

# The NEMES Gazette

NEW ENGLAND MODEL ENGINEERING SOCIETY INC.

Vol. 08 No. 085

May 2003

© 2003 NEMES

## Gazette Staff

Editor Mike Boucher  
 Publisher Bob Neidorff  
 Events Editor Bill Brackett  
 Meeting Notes Max ben-Aaron

## NEMES officers

President Norm Jones  
 Vice Pres. Steve Cushman  
 Treasurer Rob McDougall  
 Secretary  
 Director Mike Boucher

## NEMES web site

[www.NewEnglandModelEngineeringSociety.org](http://www.NewEnglandModelEngineeringSociety.org)

## Contact Addresses

Mike Boucher, Editor  
 10 Mays Field Rd  
 Lunenburg, MA 01462-1263  
[Mdbouch@hotmail.com](mailto:Mdbouch@hotmail.com)

Norm Jones, President  
 28 Locust Rd,  
 Chelmsford, MA 01824  
 (978) 256-9268

Rob McDougall, Treasurer  
 357 Crescent Street  
 Waltham, MA 02453  
[RCMcDougall@attbi.com](mailto:RCMcDougall@attbi.com)

Bob Neidorff, Publisher  
 39 Stowell Road  
 Bedford, NH 03110  
[Neidorff@TI.com](mailto:Neidorff@TI.com)

Bill Brackett, Event Editor  
 29 East Main St  
 Northborough MA 01532  
[wbracket@rcn.com](mailto:wbracket@rcn.com)



## Editor's Desk

Mike Boucher

Hi folks,

As I write this, it's almost 80 degrees out, my window is open, the birds are singing, my taxes are mailed, and the spring peepers are the loudest I've heard in a long time. Of course, living in Waltham for the previous 8 years or so, I didn't hear ANY peepers... It looks like Spring is here, or at least close enough to taste it. And that means that the "workshop" season is ending and the "engine show" season is beginning.

For me, it was a rather unproductive workshop season. Having moved late last summer, and having gotten married in November, most of my time was occupied with either the house or my bride. So, since my shop isn't set up at all, I haven't cut any metal this winter.

I recently got my lathe leveled, using a Starrett level I borrowed from Howard Gorin (Thanks Howard!). I still don't have the wiring done, so there's an extension cord running across the basement floor to the ONE outlet the electrician put in the basement.

Continued on Page 2

## Next Meeting

Thursday, May 1, 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.

Missing a Gazette? Send mail or email to our publisher.

Addresses are in the left column.

## Contents

Editor's Desk .....	1
President's Corner .....	2
The Meeting.....	3
Museum Shop Update .....	5
Treasurer's Report .....	7
Paquette Open House .....	7
OPEN HOUSE .....	7
Shop Hints .....	8
Letters to the Editor .....	9
For Sale.....	9
NEMES clothing .....	10
Upcoming Events .....	10
Web Sites of Interest.....	11
Eastec Registration .....	11

I have purchased the raw material to put a dividing wall in the basement, one side will be the shop, the other is supposed to be the electric train layout, but we'll see when I get to that.

Another purpose of this dividing wall is to keep the dust and dirt that gets kicked off the basement steps away from the workbench. Right now, my granite surface plate has a layer of dust and dog hair on it from sitting too close to the basement steps.

The third reason to put in a dividing wall is to have a place for electric outlets on that side of the shop, other than the ceiling.

What I am trying to figure out is what material I want to use to cover the studs on that wall. For the side facing the stairs, I'm using sheetrock, to give the stairwell a finished look. The side facing the shop is still undetermined. Sheetrock would give it a nice look, but seems like overkill, especially with the other three walls are bare concrete. I have some sections of pegboard, but those don't seem terribly useful for machinist's tools, and shelving would still need to be attached to studs. Particle-board or plywood would work, but would be more expensive than sheetrock. It's looking more and more like sheetrock, but I need to build the wall and install the electric wiring before I worry about that.

Keep tuned for more updates on the new shop construction. Hopefully by the next "workshop" season I'll have the shop finished and ready to go. But for now, it'll be occasional evenings or rainy days when I get to work on it!

On another note, thank you for all the nice comments about the new front-page format. Everyone seems to like it. There is one additional minor change this month, and that's the addition of Max ben-Aaron to the "Gazette Staff". Max does a great job taking notes at all the meetings, and deserves a lot of the thanks for the quality of the Gazette. I apologize for not having him mentioned in the masthead earlier.

By the way, I *STILL* don't know who our secretary is. Anyone want to admit to it???

