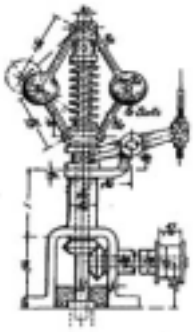
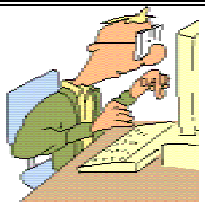


The NEMES Gazette

NEW ENGLAND MODEL ENGINEERING SOCIETY INC.

Vol. 08 No. 086 June 2003



Editor's Desk

Mike Boucher

Hi folks,

The saga of setting up my shop continues. As you may remember from last month, I was planning on building a dividing wall in the basement.

How many times have we heard "Measure Twice, Cut Once"? I'm reminded of the old joke, "I've cut this piece twice and its still too short!" I had the opposite problem, I measured correctly, the piece was too long, but it was too late to cut it shorter...

On a rainy Saturday afternoon, I framed the wall. I measured the distance between the floor and the floor joists, subtracted about a 3 1/4" (a 2x4 stud is really 1 1/2" thick, and that's what I used for the top and bottom plate, plus a little clearance), and then cut all the studs to that length. I cleared the floor of the shop, laid everything out, and nailed everything together. Bingo, one 22' long wall, nicely framed, lying on the floor of the shop.

Next step was to install some sheetrock on the stair side. I wanted

Continued on Page 2

Next Meeting

Thursday, June 5, 2003

7:00 PM. Meetings held at:
Charles River Museum of Industry
154 Moody Street
Waltham, Massachusetts

Membership Info

Annual dues of $25 for the calendar year.

Please make checks payable to NEMES and send to our treasurer.

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Addresses are in the left column.

Contents

to do it before raising the wall as I didn't feel like trying to slide sheetrock between the stairs and the wall frame, nor did I want to work around the stairs trying to screw the drywall to the studs. Quickly, I had three sheets attached to the wall.

I taped and sanded the joints and the screw holes, so I had a reasonably finished wall. It still needed some minor filling and sanding, but I could do that after the wall was up.

Then came the time to stand the wall up. A neighbor came over and the two of us lifted the wall. We got it almost all the way up and then: "thud", the lovely sound of the wall hitting the overhead floor joists. Somehow I made the wall too tall, and, with the sheetrock on, it won't easily disassemble to shorten it. We put the wall back down and I had to figure out what to do from there.

Maybe the advice I should have been listening to was "test fit early and often".

The only solution was to trim the top plate so it would fit. With the help of a friend, we stood the wall up, marked where it hit (about 4 feet from one end), and laid the wall back down. Using the circular saw, I cut short slots in the top plate, and then I used a chisel to remove some of the wood. We repeated this until the wall fit, which took about 5 or 6 cycles.

I wound up chiseling about 1/2" off the top plate, for a distance of about 4 feet, about 4 feet from one end of the wall. I also damaged the drywall slightly, taking a small chunk out, right at a seam.

Definitely this was a frustrating experience. What was more frustrating is that while I had to remove that much wood in one place, the end I measured fit just right, and the other end of the wall needed to be shimmed almost an inch. I'm just glad this isn't a weight bearing wall!

As a friend once said, "experience is what you get when you don't get what you want". Next time I build a wall, I now know a few things to NOT do.

But, as I write this, the wall is vertical instead of horizontal, which is progress. It's screwed into the floor joists at the top, but I still have to borrow a hammer drill from my neighbor and secure the bottom plate, and start working on electrical wiring.

C'y*a*
Mike

President's Corner

Norm Jones

The Meeting

Our speaker for the June meeting will be our own Dick Boucher. Dick's topic will be: "How on Earth Do You Locate This!" Anyone who has ever machined a rough casting knows that some preliminary strategizing is in order before making that first cut. Dick will enlighten us into the various techniques that he utilizes. I am certain that this talk will be very beneficial to the beginner as well as those with experience.

Thanks to Henry

I would like to express my thanks to Henry Szostek for doing a presentation on "Heat Treating of steel" at the May meeting. Henry "stepped up to the plate" and filled in for me on very short notice when I found out that our intended speaker was not available on that evening.

