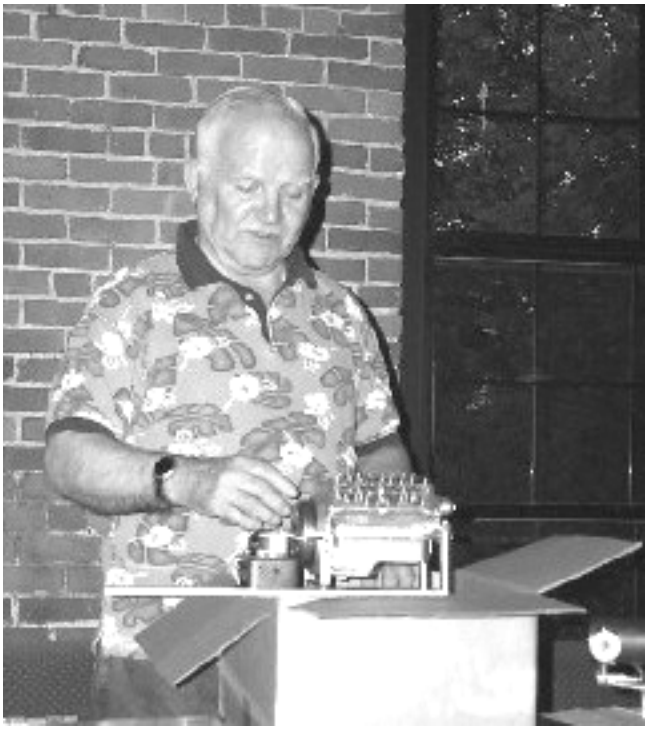
model boats) to be held in Medway.[Editors note: over by the time you read this] He also brought in a 1/4" scale screw and a 'plug' for Erickson's boat, which served as a gunboat in the Civil War.

John Wasser brought in a borescope that he picked up at the MIT flea market. Some of the fibers are broken, but the instrument is still usable. He once ordered a borescope from ENCO, but they were never able to deliver.

John also brought in some more lumps of the 'mystery metal'. Careful measurement (and analysis) shows that it has the density of tungsten.

Henry Szostek passed around a precision screwless milling vise that he bought from ENCO. "It was only $50, so I gambled." Made in India, it seems to be well made, hardened and ground all over. It claimed to be precise to .0002". Henry confirmed that it met specs.

Ed Rogers gave a talk about the 1/4 scale 1940 Ford Flathead V-8 motor that he is building. He has the real thing, which he disassembled and has for reference. He made a sketch of the engine on the back of a 1988 Cadillac calendar.



Ed Rodgers 1/4 scale flathead V8 photo by Earle Rich

He has not been able to get it to run yet, probably because the valve springs are too relaxed. He has found more suitable springs, but the valves guides have to be shaved by .005" for them to fit.

"I have a small horizontal miller, made in 1924 (so it is as old as I am) and an 11 1/2" South Bend lathe made in 1925. The 3-jaw chuck that came with the lathe had to be replaced. I got another one from SB when they still had a parts place in Woburn, but I had to make a custom back plate because of the strange thread on the spindle (1 5/8 by 13 tpi.)"

"Figuring that the crankshaft would be the hardest part to make, I started on that first. I carved it out of rolled round stock, and it turned out to be much easier than I thought it would be. I made a hollow 'bell' center for the tailstock and an off-center fixture that fitted in the 3-jaw chuck and had the right 'throw'."

The block was milled out of a block of aluminum. The cylinders are inclined at 90°, so it fit the block when tilted.

"I assumed that the valves would be parallel to the cylinders, but this was a mistake; the valves wouldn't seat. The valves are inclined at 92°. After I fixed this, the valves seated."

"The back end is partly circular, so it needed an interrupted cut for the valve housing and the flywheel cover. They were mounted in a 4-jaw chuck, counterbalanced. I used the same setup for the oil pan and the block. I line-bored the main bearings and then reamed them out with a reamer I borrowed."

"The camshaft was made from 3/8 round stock. I used the 3-jaw chuck with a fixture to hold the shaft with the appropriate eccentricity. I made the cams with the same profile as the lobes on a 4-stroke model airplane engine. There were 10 setups for each of the 16 lobes and a disk soldered onto the end."

"I have an old collet lathe that came out of a submarine. It has a wheel with 180 detents so it can be used for indexing. I also have a rotary

table, but it is too big to fit on any of my machines. I use it to help in laying out the cams."

"The secret of doing a job like this is to design jigs and fixtures to make the machining easy and tools to help in the assembly. I had to make miniatures of the kinds of tools that auto mechanics regularly use - a valve spring compressor, an oil pressure gauge, and a ring compressor."