C'ya  
Mike



## ***President's Corner***

Norm Jones

### ***May Meeting***

Our guest speaker for May will be Rick Balzer. Rick will discuss many facets of the art and skill of tower clockmaking and restoration. Rick was originally scheduled to speak at our March meeting, however we were forced to cancel that meeting due to inclement weather.

With vast experience in the art of restoration of original timepieces, Rick is able to combine the very best of the old technology with some new engineering and material improvements, and incorporate them into his designs. His personal and professional goal is to produce high-quality, weight-driven, pendulum-regulated mechanical timepieces.

Since all Balzer clocks are manufactured to order, the owner can choose the inscription, town, corporate or personal name to be permanently cast into the iron plates. By their very nature and purpose, the imposing Balzer clocks draw attention to the building in which they are located and historically, without exception, become a landmark in the area.

As standard manufacture components, all of Balzer's large timepieces have the double three legged gravity escapement with Brazilian agate pallets, temperature compensated Invar pendulum, stainless steel shafts and pinions, and brass wheels contained within a free standing framework of class 40 cast iron and steel.

Hopefully, Mother Nature will cooperate this time around. The temperature outside is yet again below freezing as I am composing this column!

### ***NAMES show in Detroit***

One of my favorite activities occurs each year at this time. I have had the distinct pleasure of joining with Ron Ginger, Rollie Gaucher, and on occasion Henry Szostek or Dave Osier on a most enjoyable trip to the Detroit area to attend the NAMES show. This year marks the 11th year that we will have made the trip together. This trip affords us the opportunity to get together with old friends, discuss current projects and the chance

to hunt for new “treasure” to bring home. There is always much to talk about during the ride out and back.

### ***Outdoor Show Season***

As many of you are aware, I attend a great many of the antique machinery shows throughout the northeast as an exhibitor. My display has changed in recent years from full size machinery to models. Many of you have stopped by to say hello. Let me invite you to share my table space and “shade” to set up a display and join in on the fun. No need to commit for an entire day. Give it a try, you will find that there are many people out there who are very much interested in what we do.

See you on May 1st

*Norm*



### ***The Meeting***

Max ben-Aaron

Venerable President Norm Jones opened the meeting by welcoming an old friend, and new member, John Luzzoni, who has just joined NEMES.

Up till this winter we have never had to cancel a meeting because of inclement weather. This year it happened twice. We always used to say that we would cancel if Northeast University cancels its evening classes. This is the first time that system has been tried, and it looks like the system works. Both meetings were to have been clock-related. Coincidence?

Our show was a success once again. Thanks to all who helped to make it happen. Special thanks to our Ladies Auxiliary who were superb as usual, especially: Gail, Cindy, Sue, Leslie, Patti, and Bea for taking care of refreshments. Steve Cushman did a great job soliciting donations for door prizes from Brothers Machine, New England Brass &

Tool, The Tool Shed Waltham, The Tool Shed Worcester. NEMES members Richard Sabol, Harvey Noel, Todd Cahill, Leon Schiff, and Jeff Del Papa also donated prizes. Thanks also to Maria Cushman for ably taking care of the registration of exhibitors for prize drawings and to Bill Lopoulos for providing the air manifold and compressor to run steam engine models.

There are a lot of volunteer opportunities at the Museum on Thursday mornings that members should be more aware of. Fred Widmer is point of contact with the museum. Max ben-Aaron and Bill Brackett have been actively supporting this endeavor and they have lately been joined by Bradley Ross and Finbarr Murphy.

There is a little “bridge” between the Museum and entrance to the internet area. It is intended that display cases will be built to fit into the niches there by late June. One of the goals is to have a rotating display of models built by NEMES members. A model would be on display for a few months, and then be replaced by another model. If any members have a model they would be willing to display for a few months, let us know so we can start work on planning the displays.

New security procedures have been put in place on a trial basis. Access to museum will be denied during the meeting and members must enter and exit through the rear door during the meeting. Museum access will be re-established after the meeting is over. If this system works, it will become standard procedure.

Norm told a story about him changing the oil in his cars. For years he used a loose stack of 2 x 10's on top of each other in a staircase configuration and just drove up on them to do an oil change. After a while, he decided to nail them together to make a permanent ramp, rather than set up the stack every time. He found the friction between the bottom of the ramp and the driveway changed and could not drive up on them with a rear wheel drive vehicle. It would throw the planks backwards with great force. The solution to this problem is to extend the “bottom” board out to the point that the wheel exerts a sufficient downward force before negotiating the next board. Then all is well!

Upcoming activities are the MIT Flea Market on April 20th, the Detroit Model Show and Jim Paquette's Open House on May 10.

## ***Show & tell***

Dave Robie has a 4" edger that he is offering for sale.

Dick Jones has generously donated a copy of the Nevil Shute classic "Trustee from the Toolroom" to our library.