Dunstable Antique Machinery Show

The organization supported the Dunstable show with a very impressive display of "hardware" on May 4th. That particular show just happens to be where a number of us first met each other. Once again this type of venue allows us to meet others with similar interests. Quite a number of our brochures were passed out, and hopefully we will realize a few new members from it. Thanks to Ed Rogers, Frank Stauffer, Dick and Bea Boucher, and Mike Boucher for coming out. I think it's safe to say that we all had a great time.

Topics of Interest

I would like to encourage everyone to think about topics that the membership might like to consider for topics at future meetings. A number of you have come forward with suggestions as well as potential speakers. Thanks very much. We have a tremendous amount of diverse knowledge within the organization. I would like to begin to establish a list of potential topics and speakers at the June meeting.

Election

Remember that June is election month. Come on out and vote!

See you on June 5th

Norm

The Meeting

Max ben-Aaron

The meeting was opened by Venerable President Norm Jones at the Museum.

The security measures we have instituted seem to be working. Doors to the Museum are closed when the meeting starts and the only way out is through the back, until the meeting is over.

Norm usually goes to the first flea market of the year at MIT. There is no way of predicting what one can find at any flea market, but he felt that this one was lacking in the mechanical stuff that we all look for. He brought a bunch of flyers to our last meeting, but when it came time to bring some to the MIT flea market, they were all gone. Norm had to shell out an extra dollar to make more copies. The flea market was mostly computer related items this time. Quite a number of our members were there, with one (Dave Robie) as a vendor.

Norm gave a quick report on his trip to the NAMES show in Detroit. As usual, he went with Ron Ginger, Rollie Gaucher and Dave Osier. Ron's brother Ken is a CAD teacher and has a couple of Sherline based CNC systems that allow his students to actually make parts. The CNC lathe required a bit of maintenance so they spent some time working to get it back "on line". They usually make a trip to "Production Tool" during this time slot, however this proved to be an enjoyable activity as well.

Jim Paquette's open house is Saturday May 10th, from 9:00 AM until 2:00 PM; at 114 High Street in Uxbridge. Come early to get the best deals.

[Editor's Note: It came and went.]

We are coming up on the Dunstable show, which kicks off the season. Norm goes to a lot of shows during the summer, usually setting up a canopy and a table. Other NEMES members are welcome to come and join him with a display. I like to inspire the young people.

Last year he set up a Hero's Fountain, which makes an excellent "quick and dirty" item to exhibit. This version of Hero's Fountain was found on the web. There are many plans available. This one uses a couple of 1 gallon milk jugs, two rubber stoppers, a couple of lengths of 3/16" brass tubing and some plastic tubing. It's easy to build and kids really get a kick out of it.

Eastec is coming up soon. It is too late to register by snail mail but not too late for e-mail. Norm hasn't been lately; but used to go to get whatever free samples were offered, such as tapping fluid or drill bits.

Show & Tell

Bill Schoppe, inspired by last month's talk on portable sundials, passed around a portable sundial, complete with compass. Bill said it had originally been given to President George H. W. Bush (the senior President Bush), who gave it to an employee, who gave it to a friend, who gave it to a friend... and it eventually ended up with Bill.

Earle Rich showed a bottle rocket launcher built it from plans in HSM. The rockets are plastic 2 liter pop bottles. This was a fun project that was intended to entertain the kids attending family gatherings. Pop bottles can withstand over 200 PSI, but he used 100 PSI and a long trip cord to keep the experiments safe and to maintain a constant pressure. They made various nose cones, lower skirts, and vanes and tried different amounts of water to see how changes would affect the flight and altitude. Another pop bottle, cut down, can be used to provide a nose-cone.

This project is a great way to teach empirical science techniques. What it too much water? Why didn't it go as high? Taping two bottles together: why didn't the tape hold? What was the total force? Hint: the area ($pressure \times \pi \times r^2 = 3300PSI$). Pumping it up

with a bicycle pump gives them a real demonstration of the energy contained in compressed air.