"After I made the aluminum pistons and a tool to cut the grooves for the rings, and installed the pistons with the rings, I found that everything was too tight, so I took the rings out and lapped the pistons and the cylinders instead."

"The rings were made of cast iron. After turning you put the ring in a vice and rap it with a hammer so that it cracks cleanly across. Touch up the crack slightly with a points file. To give the rings spring, put them in a sealed crucible with a small piece of brown wrapping paper and heat red-hot."

The paper will scavenge the oxygen and when cool the rings will have the spring you need.

"The semicircle on the top of the con-rods was machined by mounting the small end on a pin and feeding by hand into a milling cutter."

"The cylinders are fitted with steel liners. The liners distorted slightly (chuck jaws) and had to be lapped. Each liner was screwed in with a 40-tpi thread at the bottom."

"I made a simple cardboard template to help spotting the locations of the holes for the valves."

"I used a tool post grinder to make the cam for the points. It needed 8 flats so I used a 24 tooth gear for the indexing, 3 teeth for each flat."

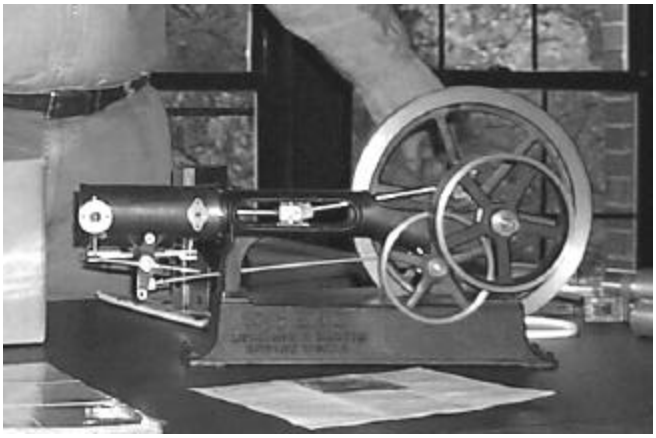
"For the timing gear I went to Boston Gear. They had just what I wanted."

"I used some 1940 vintage Champion plugs - V-3's, with a 1/4"-32 thread."

"The 1940 Ford flathead V-8 put out 85 HP. This model, at 1/4 scale will never put out 20 HP. I will be happy if it puts out enough power to run smoothly. "

When he finishes the Ford he plans to start the Offy engine from Ron Colona's book.

Then Norm Jones showed the Mery 6-cycle explosive engine he is building. He saw the engine at a show next to a running engine and loved the unique sound it made, so he bought a set of castings. The castings were done in 1994, and they were expensive so not many were sold. The book with the drawings is available separately from the casting set, and if you buy the castings later the money you paid for the book can be applied to the entire package.



Norms Mery **photo by Earle Rich**

The engine was patented in 1895. It is somewhat like a double-acting steam engine, in that explosions take place on both sides of the piston, but it is 6-cycle. It has intake valves that open in response to the pressure of the air against the vacuum in the cylinder that is caused by the piston going down. This seems like a pretty inefficient way to clear the cylinder, so it gets done twice before the final intake for the explosive stroke.

The original was about four horsepower and was used to pump water. It had a narrow escape, and was on the verge of being smashed up when an enthusiast who happened to be in the scrap yard at just the right time rescued it at the last minute. The engine used as the basis for the model is the only one known to have survived, and at some point in it's history was converted from igniters to spark plugs. As a result all the existing models have spark plug ignition. Norm is planning on using igniters in his, and also to put a

functioning governor on it. Both of these things will be firsts for the model, but he wants his model to be as close to the original engine as possible.

Norm started out with the body. It was too big to swing on his 9" South Bend, so he built a fixture (out of aluminum jig-plate) that enabled the casting to be bolted to the saddle, replacing the compound. The fabrication of the fixture took more time than anything else. He happened to have a length of ledloy bar, just the right length to make a boring bar.

The fixture turned out to have many uses: Angled, bolted to a vertical plate, it allowed all the necessary operations to be performed on the casting.

The cylinder is sleeved. The sleeve is made from a chunk of cast iron. It was turned to a 2 thou interference fit and frozen in liquid nitrogen. When inserted, it got stuck before it was all the way in. Fortunately, it could be extracted and the operation was tried again with an interference fit of 1/2 thou and the body heated.

The fuel is natural gas and the engine fires at both ends, and has 2 purge cycles. The cycle is:

Induction -- compression -- power -- exhaust -- purge in -- purge out.

Norm will make the points for the igniters out of "meteor metal" which is a high nickel alloy that he has had good success with in the past when making points for his models.