A member showed a sample of "Ethafoam", a successor to Styrofoam, with superior characteristics. Anybody know who supplies this material?

## ***"Savvy Travelers and their Sundials"***

Our speaker last month, Professor Sara Schechner, is the curator of the Scientific Instruments Collection at Harvard University. For her talk on "Savvy Travelers and their Sundials" she used slides of some of the portable sundials in Harvard's collection, one of the world's greatest collections with 20,000 instruments, 6,500 books, manuals and archival notes. Many of the instruments are the original ones used in research and expeditions. The oldest actual scientific instrument is an astrolabe, made in Paris about 1400 CE.

Harvard University is currently renovating their science center, and when completed, the collection will be moved into new quarters. This will include a much larger public exhibit space. It would be interesting to see the collection of more than 50 model steam engines dating from the 19th Century, as well as the antique instruments.

Animals almost always regulate their lives and activities using internal clocks. One of the things that sets man apart is the use of external timing devices. When just the difference between light and dark became insufficient, he observed that the apparent motion of the sun in the sky marked finer time divisions. A hunter could travel outward as long as the sun rose, but he had to start retracing his steps as it began its descent to the west. By about 3500 years ago, the Egyptians began using the earliest known sundials.

A well-calibrated sundial is capable of considerable precision. Sundials were in constant use even during the 18th Century, and well into the 19th, coequal with clocks. In the period considered, from the 1500's to the late 1700's, travel was very difficult. Roads were poor, bandits and brigands were ubiquitous, carriages and coaches were expensive and the major modes of transportation on land were foot and

horse. In those days, a trip, even from the Museum to Boston and back, would have been an arduous, all day journey, even with very little time spent in Boston itself.

Until the early Renaissance, most people in Europe rarely traveled any great distance from the places where they were born. Apart from pilgrimages along well-traveled routes, perhaps only merchants and a few adventurers traveled very far. Those that did, though, tended to make use of portable sundials to plan their progress.

Portable sundials were made in bewildering variety, made of wood, ivory, bronze, brass or precious metals, round, square, octagonal and other shapes. Every maker had his own pattern (much like clocks and watches) but they can be classified into broad categories e.g. "scaife" or bowl type, with a gnomon in the middle, pillars with the gnomon on the top, flat dials, folding sundials with string gnomons and so on. (The gnomon is the part of the sundial which casts the shadow on the pattern of marks that enables the user to take the reading. The word is pronounced like "no men", with the accent on the first syllable.)

Since it is necessary to have the sundial oriented due south (in the northern hemisphere) the better portable sundials soon had a compass built in and were engraved with tables of magnetic declination, as well as the latitudes of the major cities of Europe. Often a plumb-line and plumb-bob were included for leveling the instrument.

Some even had an almanac to determine what latitude the traveler was at, if he were not in a city where the latitude was known. This would require either a sighting of the sun at noon, or a reading off the North Star at night. This brought up an apparent paradox, where in order to know what time it is you need the latitude, but to find the latitude you need to know when it is noon. The paradox is resolved by understanding that travel was very slow, and unless you were in a center of commerce, you would usually not need to know the time. The traveler would be able to wait to take a nighttime reading to determine his latitude, and then be able to determine the time the next day, if necessary.

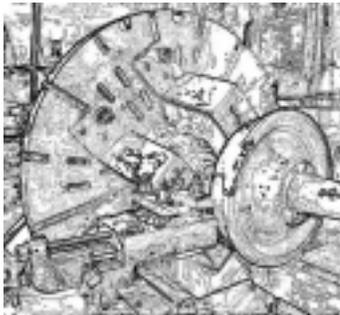
Because some travel was possible at night, when the moon was full (or close to full), some instruments were so designed that they could, (with the aid of tables) become "moondials" and be used to tell time by the moon. Tables were

also provided for the determination of the phases of the moon, and, for pilgrims, the date of Easter.

For further reference (sundials in general and their construction):

- "Sundials", R. Newton Mayall and Margaret W. Mayall. Sky Publishing Corp. Cambridge, MA 1973.
- "Sundials, Their Theory and Construction" Albert E. Waugh. Dover Publications, New York, N.Y. 1973.

Max



## ***Museum Shop Update***

Fred Widmer and  
Max ben-Aaron

### ***March 27***

The Museum's Thursday volunteer staff was augmented this week by the welcome addition of Finbarr Murphy and Bradley Ross, who joined Fred Widmer, Bill Brackett and Max ben-Aaron.

Finbarr told us that he had spent some years as a marine engineer working with very big diesel engines in "deep sea"; merchant marine vessels that were powered by low (100 rpm) speed engines, directly connected to the propeller shafts. How big were they? "The pistons were six to eight feet in diameter; you could set a table and chairs on one and have lunch."