All in all, it was a very successful project. It was amusing to see that everyone who came over to inspect the launcher had an immediate grin on their face. We have a lot of little boys inside those men.

With reference to Earle's bottle rocket, Dave Stickler noted that Earle said that it worked best at about 25% - 35% water fill. Dave used to assign that calculation as a homework problem when he taught the rocket propulsion course at MIT, and the ideal optimum is about 40%. So, the empirical result is right on, considering some of the assumptions made to simplify the calculation.

Dave also showed a fly-tying vise he made, based on plans in 'Projects in Metal', to replace a ratty old one that he had been using. The vise clamps to a table and features a rotating arm to enable rotating the fly to simplify winding thread or material around the hook shank, or to orient the fly for access. While it is very effective, it definitely does not automate the process.

Walter Winship brought in a very peculiar little artifact that looked like the mouth of a lamprey. It had curved teeth reminiscent of a hollow crown gear and a spring-loaded ring at its base. Nobody had any idea what it is or what its purpose was.

Fred Widmer announced that he will be at the Museum a couple of Saturdays a month, but exactly which ones cannot be announced very far in advance. It depends on the schedule of one other person who will be in charge of the Museum when Fred is not. This arrangement should allow some members who work during the week to participate in shop activities.

Fred also announced a possible tour of the arsenal at Watervliet, N.Y. Details have not been finalized yet.

Mike Boucher, wearing his NEMES Constitutional Secretary hat, announced that our annual election of Club officers must take place at the June meeting, as specified by the Articles of Incorporation. There is some doubt as to whether we have to report annually to the Mass. Secretary of State.

Harvey Noel showed a model of the "Silver Angel" hit and miss gas engine that he is in the process of building. The "Silver Angel is built using bar stock from a set of Bob Shore's plans. Turning was done on a Sherline and 10" Atlas Lathe. He was able to use his shaper to machine the cooling grooves in the cylinder head.

Dick Boucher passed around a set of three milling machine tools: a drill chuck, boring head and fly cutter mounted in a wooden block which sets neatly on the table beside the milling machine. They all were fitted with straight 1/2" straight shanks about one inch long. This makes for quick and easy interchangeability in the milling machine spindle by reducing the need to change collets between tooling. The shanks (from Jacobs) were originally quite long. Dick cuts them approximately in half, right at the black band in the middle of the shank, to reduce the distance the table has to be raised and lowered to change between any of the tools, whether is be an edge finder in the drill chuck, an end mill, or the boring head.

Errol Groff told of an inspiring book-on-tape: Since he has a 40 or so minute drive to and from school, he has taken to listening to books on tape. Makes the time and miles go by pretty quickly.

Errol's wife has been laid up with foot surgery. Her Filipino nurse recommended a book to her, titled *Ghost Soldiers, so* his wife asked Errol to order it. The book is the tale of the rescue of about 500 POWs by U.S. Army Rangers, survivors of the Battan Death March and three years of captivity in the hands of the Japanese. Errol's wife's nurse was born the night before the invasion of the Philippines and lived the first few months of her life hidden in caves.

The ordeal that those heroes went through is beyond belief and makes me very thankful for the freedom we enjoy through their sacrifice. This newsletter is read by folks from around the world and since among the prisoners were British, Norwegians and a many other nationalities I won't make the mistake of forgetting their courage and sacrifice also.

He finished it on Thursday while driving to Waltham for the NEMES meeting. To quote him, "let me tell you fellows, it is tough to drive on the Mass Pike trying to maintain 65 mph with tears running down your cheeks". This is an excellent read (or listen) and highly recommended.

Heat Treating

Our May speaker was club member Henry Szostek who talked about heat treating.

Henry started by discussing the two crystalline structures to be found in pure iron - body centered cubic and face-centered cubic crystals. The iron ceases to be magnetic at the transition point between these two crystalline structures.

Pure iron cannot be hardened except by adding carbon to the outside surface (case hardening). The addition of carbon to an iron melt is what produces steel, which can be hardened if there is enough carbon in solution. The addition of other alloying elements, manganese, molybdenum, vanadium and so on, complicate the heat treatment process. Free-machining steel, which contains lead, is usually low-carbon, so it must be case hardened.