Norm made extensive use of laps when making the engine, which is not quite complete at this point. To lap the bore he made an aluminum lap. He put the lap in the 4-jaw chuck and the casting in the saddle fixture he made to hold it during the lapping. The crank he machined from the solid, as he doesn't care for built up cranks. When he got close to the final dimensions it started to chatter, so he used laps to take off the last thou or so on the crank journals. He also made an aluminum lap that goes between centers on his lathe that he used to clean up several of the holes in the casting and the center of the flywheel.

The flywheel was too big for his 9" South Bend, so he went over to John Rex's shop and used John's 17" lathe to do the flywheel so that it would look more like an engine when he brought it in to the meeting. He brought it to the NAMES show in Michigan in April and was on the bench next to a completed version of the same engine.

The castings cost $490, and so far they've kept him busy for two winters. He saw a bunch of other nice casting sets in Detroit, but they had 11 ½" flywheels that were too big for his lathe so he managed to resist them.

After the meeting adjourned, there was a group in the parking lot that gathered around Stephen Lovely's "new" Potter and Johnston 16" shaper. At an estimated 2000 or so pounds it was too big to bring inside for show and tell.

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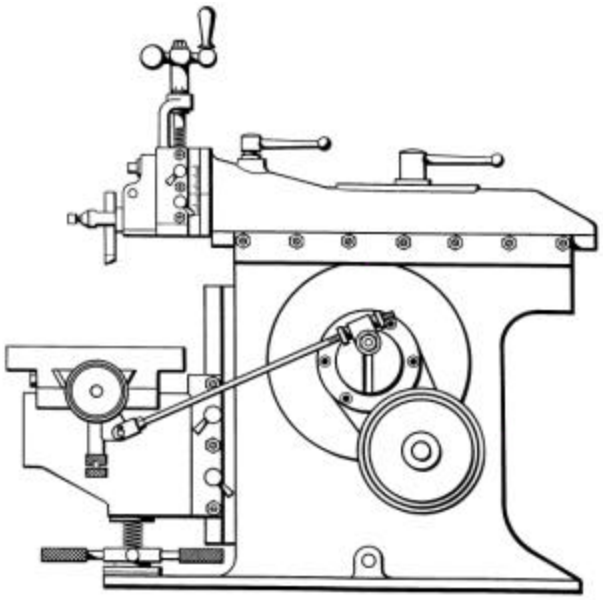


Metal Shapers

By Kay R. Fisher

We have a shaper story of acquisition by Rob McDougall our treasurer and now fellow shaper enthusiast. Take it away, Rob.

Diamonds in the Rough – Part 1

By Rob McDougall

Having been enthralled with Rudy Kouhoupt's description of how he uses his shaper and the example of a virtually chromed flat surface that he produced with it at the "Rudy Workshop" I knew I just had to get one some day. Steve put my plea for assistance in the newsletter and with 140 or so crazy metal nuts running around the country side, there was a good chance that someone would know of one of those extinct unwanted shapers lying around.

I remember back in the 80s there were ads for shapers in the Want Ads all the time - people couldn't give them away. In fact, my friend Cal Guiry was asked to "take this to the dump for me" by an acquaintance and low and behold, ended up with a nice Atlas shaper. That was the 80s. Now in the 90s with the advent of eBay, it seems even shapers have found renewed value. They sell real quick and range in price from $90 to $900.00.

Well, at the very next NEMES meeting, Crazy Metal Nut Henry Szostek comes up to me and says: "Hey Rob, I think I know of a dusty old South Bend 7 inch Shaper decaying away in a friends barn. Do you want me to check if it is still there?" Can you imagine anything more musical to one's ears? This is like hearing about that 30-year-old Mustang or Corvette that the proverbial little old lady only used once a week to go to the shop to buy her groceries.

Apparently some years earlier Henry's friend Mr. Clapp passed away and his daughter asked Henry if he would be interested in buying the shaper. Henry, already being fully Crazed With Metal of gargantuan proportions, had no use for a little motorized file. He called me to say the shaper was still rusting away in the old barn but most of it appeared to be there - was I still interested. You bet! Now the following moral dilemma faced Henry and me. Mrs. Clapp (the daughter) referred to the machine in the barn as "the lathe" and asked Henry how much it would be worth. Henry asked me what I would pay for it. Oh no! The owner does not know what it is nor what it is worth. I could offer her $5.00 or $500.00 and she would be none the wiser. And, I have not even seen the referred to rust bucket. I put my complete faith and trust in Henry and said: "I'll sell my mother's son into slavery for eternity to pry the prized piece off her - damn the torpedoes - let's get it". Henry suggested we may not have to go that far in our opening volley of negotiating tactics and let's try offering her $300 and see if she takes the bait.