Bradley had read the notice in the Gazette that the Museum is looking for a good home for a surplus milling machine and Bradley came in to look at it and to size it up. Does "I love it but there is no way that I can get that machine down the steps to my cellar" sound familiar?

They picked a good day to come in: before we went home we started up the 7" Rhodes shaper under power for the first time, to Dan Yeager's great joy. The crew also carried forward a couple of other projects. The worn handle-end of the surface grinder's cross-feed screw has been brought back up to spec by turning it down slightly and press-fitting a length of thin-walled tubing

onto it. When it was time to install it, it was discovered that the 3/4" O.D. Oilite bearing was a somewhat loose fit in the 1" diameter hole in the casting. A new Oilite bearing with the appropriate outside diameter will be bought.

At one end of the Rhodes shaper's countershaft, a long crossed belt from the mainshaft is shifted between a fixed pulley and an idler pulley. A cone pulley on the other end drives a belt descending to the machine. A shipper bar shifts the belt between the fixed and the idler pulleys to start and stop the shaper. Last week, Bill, Max and I had fixed the countershaft to its mounting board on the ceiling beam, over the position of the machine. We soon discovered that, when using the shipper bar, the long overhead belt from the main shaft would slew to the edge of the driven pulleys instead of tracking neatly in the centers without rubbing the belt shifting fingers.

Two tasks were scheduled for the shaper for this week. First, to adjust the parallelism of the shaper's countershaft and the shop's main lineshaft so that the belt which runs between them will track accurately without rubbing the fingers of the countershaft's belt-shifting mechanism. Second, to bolt the shaper to the floor.

We did not know whether the countershaft adjustment would throw off the tracking of the belt from the countershaft's cone-pulley down to the machine. Prudence dictated that it would be better to wait until the adjustment was made before bolting down the base of the machine.

After a "council of war" it was decided that the best course of action was to take the offending countershaft down yet again. This entailed taking its mounting board off the beam, together with the shaft and its hangers. We converted the wooden hanger-board's mounting holes into slots to allow the needed adjustments of position, and put the board back up just before lunch. We began to haul the countershaft and hanger assembly back up to the hanger board. As we did so, one of the shaft-hangers unexpectedly slid off its end of the shaft. It was about 6' off the concrete floor at the time. Its fall broke the eye of the casting clean off. Bill saved the moment by declaring lunch.

The Museum shop does not have an acetylene torch, so after lunch Fred invited us to visit his studio and watch while he brazed the hanger eye back on. Fred treated us to an expert demonstration of the brazing technique, which he

learned many years ago when he was building custom bicycle frames. A full description will appear soon. Fred's technique for brazing is well thought-out and produces an almost imperceptible repair and we returned to the Museum with the hanger as good as new.

We re-installed the shaper's countershaft and the shaper was ready for work. We initiated it by parting the cast-iron bushing for another pulley to go on the lineshaft. What a treat! We all took turns, so to speak, (including Dan Yeager) in feeding the parting tool in the machine's head, while the ram stroked backwards, and then forwards to cut. It took some getting used to, for those who don't own their own shapers, having one's hand on the moving ram, but all found it quite exhilarating.

*[Editor's note: I own a shaper, and it is a bit challenging the first time you try to move the tool down a couple of thou while the ram is moving.]*