Heat treating is an art which shades over into science. If the exact composition of the steel is known and a proper protocol is set up and adhered to, alloy and tool steels can be reliably and consistently hardened. An important consideration for the hardening protocol is the amount of time the part spends in the carbon-rich atmosphere. The longer you soak it (soak in the heat source, that is), the more carbon gets absorbed, and larger crystals form.

Crystal size is a very important, The idea is to have fine grain structure, which tends to be stronger. One way to produce hardened steel with finer crystals is to add a minute amount of chromium. This, of course, is not possible during hardening, but selecting a steel alloy with chromium will produce a better result.

Henry illustrated the problem of over-heating an item with an anecdote about his first attempt a heat treating. He tried to harden a knife-blade by putting it into a coal furnace for several hours. When he took it out and then tried to bend it, the blade promptly shattered. It was about as strong as dried spaghetti. The grains were about the size of grains of rice, which is much too large.

Most home workshop tools that need to be hardened are made of O-1, D-2 or A-2 steel. O-1 is oil-hardening steel. A-2 is air-hardening steel (no quench needed). For oil and water-quenched steel, the procedure is to heat the steel up till it ceases to be magnetic and then quench in the appropriate medium. Do not overheat or keep in the forge or furnace for too long.

The steel should be file-hard after quenching, but it will be brittle unless tempered. You temper the steel by slowly heating it to a different temperature. The Machinery's Handbook will give the appropriate tempering temperatures, depending on the end use of the tool.

Aluminum castings can be tempered, but that is a specialist's job. Heat treatment of copper, brass and bronze is usually done to anneal the metal after it is work hardened.

Max

Dunstable Engine Show

Dick Boucher, with photos by Bill Brackett

The first Sunday in May is the time for the annual gas engine show in Dunstable Massachusetts. The show is jointly sponsored by the New Hampshire Power of the Past antique engine club and the Dunstable Historical Society. It is held in a field surrounding a little red schoolhouse, complete with bell tower.

As the sun rises, the exhibitors begin to fill the field with a collection of old machinery and tools and general old iron things that one used to be considered modern appliances. There are the beautiful red, green and blue farm tractors that have been lovingly restored by their owners. The red are the Farmall family, the green are the John Deeres, and the blue is a Fordson Major diesel powered tractor. Also present was a gray “as found” McCormick Deering diesel tractor belted up to a corn grinder, grinding corn into meal. If you happened to pick up a bag of the meal, you’ll find that it makes fabulous corn muffins.

There were also all manner of old cars from Model A’s to a nice LaSalle. Old trucks were there too, a chain drive Model T dump truck and an Autocar with a beautiful graphic of a Denver and Rio Grand locomotive on the hood. There was even a motor home built on a Cadillac Hearse chassis.

After you get a coffee and donut from the historical society folks you walk a little further and Bill Shoppe is there with his collection of plumb bobs and old model airplane engines spread in front of his motor home. His wife, Cindy, busies herself in conversation with other exhibitor's wives while continually knitting. Over the years she must have knitted enough mittens and such to cover the field in just her handiwork.

Bill Shoppe, his plumb bobs, and some of Cindy's mittens
Bill Brackett Photo

Continuing around the field there are numerous "make and break" and "hit and miss" engines singing their chorus of sound as they perform merrily in their retirement. This one used to power a cement mixer, this one a cordwood saw, and over there is one that pumped water all its working life.

Down along the edge of the field is Bill Lopoulos, who will repair and recharge the magneto on your old engine to give it the spark of life again.

A little further on is a trailer load of rusty old Gravely tractors that are just begging for one of the mechanical masters to bring them home and lovingly restore them to their former glory. A funny thing about old Gravelys is that one tire is always inflated and the other is flat. Always. Over there is a coal ash separator that was used to remove any unburned coal from the ashes from the furnace. Next, a big five-horsepower engine in the middle of the field breaks into life and heads turn to watch the engine blowing perfect smoke rings on the occasional power stroke.