I waited anxiously for 2 days by the telephone until Henry called back to say, can you believe it, that: "Mrs. Clapp accepted the offer and when would I like to pick it up?" "How about tonight or tomorrow morning, or even tomorrow lunch time if the other times don't work for you Henry." I replied. Again, Henry's God-like voice of reason calmed me down and we agreed the following Saturday morning at 10:00 am would work fine.

At 5 minutes to 10:00 I arrive at Henry's doorstep and off we go to Mrs. Clapp's barn a few streets away. The barn is an old horse and carriage type from the 1800s with slider front door and all sorts of air gaps in the sides. Old Mr. Clapp was not a machinist - he appeared to be more of a part time boat builder. Neither Henry nor I could figure out why he would have had a metal shaper. Anyway, there it was! Sitting on the wood bench alone - most of the rest of the barn was full of various pieces of junk, withering away under the elements.

To most people the shaper was also one of those pieces of junk, but I saw a "diamond in the rough" sitting there. I must admit, it was more withered and tired looking than I had expected. It was real dusty. The primary v-belt was gone. The motor was jammed solid. Surface rust was on every piece of exposed metal. I did not dare try to turn any of the ball handles. It was hard to tell the condition of the paint, as the whole machine was basically one color of brown. No sign of oil anywhere either which I took to be a bad sign. No tool holders or wrenches laying about the barn that we could find either. It was basically a Little Brown Thing piled up in the corner with all the other brown things. However, the moon and the stars were perfectly aligned and in the heat of the moment I quickly transacted business with Mrs. Clapp as she tried to muscle her two dogs from

humping my leg. Why do I always seem to attract those kinds of dogs?

South Bend Shaper - "Before" photo by Rob McDougall

We loaded up the heavy piece of junk into my trusty truck, loosely secured it from rattling around in the tray, and off to the pub to celebrate my new found treasured plunder. (Well, it was after midday by now.) I park in my backyard and back up to the basement door. First trick is to get the shaper into the workshop. It weighs at least over 100 lbs. I decide to disassemble it on the tailgate. Looking at it again in the clear light of day I wonder if I have bought a lemon. Just to see how crazy this Crazy Metal Nut is I get a rag and some WD40 and start rubbing on one of the ball handles. Low and behold, like a genie emerging from the bottle, I start to see my reflection emerging from the mirror shine.

A rag and some WD40 photo by Rob McDougall

I rub another place on the table. Again a shiny surface appears. What's going on here? A couple of more sprays and rubs and guess what, old Mr. Clapp must have sprayed the whole machine with some sort of rust inhibitor coating. Under all the dust and brown stuff is indeed a diamond waiting to be polished. Oh joy of joy!

South Bend Shaper – "After" photo by Rob McDougall

Next issue I'll describe the stripping and rebuilding of the shaper...

Rob

Work Bench Storage

By Bill Brackett

Recently, after rearranging my shop, I decided to add a new workbench with storage for the ever-growing number of tools and accessories. It only took a year to out grow a homemade Gerstner type tool chest so I needed to design and build one with more capacity.

Need more drawers? **photo by Bill Brackett**

The top part of the new workbench is a solid flush door that I had scrounged somewhere. The legs are 4x4 with 2x4 bracing bolted around the top and middle. To form the drawer cavities I used 4 2x6s mounted vertically connected by 2x4s top and bottom, front and back. The drawers are standard dovetail construction made with ¾ pine and mounted on drawer glides from the MIT flea market. The drawers, as show below, have a 1-1/2" deep tray mounted on wood runners on the inside. The trays are designed to hold small flat things such as pencils, scales etc. and can be slid to the back to access the full draw underneath.

Lower Drawers have tray **photo by Bill Brackett**

A piece of plywood was placed on the 2x4s that surround the legs in the middle to form a shelf for more storage.

The top storage cabinet consists of four sections, a row of 19" drawers, a row of 9-¼" drawers, two rows of open shelves and an open top. The cabinet is 9" deep with a plywood back. Each section is 4" high and the drawers in each section are 2" + 2" or 1 ½" + 1 ¼" + 1 ¼".

The drawing on page 15 shows the over all dimensions but none of the details for the joints or the drawers. These are fairly standard and are laid out in the shop, not in the drawing.