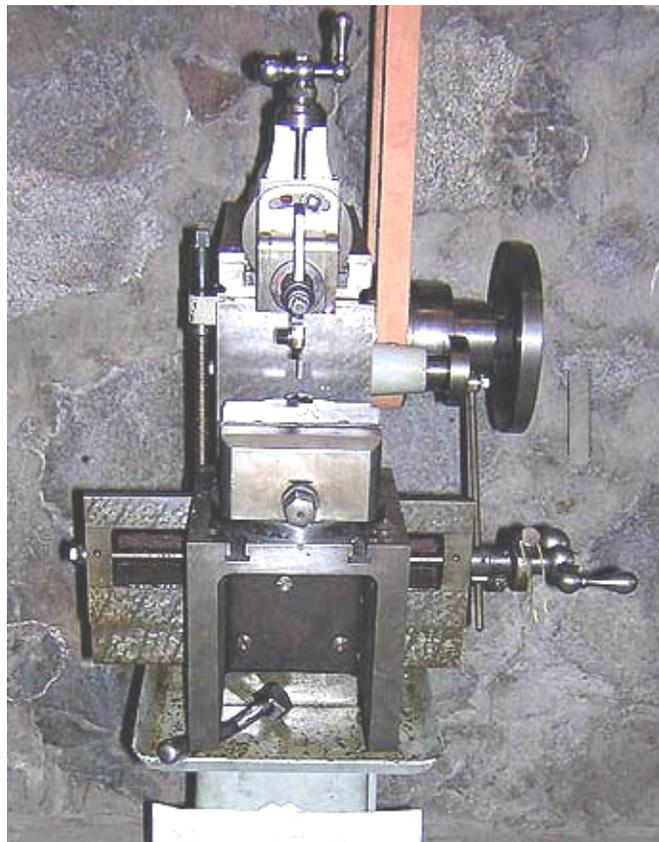
### ***April 10th and April 17th***

The Museum possesses an astonishing collection of material in a cellar known as "The Wayback" a.k.a. "The Catacombs". The material varies from interesting junk to valuable articles. This stuff needs to be sorted, cataloged and stored in such a way that it does not deteriorate further. We are still exploring The Wayback, preliminary to devising a conservation plan to bring order into the chaos.

Bill and Bradley re-mounted an early blacksmith's post drill.

Fred, Finbarr and Max went to Eastern Bearing to get a suitable Oilite bearing for the feed spindle for the surface grinder and then went on to buy material (lumber and hardware) for the ongoing effort to install countershafts for the belt-driven machinery. Next Thursday, the crew will be able to forge ahead.

Bill Brackett sent in a few photos of the machines and the belt drive in the museum shop. They're included here for the benefit of those members who haven't been to the museum lately.



CRMI shaper

Bill Brackett photo



CRMI shafting. Note reduction between electric motor and drive shaft. Power wheels for both shaper and planer are visible.

Bill Brackett Photo



# Treasurer's Report

Rob McDougall

As of 3/31/03

Balance as of: 2/28/03	\$7,947.94
Dues Received for 2003	125.00
Interest Income	1.00
<u>Less</u>	
Gazette expense	-207.77
Balance as of: 3/31/03	\$7,866.17

Rob



## Paquette Open House

# OPEN HOUSE

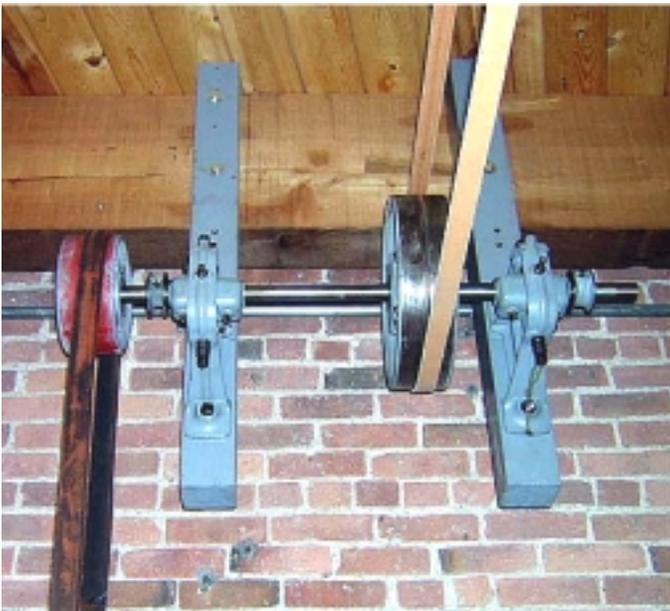
Jim Paquette's shop  
Saturday, May 10  
9 am – 2 pm

114 High Street  
Uxbridge, MA 01569  
(508) 278-2203

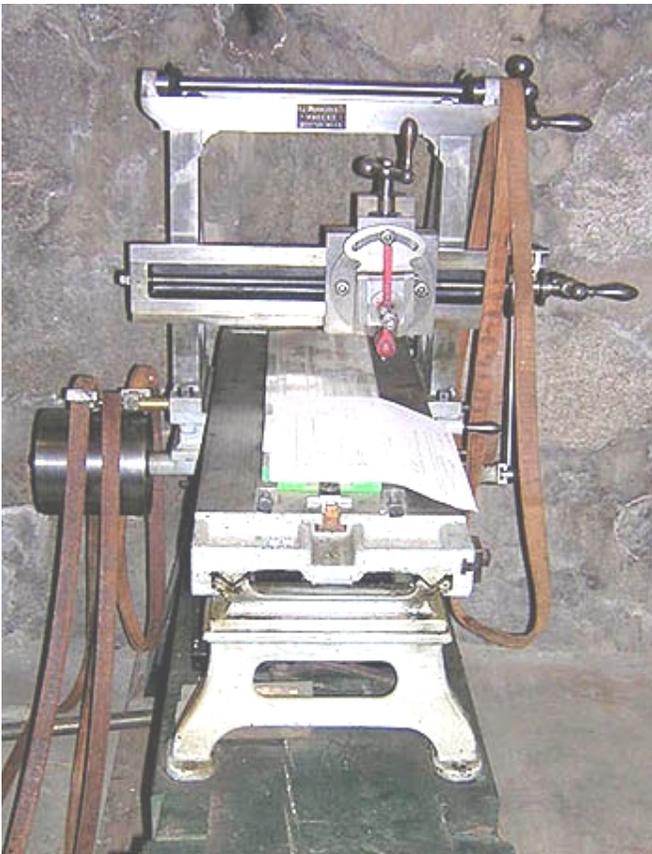
High Street is off Rte 122 (South Main Street) 0.20 miles south of the intersection of routes 16 and 122. Jim's shop is about 1/2 mile from 122