Finally, you find Norm Jones and the rest of the fellows from the NEMES club along with models of various types of engines happily running on the tables: engines from Ed Roger's side-shaft one lunger to Frank Stauffer's hot air pumping engine making its inaugural appearance. Mike Boucher and his father also had a table with their shop projects.

Frank Stauffer and his hot air engine **Bill Brackett Photo**

Across from them, Jim Paquette set up his version of the Tool Shed with many fine tools of interest to the mechanics and machinists that frequent such a venue. Jim also had several steam engines from his collection on display. It seems that every time one would look up there was Bill Brackett making sure that we had a good photo record of the event for the newsletter. Did he catch us all chowing down on the hamburgers, also from the Historical Society?

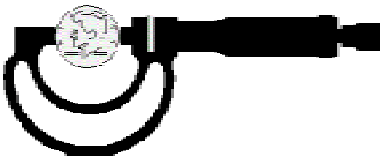
Jim Paquette waiting for a customer **Bill Brackett photo**

Overhead during the day we get a parade of old tail-dragger airplanes that are not actually part of the show but add an additional item of interest About midday we were treated to the sound of a radial aircraft engine in an AT-6 flying a stunt pattern.

As Norm promised, the show breaks up early in the afternoon, so around one o'clock by Bill Shoppe's pocket sundial we all started to head home. If you have never attended an antique engine show watch the calendar of events in the newsletter and try to make it to one of the shows listed there.

See you in a hay field somewhere down the road. Oh, and if you think you might want to bring any of the treasures offered home, bring cash. They don't accept Visa there...

Dick



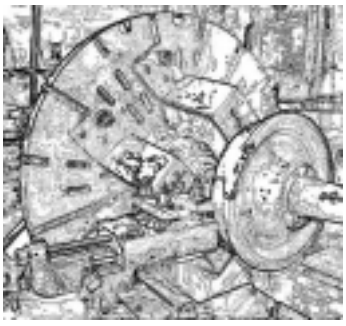
Treasurer's Report

Rob McDougall

As of 4/3/03

Balance as of: 3/31/03	**$7,866.17**
Dues Received for 2003	50.00
Interest Income	0.93
Less	
Gazette expense	-196.23
Honorarium for Speaker	-50.00
Ladies Auxiliary Appreciation Awards	-350.00
Balance as of 4/30/03	**$7,370.87**

Rob



Shop Hints

Compiled by
Mike Boucher

High Speed Bridgeport Head.

By Bob Beecroft

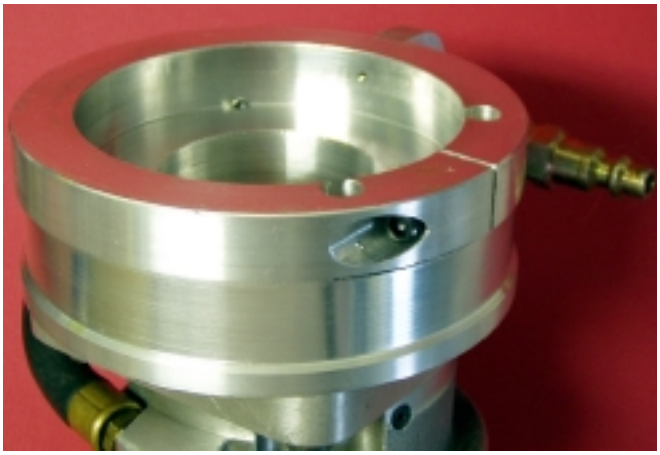
Imagine having 40 to 60,000 RPM at your fingertips!

I'm just starting to use a new-to-me, high RPM tool on my Bridgeport 9X42 milling machine. It's a Moore Jig Grinding Head. With some of the engine work I do with model airplane engines, I thought I could make good use of high RPM capability.

The Moore Jig Grinding Head is air driven and very high speed. The one I bought is rated for 40 to 60,000 RPM. Moore manufactures grinding heads that turn as high as 175,000 (yes, *one hundred seventy-five thousand*) RPM.