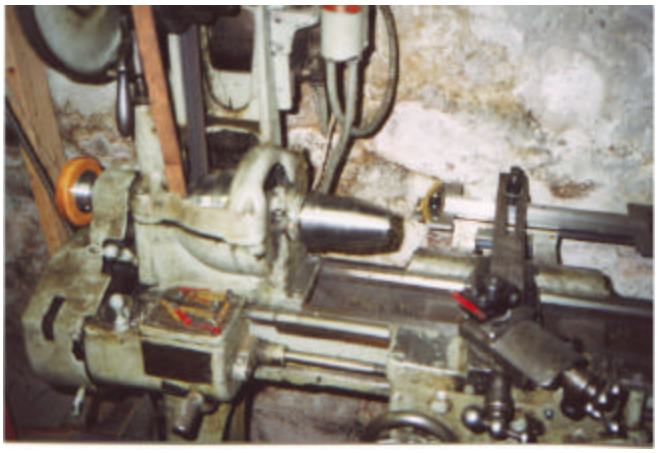
If anyone is interested in more detail, a shop visit is always welcome.

Bill

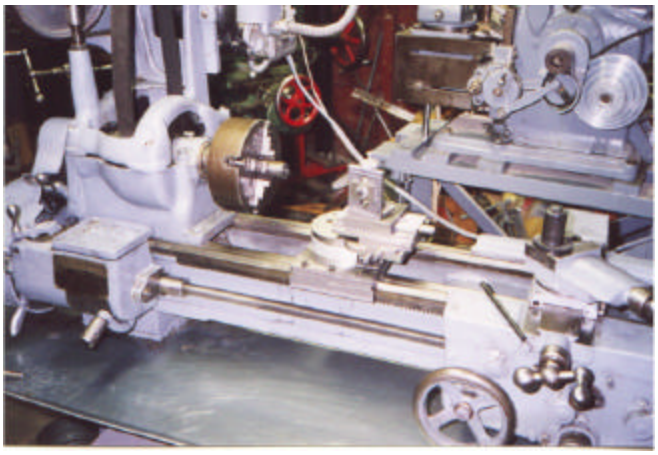
Sheldon Lathe Improvement Project

By Steve Cushman

This article is a description of my latest improvement project relative to my 10" Sheldon lathe.



Sheldon Lathe - "Before" **photo by Steve Cushman**



Sheldon Lathe - "After" **photo by Steve Cushman**

I'd originally had two objectives: (1) to improve the appearance of the lathe, and (2) to reduce the mess around the lathe. I figured I could get this done in about a month. At this juncture, there has been quite a bit of deviance from these objectives, the project has been going for about four months and seems to have taken on a life of its own - sometimes I think maybe it should be titled "The project from hell".

The lathe is a 1942 Sheldon 10x24 LWQ series lathe. It is a traditional stand type lathe with the electric motor drive mounted above the headstock. I've owned the lathe for about 20 years. According to Sheldon, the Philadelphia Navy Yard originally purchased it. I bought it from someone who had inherited it from his grandfather and have no idea of what happened to the lathe between 1942 and the mid 1970's.

I believe that the factory paint was black, but that a poor quality coat of pea soup green was later applied. This paint sort of annoyed me, but did not really motivate me to do anything about it. However, each time I took pictures of some accessory on the lathe and brought them to one of our shows, the poor paint quality really bothered me in the photographs. After the last show, I decided that I just had to paint the lathe and make it look better.

I have also long wanted a chip pan for the lathe and decided to address this at the same time. I had a sheet metal shop bend up a pan out of 16 gauge galvanized steel. The pan is about 22" wide by 50" long and 1.5" deep. The edges are turned up at 45 degrees and rolled over neatly. I have gas and stick welding equipment and left to my own devices, I would have brazed the corners. However, a friend of mine wanted to show me how well his high end Miller MIG welder worked with sheet metal so we welded the corners and it did a fine job more quickly than I could have brazed them.

I determined that there should be 2.5" clearance between the bed and the pan, and made up riser blocks out of aluminum to go between the pan and the lathe. For quite a while, I wondered if the increased height would make operation of the lathe less comfortable, but eventually found it would be as comfortable or possibly more comfortable. The presence of the riser blocks necessitated replacing the 1" 3/8-nc cap screws which fastened the legs to the lathe with 4" 3/8-nc studs, washers, and nuts. Getting the lathe, pan and legs assembled together was an interesting juggling project involving two people and a bunch of blocking. I sealed the bottom edges of the riser blocks to the pan with silicone to guard against coolant leakage.

I also decided to put a pipe thread drain in the pan in case I ever decide to use more sophisticated cooling techniques. I purchased a 3/4 ipt galvanized iron floor flange. It happens to be made in China and the floor side was anything but flat. After cleaning this up with a fly cutter, I also wondered if it was really galvanized or just had a coat of aluminum paint. Anyhow, this was fastened to the pan with a gasket between them to guard against leakage. This probably represents the point at which things stopped going according to plan.