Bring items for sale, trade, free.

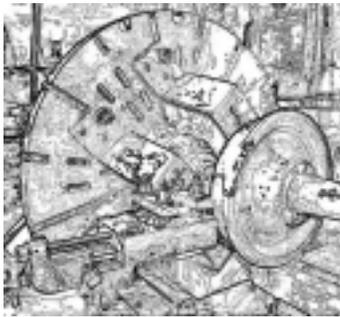
Coffee and Donuts will be provided



CRMI Belt Drive For Planer: Note absence of reverse and neutral pulleys. Those are on the planer itself, to shift direction of table travel. Bill Brackett photo



CRMI planer. Bill Brackett Photo



## ***Shop Hints***

Compiled by  
Mike Boucher

### ***Annular Cutters***

Gentlemen:

Steve Cushman's article in the April Gazette was particularly interesting to me. The annular cutters would certainly have a place in my workshop, and no doubt, many others. Anyone have a source? <http://www.wholesaletool.com> brings up an outfit selling on-line stores. Something about they do all the work and you make all the \$\$\$\$. I'd like to find a site or phone for the Wholesale Tool referenced by Steve in his article.

Incidentally, another useful tool for cutting large holes (or for making disks) is a trepanning tool. The one with which I'm familiar comes from SPI, branded Val-Cut. <http://www.swissprec.com/> The Val-Cut trepanning tools are available through <http://www.shoptools.com> also. I don't believe they show it on their site, but they do carry them in a number of sizes and styles, as does SPI.

BTW, the word trepanning is from the Greek, trupanon, or borer. Trepanning instruments are used by surgeons to make holes in the skull, should any of you have a need for more holes in your head!

*Bob Beecroft*  
Fallbrook, CA

#### ***Steve responds:***

Wholesale Tool's URL is <http://www.wttool.com> Their applicable item numbers are in the range of 0126-0005 through 0126-0130 for US made tools and 0126-0500 through 0126-0628 for a "house brand".

I'm not sure which of their stores services CA, but the phone# for the Michigan headquarters is (800) 521-3420.

MSC has these items in their catalog as well, although I do not have a copy at hand to look up the numbers.

In my experience, the annular cutters are much faster than a trepanning tool, although the trepanning tool does make great small disks.

*Steve Cushman*

### ***Oil Bluing***

*[Editor's note: This correspondence was on the NEMES internet mailing list. Since many of our members do not have internet access, it is reprinted here]*

People talk about a quick way to blacken steel: heat the steel with a torch and dunk it in old motor oil. Can someone explain to me what this does? Does it do anything to protect the steel, or just put burnt oil on the surface? How hot does the steel need to be to do this? Thanks for your advice.

*Bob Neidorff*

I have done it. I am quite pleased with the results. I slowly and evenly heat the steel with a propane torch. Larger parts require MAPP gas. I bring the part up to the color I desire, just enough heat to turn the part evenly blue or black, then I dip it in my can of quenching oil.

It is a bit smoky, so keep the part in the oil until it is cool.

Once fully cooled, I hold the part above the oil and let it drain completely to conserve the oil. Then I wipe the part with a paper towel. It gives a good finish if you prepare the surface properly.

The finish I get does prevent the parts from getting rusty in normal use around my shop. I don't know whether the bluing with heat or the oil has the greater effect on the rust prevention. It is not a finish that will stand up to exposure to severe conditions, but it keeps things neat in the shop. I think if I used motor oil I would use new oil rather than dirty oil.

I will bring a part so treated to the meeting Thursday evening for show and tell.

*Dick Boucher*

The blue you're getting is an oxide, much like found on a firearm. Keep it lightly oiled, wipe it down after handling and it works OK. One should be cautious using motor oil for heat-treating. There are issues concerning flash points. That's why we have quenching oil. Motor oil might be OK at "bluing" temperatures, but at a nice cherry red for hardening, it can be risky - even exciting.