Moore Jig Grinding Head **Bob Beecroft photo**

I built a simple adapter to mount it on the quill of the Bridgeport, for use with small milling cutters, vs. the grinding application it's designed to do. I clamped a 90° ball-valve and quick-connector to the front of the adapter. The ball-valve close at hand is a good feature as I don't want to be reaching around this thing, for the obvious safety reasons.



Bridgeport Adapter. **Bob Beecroft photo**

It really works great, was simple to do, relatively inexpensive and most satisfying to use.

I build and fly competition free flight model airplanes, and do a bit of engine and other work related to the hobby. A part I've conjured up to stop the engine at the required time allotted in free flight competition borrows from others, and adds a bit of a new dimension to the norm. In making the parts, I found it difficult and time consuming to do a required 1/16 wide slot of about 9/16 length. The slot needs to go clear through a piece of 3/16 6061-T6. It took quite a number of passes with a little 2-flute HSS cutter, even with the Bridgeport running at double speed on a VFD (about 5500 RPM).

The first test for the head was at a bit below its 40K lower rating. (This Moore Jig Grinder head is rated to run at 30-100 pounds). I set the air pressure at 40 psi at the compressor and then dragged 25' of hose across the shop to the Bridgeport. I didn't measure the pressure at the machine, but it was certainly under 40 psi, more than likely it was under 30 psi. At this lowered pressure, it ran at 36,000 rpm. I used an optical tachometer I usually use to check engine RPM on the models. I simply put a couple of black marks on the collet, put a good light on it, and took a reading.

I have a regulator and water & oil trap about 4' away from the machine. It is necessary to have a good, *dry* air supply to ensure long life for the grinding head.

The heads are lubricated for life, and require no line oiling. It even says on the top of the machine: "Sealed Lubrication. Return to Moore Special Tool Co for Adjustment and Repairs".

Top of Moore Jig Grinding Head **Bob Beecroft photo**

My little air compressor, rated for 4 cubic feet per minute at 40 psi, can't keep up with the 60K head I have…I can't imagine how much air the 175K head uses. A new compressor rated on the order of 18 CFM (free air) at 90 psi is the next big ticket item for the shop, that is if I don't get served with divorce papers over shop stuff first!

Even at 36,000 RPM, that little 1/16" two-flute HSS cutter goes through side to side in two clean passes. The cut is far cleaner than before, and took just a few seconds – with no apparent stress to the cutter. The air passing through the head serves to clear the chips – a nice, unexpected side benefit. The 1/16" slot guides and traps a .047" music wire hairpin spring that pinches off the fuel supply when a timer releases the spring. It need not be so wide, so the next run of this part I will try some even smaller milling cutters. With an additional 20,000 RPM+ on tap, smaller cutters should be a breeze.

I found this Moore Jig Grinding Head on eBay. I paid $375, and was probably fortunate to get a *good* one at that price. Just a simple, new Moore *collet* is $300, and I thought Hardinge 5C's were expensive new at about $40 a pop! Certainly the grinding heads are *really, really* expensive. They do have a Web site: (http://www.mooretool.com/), but these things are SO expensive they don't give the price, one has to ask for a quote.

This adaptation works wonderfully, but should you choose to do similarly, be very certain you get a good, smooth running head, and have return privileges.

Bob
Fallbrook, CA
NFFSflyer@adelphia.net

Indicator Repair

Bob Beecroft also sent along this note about a company which repairs indicators:

I've not used these people, but it comes highly recommended by a very good and trusted friend, another 'Bob' in Connecticut. Should the 'gang' at NEMES not be aware of their services, I'm confident they'll be happy with the service from these folks.

"I had an old Alina indicator that I bought in the 60's. One of the best I ever had, pre-loaded ball bearings with absolutely no backlash. Anyway the crystal popped off and probably got lost in the chips. I didn't realize it until the chips were thrown out. I searched the net for an outfit that repairs indicators and found the web site from these people. It's very informative.

I know you will enjoy reading some of the things they have to say about indicators. But the reason I'm telling you this is that they don't rip you off. In fact I got an incredible bargain from them. Before I shipped it, I made an attempt to clean the dial. Some of the graduations faded a little from the cleaner, but were still usable. In addition the point was removed for shipping. When I got it back, I found that they had *replaced the dial, screwed in another point, and replaced the crystal*, all for $15.00 postage paid. These guys deserve a little word of mouth endorsement.