In proceeding to paint, the next step was to remove the motor and the belt drive assembly. The motor had always seemed to have an awful lot of flex in large loops around it, an overload protection device connected by flex and bolted to the legs and more flex running to the plug. I thought it should be possible to clean this up and attach the overload protector to the motor case. The first thing I found was that all the insulation on the leads within the flex had degraded to the point that it was very surprising that there had been no short circuits. Of course, none of the leads were color-coded and the labels indicating proper connections in both the motor and drum switch were illegible. The motor is a heavy 1/2 hp unit made by K&C. K&C turns out to represent Kingston and Conley, who I think have disappeared into motor making history. It seems a well-made motor using nice SKF ball bearings (although I'm sure this is the first time since 1942 that the well-hidden oil cover screws have been out). However, unlike newer motors with their single point of connection, the connections come out through the housing at several places

explaining why a lot of the flex was present. Quite a bit of effort along with some angle connectors cleaned this up and got the motor looking good and running well with safe wiring.

All of the easily removable non-precision parts (legs, covers, brackets, etc) were pressure washed and chemically stripped. I have been in the habit of leveling lathes using machinists' jacks and a precision level, then grouting the legs at the desired height. While this lathe was apart, I decided to tap the existing holes in the leg pads for jackscrews to make further leveling easier. As the holes were slightly larger than 1/2", they were tapped 5/8 nc. The paint was removed from the rest of the lathe by a combination of scraping and wire brushing.

Unfortunately, when I got into the quick-change box, I discovered that the shafts were pretty sloppy in some of the outboard bearings. These were plain bearing surfaces bored in the cast iron case. I decided to bore them out and press in bronze bushings, as well as remake some of the shafts. The shafts that were in the lathe are not just like the drawings in the Sheldon parts list and may have been remade previously. In any case, a good amount of unexpected effort took place in these tasks. I also decided to purchase a concentricity gauge. Even though this is an expensive accessory, it sure makes this kind of mill setup much easier.

The quick-change gear train consists of a two speed followed by a three speed followed by a ten speed. I also found that the inner gear of the two speed was held on by a bolt with a crudely ground head running through a worn bushing. The head was ground to reduce interference with the outer gear, although it did not succeed. I replaced the bushing and made a post with a thin head similar to the drawing in the Sheldon parts list.

It turned out to also be necessary to bore and bush the outboard lead screw support and then fool around with (more technical term: precisely adjust) the corner shims under the quick-change box to get it lined up properly. While I was going through all this, I also replaced most of the hard to use ball oilers with cup oilers as well as added a few extra oilers in problem areas. I always like to err on the side of over lubrication rather than under lubrication. I also went through the effort of making extension tubes and mounting blocks to relocate some of the hard to reach oilers somewhere easier to access.

In the course of all this, each part got primed and painted after any other required work was completed. For a long time, I have been using smoke gray Rustoleum to paint machinery. It is available in both bulk and spray cans, seems to work fairly well and touches up well. It has never (until now) caused me any trouble. All through this work, I was plagued with spots that took forever to dry and in some cases needed to be cleaned off and repainted from bare metal. This problem did not seem to be associated with anything I could identify from surface prep to paint lot. Perhaps it had to do with widely varying humidity conditions during painting.

In any case, the work is almost done now. The lathe looks great; possibly better than it did when new. The power feed and quick-change box are now in like new condition and all other issues (like the cross feed screw and nut) had previously been addressed. The only additional thing I want to do now is arrange something so that the end cover can be swung back easily to clean and lubricate the gear train, rather than the current cumbersome mechanism of unbolting it and lifting it off. I wonder how many other side tasks will turn up during this "small" additional job?

Treasurer's Report

By Rob McDougall

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As of 5/31/00

Balance Forward	$3,403.14
Dues Received	100.00
Less:	

Newsletter Expense	199.56
Current Balance	$3,303.58

Note: Maintenance of the official membership database now resides with the Treasurer. Please notify Rob McDougall of any updates in your contact information.

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Rob

Group Purchase

The scraper book and video purchase (see last months Gazette for details) had 10 people sign up. It probably won't be a done deal when you read this so if you still want in send me email or call.

Kay

Errol Groff On The Mend

At the open shop a couple of weekends back I mentioned that I was waiting for a surgical schedule to have a triple bypass performed BEFORE I had a heart attack.