Don

[Editors note: I apologize for not having the full name, but it wasn't signed with a full name!]

Drop it in the oil quickly, and keep it there until it's completely cooled. Even quenching oil can flare up if the part isn't completely cooled off

Dick Boucher

### ***Cutting Metric Threads***

Bob Cline sent along this formula taken from a Starrett Data Book for machinists, dated 1923. The title was "Adapting a lathe to cut screw threads in the metric system". Amazing to think that 80 years later, this would still be useful.

Metric screw threads are usually expressed in a certain number of threads per centimeter. Metric threads may be cut on any engine lathe that is arranged for compound gearing as follows:

For example, to cut 10 threads per *centimeter*, gear up the lathe to cut 10 threads per *inch* using the gears prescribed on the index plate in the usual manner for cutting 10 TPI. But, instead of the usual intermediate gears on the lathe, use two gears, one of 50 teeth and one of 127 teeth respectively on the intermediate stud. These gears should run loose on the stud.

The gear of 50 teeth meshes on the gear on the screw and the gear of 127 teeth meshes on the gear on the stud.

It is easily understood how the English or American system is converted into the metric system: by the use of two gears, one of 50 and one of 127, the ratio of these two gears is .3937, that is 50 divided by 127 equals .3937, which is the length, in inches, of one centimeter.



### ***Letters to the Editor***

Usually, I haven't printed letters to the editor, as most of them are "great job on the last issue". If I have printed them, it was part of the "shop hints", replying to a previous article. But, I feel this letter goes beyond that, and is worthy of publishing "on its own". Once you read it, I'm sure you'll agree.

### ***Thanks to Gazette Staff***

I just got back from 3 months volunteering down in Fort Myers, Florida for the US Army Corps of Engineers. In spite of being in the advertised warm and sunny weather, we did have a few days of cool, wet weather and windy storms where we were pretty much trapped in the 5th wheel RV.

I had purchased a copy of the CD that contains all the gazettes from issue #1 to the end of 2001. Thanks to that, I spent a few enjoyable hours reviewing each and every issue covering each month's meeting. I was able to catch up and review those meetings I had missed, as well as bringing up many fond memories of those many members who had presented programs.

Thanks to Steve Lovely and Max Ben-Aaron for their accurate notes taken during each meeting. Putting this CD together must have been a lot of work. I am one member who really appreciates the presentation of all this information.

Thanks  
Earle Rich



### ***For Sale***

### ***Information Wanted***

Looking for information on J. L. Patchett of Stoneham MA, in the time period of 1880 - 1900.

I recently acquired a Steam Launch engine that was attributed to him and I am trying to find any information about it. The Stoneham Historical Society provided a little info but I am wondering if any club members have run across other equipment built by this individual.

Jim Paquette  
(508) 278-2203  
[toolman@cape.com](mailto:toolman@cape.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  
180 Middle Road  
Preston, CT 06365 8206  
[errol.groff@snet.net](mailto: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 shirts, 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](mailto:mdbouch@hotmail.com)



**Upcoming Events**

Bill Brackett

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](mailto:wbracket@rcn.com) or (508) 393-6290.

**May 1 - NEMES Monthly club meeting**

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

**May 4 - NHPOTP engine show**

RT 113 Dunstable MA  
Robt Wilkie (207) 748-1092

**May 10th - Jim Paquette's Open house**

114 High St. Uxbridge MA (508) 278-2203

**May 17-18 - SSAA antique auto parts swap**

Tweeter Center Mansfield MA  
(508) 947-6600

**May 18 - MIT Flea Market**

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

**May 20-22 - EASTEC**

Eastern States Expo, West Springfield Mass.  
<http://www.sme.org/eastec>  
(800) 733-4763

**May 24-25 - Bernarston engine show**

RT10 between 93 and 142  
Vickie Ovitt (413) 648-5215

**May 25 - Fiddleheads & 4x4s Spring Festival**

Owls Head Transportation Museum. Owls Head, ME.

**May 30 to Oct 31 10:00-5:00**

American Precision Museum  
196 Main Street, Windsor, Vermont  
<http://www.americanprecision.org>

**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 Dave Moore (508) 697-5445

**June 7-8 - West Campton Show**

Granite State Gas & Steam Engine Association.  
Rt 3, W. Campton NH. Dave Dearborn  
(603) 726-3257

**June 7-8 - MAPA show at fairgrounds**

Skowhegan, ME Joe Kelly (207) 862-2074

**June 7-8 - Green Mountain Flywheelers**

Hinsdale NH Rt 119 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 Raandall (413) 467-  
2524

**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

Bill



## **Web Sites of Interest**

### **The Museum of Unworkable Devices**

Great stuff on perpetual motion machines, and how and why they don't work. Some of the "why" is left as an exercise for the reader, with the solutions on a different page. See if you can figure out the "gotcha"

<http://www.lhup.edu/~dsimanek/museum/unwork.htm>

### **Optical Illusions**

From the same site author as the above page, a cool optical illusion page.