Long Island Indicator Service Inc.
14 Sarah Drive, Hauppauge, NY 11788
1 631 265 9357 (phone)
1 631 265 7449 (fax)
http://www.longislandindicator.com/

Bob
Fallbrook, CA
NFFSflyer@adelphia.net

[Editor's Note: I visited the web site, and there is a LOT of information on indicators. There's a listing of manufactures, notes on the quality from each, and also info on if these can usually be repaired. There was also a lot of stuff I didn't check out. It might be worth a visit if you're looking for info on your dial indicator.]

For Sale

Band Saw

16" Walker Turner band saw, for cutting wood. $200. Wayne Singer, Ware, MA. (413) 967-5725

Wanted: Model Engineer Magazine Articles

If you have these issues of the Model Engineer Magazine, I would very much appreciate a copy of these articles.

1. "The Eureka, A Continuous Form-Relieving Tool for Gear Cutting", Prof. D. H. Chaddock and Ivan Law, February 1987.
2. "Simple Form-Relieved Milling Cutters" D. J. Unwin, Commencing August 1970.

Thank you in advance for any help on this project.

James Lea, Clockmaker
PO Box 25
Rockport Maine 04856
clocks@midcoast.com

Shaper Work CD

Put out in 1944 by the New York State education Department this 326 page manual is chock full of valuable tips and information on using the King of Machine tools....The Shaper. Covered is everything you need to know about the care and feeding of the shaper, use of the shaper, even how to sharpen tools for the shaper. Scanned and saved in Adobe Acrobat format. $5.00 shipping included.

Errol Groff
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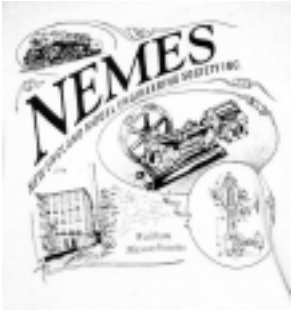
errol.groff@snet.net



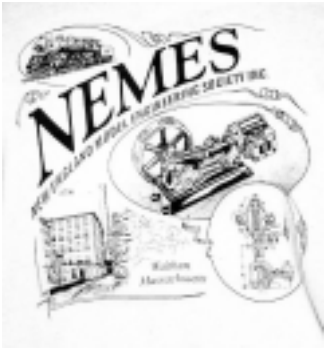
NEMES clothing

NEMES Tee Shirts

NEMES tee shirts are available in sizes from S to XXXL. These are gray short sleeve shirt, Hanes 50-50. You won't shrink this shirt! Artwork by Richard Sabol, printed on front and back.

Xtra-Large tee shirts are now ***OUT OF STOCK!*** If you're interested, let us know so we can judge if/when to reorder. All other sizes still available.

Artwork:



Rear

Front

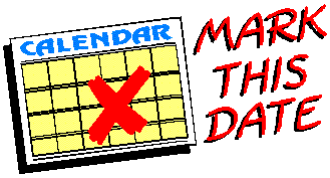
Prices:

S - L $12.00
XXL $14.00
XXXL $15.00

Add $5 shipping and handling for the first shirt, $1 for each additional shirt shipped to the same address

Profits go to the club treasury.

Mike Boucher
10 May's Field Rd
Lunenburg, MA 01462-1263
Mdbouch@hotmail.com



Upcoming Events

Bill Brackett

Thanks to Jim Paquette, Dave Robie and Richard Sabol for the show schedules they sent me.

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@rcn.com or (508) 393-6290.