On Friday May 19th I had a miserable day at school (partly the kids partly me). I no sooner walked into the house when my cardiologist called to ask how I was feeling and silly me I told him. Next thing I know I was in the ER at the hospital in New London and I spent the next three days under observation. I was taken by ambulance on Monday to St. Francis in Hartford and had the surgery on Tuesday AM. The surgery was textbook but the next forty-eight hours were one pulmonary crisis after another.

Things finally stabilized and I was released home on Memorial Day. If I had a worst enemy I wouldn't wish this procedure on him!

I am now 14 days post op and feeling up and down. But the trend is generally in the positive direction.

I hope to make it to the Orange show in a few weeks and will keep an eye out for other NEMES'ers. I won't be cleared to drive yet but my son has agreed to spend the day with the old man and walk around a dusty field in the sun and to catch me if I start to fall over.

Best regards, Errol Groff

[Editors note: Errol's address is 180 Middle Rd, Preston, CT 06365-8206 in case you would like to send him suggestions on articles he can write for the Gazette since he'll have some time on his hands]

Calendar of Events

By Bill Brackett

July 1-2, Boothbay RR, Boothbay, ME
Call: 207-633-4727

July 6, 2000 Thur 7pm, Nemes Club Meeting
Charles River Museum Of Industry
Waltham, MA. (781) 893-5410

July 7-9, Maine Antique Tractor-Summer Festival
Windsor, ME; Call: Lynn Vernon (207) 564-7001

July 9, Pepperell Show
Town Field Near Rotary On Rt. 111
Pepperell, MA; Kim Spalding (978) 433-5540

July 9 Owls Head
The Fabulous '50s & Sensational '60s Auto Meet

July 14-16, Bangor, PA Show
Jacktown Community Center, Bangor, PA
Call: (610) 588-7466

July 15-16, Plymouth Notch Show
President Calvin Coolidge St. Historic Site VT
Call: Pat Warren (802) 723-5472

July 15-16, Eastern CT Antique Auto Show
Norwich Regional High School-Norwich, CT
Call: Dick Babbit (860) 376-0863

July 21-22, Sebago Days
Sebago Elementary School
Intersection Rt. 114 & 11, East Sebago, ME
Call: Ted Greene (207) 787-2424

July 22–23, Owls Head
Trucks, Tractors & Commercial Vehicles

July 29-30, Eliot Tractor; Eliot, ME
Call: David Raitt (207) 748-1046

July 29-30, Model Submarine Regatta
US Sub Base, New London CT
(Registration and proof of car insurance needed to get on base)

Aug 3, 2000 Thur 7pm, NEMES Club Meeting
Charles River Museum Of Industry
Waltham, MA (781) 893-5410

Aug. 5-6, Scribner's Mill Show
Sebago-Long Lake Region Near Harrison, ME
Call (207) 583-6455

AUG. 5-6, 26th Anniversary Transportation & Aerobatic Spectacular
Owls Head, ME (207) 594-4418

Aug. 10-13, Pageant Of Steam
Canandaigua, NY
Call: Gary Love (716) 394-8102

Aug. 11-13, Cumberland Valley Show
Twin Bridges Campground, Chambersburg, PA
John Bricker (717) 263-5588

Aug. 12-13, Straw Hollow Show
Boylston, MA Call: J.A. Resseguie (508)869-2089

Aug 16-19, Rough & Tumble
Kinzers, PA Call: 717-442-4249

August 19 Owls Head
23rd New England Auto Auction

Aug 19-20, Mystic CT
Antique Marine Engine Show
Geo King (860) 572-0711 X5956

Aug. 26-27, CT River Antique Collectors Club
Rt. 5 At Old Ely Store, Ely, VT
Call: Douglas Driscoll (802) 333-3243

To add an event, please send a brief description, time, place and a contact person to call for further information to Bill Brackett at wbracket@ultranet.com or (508) 393-6290

Bill

Web Sites of Interest

Michael Morgan's Scraper site

www.machinerepair.com/scrapingbook.html

Ron Ginger's home page

www.plsntcov.8m.com

Ray Hasbrouck

www.hasbrouck.8m.com

Jeff DelPapa's "Scrap Heap Challenge" crew

www.the-nerds.org/NERDS

Scrap Heap Challenge official web site

www.channel4.com/scrapheap

American version (Junkyard Wars)

www.junkyard-wars.com

Kay

From the Editors Desk

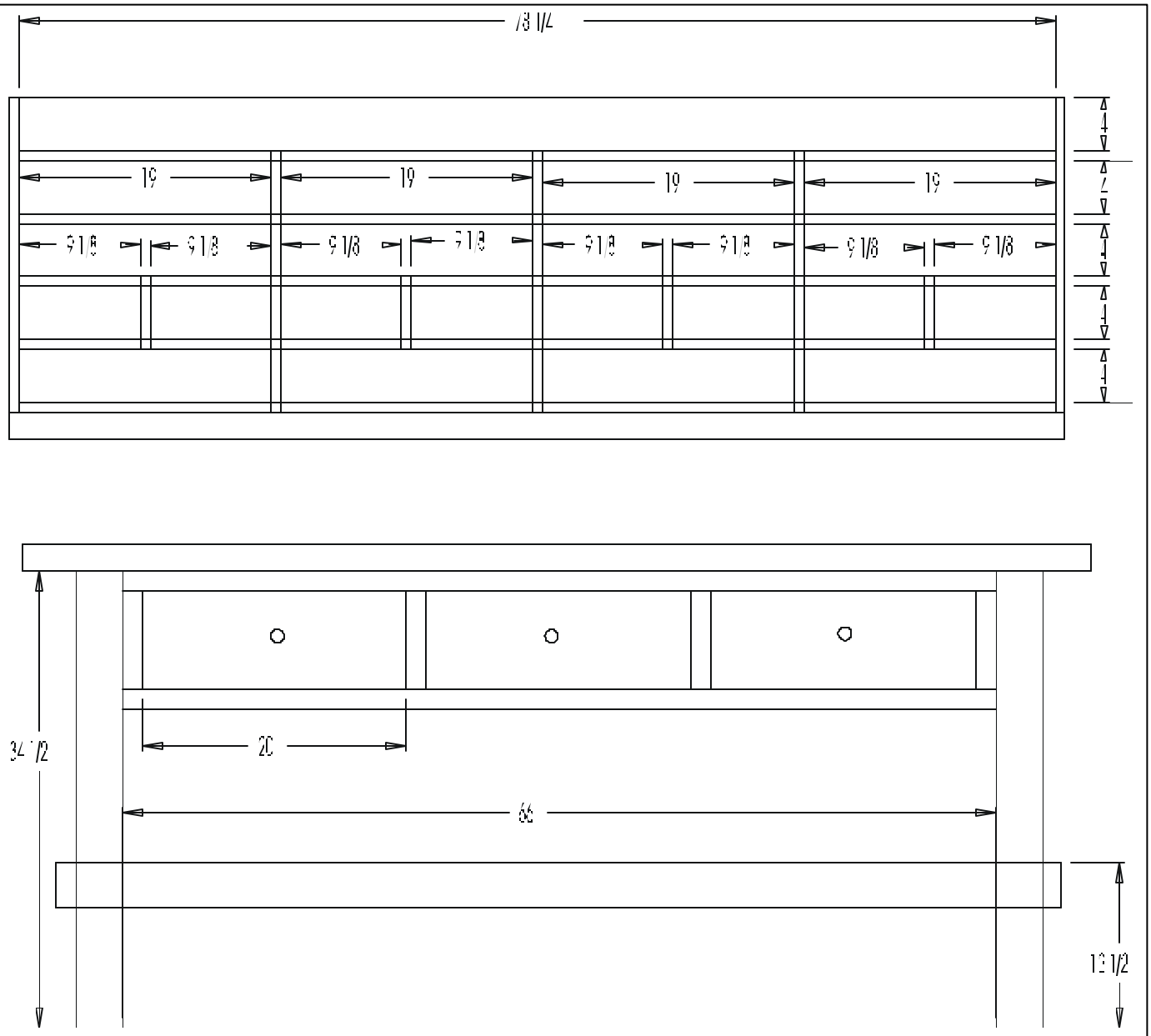
Kay R. Fisher

The color pages were kind of fun for me but if we are to keep up the use of color our newsletter expenses will go up quite a bit. This month they were relatively cheap because we were able to trade off money for labor. In this case Bob Neidorff volunteered to print all the color pages by hand on his own printer. Thus our cost was only for paper and replacement cartridges for his use. If we were to send them to out current copier the cost would go from 4 cents a page to 85 cents a page. That is single sided. Now whereas 81 cents a page doesn't seem so much we are printing around 170 newsletters this month and we have two color pages so our copy costs alone would increase by $254.

So let's all thank Bob for all the extra work of baby-sitting his printer then hand installing one double-sided color page into 170 newsletters.

In the future I hope to have more pictures but I plan to stick to Black and White as much as possible. After all most metal looks equally good in black and white. So I would like to encourage all you folks who are restoring machinery to repaint in gray!

Future newsletters need your input. Why not write something up and send it to me? Thanks in advance.



Workbench Drawing by Bill Brackett

The NEMES Gazette
Newsletter of The New England Model Engineering Society
c/o Rob McDougall (Treasurer)
357 Crescent Street
Waltham, MA 02154