June 5 - NEMES Monthly club meeting

7PM - Charles River Museum of Industry, Waltham, MA (781) 893-5410

June 6-8 - Cranberry Flywheelers show

Edaville RR. Rochester Rd off Rt 58, South Carver, MA. Dave Moore (508) 697-5445

June 7-8 – GSG&SEA West Campton Show

Dave Dearborn's, Rt 3, W. Campton, NH. (603) 726-3257

June 7-8 - MAPA show at fairgrounds

Skowhegan, ME. Joe Kelly (207) 862-2074

June 7-8 - Green Mountain Flywheelers

Rt 119 Hinsdale, NH. Doug Wood (802) 254-6758

June 8 - Rod & Custom Auto Show

Owls Head Transportation Museum, Owls Head, ME

June 14-15 - Town park tractor pull and show

Rt 202 Granby, MA. George Randall (413) 467-2524

June 15 - Bill VanBrocklin Memorial Meet

Waushakum Live Steamers, Holliston, MA. Mike Boucher (978) 345-7741

June 15 - MIT Flea Market

9AM-2PM Vassar St. Cambridge, MA. http://web.mit.edu/w1mx/www/swapfest.html

June 28-29 - Central Mass gas and steam show

Orange, MA. Dave Songer (978) 544-5295

June 28 - New England Antique & Classic Motorcycle Auction
Owls Head Transportation Museum, Owls Head, ME

July 3 - NEMES Monthly club meeting
7PM - Charles River Museum of Industry, Waltham, MA (781) 893-5410

July 5-6 - Boothbay Railway Village
Boothbay ME, Robert Ryan (207) 633-4727

July 5–6 - The Fabulous '50s & '60s Weekend Meet
Owls Head Transportation Museum, Owls Head, ME

July 13 – Pepperell, MA show
Town field, Rt 111, Pepperell, MA. Kim Spaulding (978) 433-5540

July 18-20 - Cranberry Flywheeler's swap Meet
Shurtleff's Old Mill Lot on East St. Middleboro, MA. Dave Robie (781) 335-5322 for directions

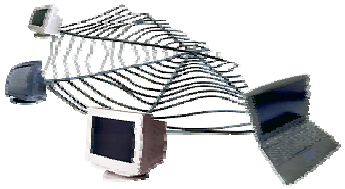
July 20 - MIT Flea Market
9AM-2PM Vassar St. Cambridge MA.
http://web.mit.edu/w1mx/www/swapfest.html

July 26-27 - Raitt Homestead Farm show
Rt. 103 Eliot, ME. Lisa Raitt (207) 748-3303

July 26–27 - Trucks, Tractors & Commercial Vehicles
Owls Head Transportation Museum, Owls Head, ME

Aug 2-3 - Scribner's Mill Show
Harrison, ME John Hatch (207) 563-6455

Bill



Web Sites of Interest

NAMES Photos
Abby Logan, (Scott Logan's daughter) took a lot of photos at NAMES, and Scott put them on the web at:

http://loganact.com/names/photos/index.htm

Model Engineering Thread Data
Here's information about various thread forms, including model engineering threads, UNF and UNC, BA. Interestingly enough, the first one shown is Whitworth! Also here are diagrams and definitions of terms.

http://members.lycos.co.uk/Livesteam/mewdata.htm

Raw thread data
Here's data on an ungodly number of threads, including some I've never heard of, presented in spreadsheet format. It seems like a good number of these threads are used in watchmaking. (Waltham, Elgin, Swiss Screw)

http://www.iw63.freeserve.co.uk/thread.html

"The Brazing Book Online"
This page is best described by a quote from the home page: "This book contains a significant amount of information on the process of brazing. It was created by Handy & Harman to assist both the novice brazer and the seasoned engineer." ... "However, the purpose of this book remains the same: to expand the applications of brazing by relaying the many advantages of it as a metal-joining method -- while being quite candid about its limitations. "

Lots of fantastic info.

http://www.handyharmancanada.com/TheBrazingBook/bbook.htm

D. W. Brooks' Hero's Fountain
This page shows how to make your own Hero's Fountain from soda bottles and cork stoppers, and explains the science behind it.

http://chemmovies.unl.edu/chemistry/beckerdemos/BD013.html

Long Island Indicator Service

This site has A LOT of information on indicators. There's a listing of manufacturers, notes on the quality from each, and also info on if these can usually be repaired. There was also a lot of stuff I didn't check out. It might be worth a visit if you're looking for info on your dial indicator

http://www.longislandindicator.com/

Watervliet Arsenal

http://www.wva.army.mil/

If you thought you had a bad day...