<http://www.lhup.edu/~dsimanek/3d/illus1.htm>

### **VFD information**

This page has a pretty decent description of VFD function and use. If you've been considering getting one, this page would be a good place to visit for general info.

<http://atos.stirlingprop.com/kbase/VFDrives.htm>

## **Eastec Registration**

For those of you who aren't on their mailing list, here's a registration form for Eastec. If you're planning on going, get this form in ASAP, as the pre-registration deadline is **FRIDAY MAY 2<sup>nd</sup>**. It's **FREE** if you register in advance, and \$50 if you register on site!

# SHOW REGISTRATION FORM

**EASTEC**<sup>®</sup>  
ADVANCED MANUFACTURING EXHIBITION

**May 20-22, 2003**  
Eastern States Exposition Grounds  
West Springfield, Massachusetts

**Register Now. It's FREE!** Register online at [sme.org/eastec](http://sme.org/eastec) by May 2, 2003 (enter Web Code 2). You'll receive your show badge by mail. Photocopy these registration forms for your team. Save \$50 per registration and time on site.

**Registration Deadline: May 2, 2003**

- **SME Members:** On-site registration is **FREE** with your valid SME member card.
- After **May 2, 2003**, bring this form on-site for pay the show registration fee of \$50
- Forms received after **May 2, 2003** will not be processed
- Online registrants: immediate e-mail confirmation
- Fax/Mail-in registrants: confirmation within 3 business days.
- No one under 18 years of age admitted.

**ON-LINE:** [www.sme.org/eastec](http://www.sme.org/eastec)

Enter Web Code 2 when completing the online form.

**FAX:** (301) 694-5124

**MAIL:** EASTEC 2003  
ExpoExchange, LLC  
P.O. Box 3818  
Frederick, MD 21705

*If you register on-line or via fax, DO NOT mail this form.*

CODE: 94 95 96 97 98 99

**Please Print - One Form per Person**

A  Mr.            B  Ms.

Name \_\_\_\_\_

Title \_\_\_\_\_

**BUSINESS ADDRESS REQUIRED:**

Company \_\_\_\_\_

Division \_\_\_\_\_

Address \_\_\_\_\_

Mail Stop \_\_\_\_\_

City/State/Zip \_\_\_\_\_

Postal Code/Country \_\_\_\_\_

Phone (    ) \_\_\_\_\_ Ext. \_\_\_\_\_

Fax (    ) \_\_\_\_\_

E-mail \_\_\_\_\_

Yes, you may e-mail me updates for this event and related products

Please send/continue to send <b>Manufacturing ENGINEERING</b> free of charge: <input type="checkbox"/> Yes <input type="checkbox"/> No Signature _____ Date _____
--

**1. Check your ONE primary job function:**

- |   |   |
|---|---|
| 1 <input type="checkbox"/> Job Shop Owner<br>2 <input type="checkbox"/> Company Management/<br>Corporate Executive<br>3 <input type="checkbox"/> Manufacturing Production<br>4 <input type="checkbox"/> Mfg./Operations Management<br>5 <input type="checkbox"/> Foreman/Leader/Supervisor<br>6 <input type="checkbox"/> Machinist/Machine Operator | 7 <input type="checkbox"/> Tool/Die/Mold Maker<br>8 <input type="checkbox"/> CNC Programmer/Engineer<br>9 <input type="checkbox"/> Manufacturing Engineering<br>10 <input type="checkbox"/> Quality Management<br>11 <input type="checkbox"/> Product Design/Development<br>12 <input type="checkbox"/> Purchasing<br>13 <input type="checkbox"/> Other |
|---|---|

**2. Check the number of employees at your facility:**

- |  |  |   |
|--|--|---|
| <input checked="" type="checkbox"/> Less than 20<br>1 <input type="checkbox"/> 20-49<br>2 <input type="checkbox"/> 50-99 | 3 <input type="checkbox"/> 100-249<br>4 <input type="checkbox"/> 250-499<br>5 <input type="checkbox"/> 500-999 | 6 <input type="checkbox"/> 1,000-2,499<br>7 <input type="checkbox"/> 2,500 and Over |
|--|--|---|

**3. Indicate the technologies you plan to evaluate at the show:**

- |   |  |
|---|--|
| A <input type="checkbox"/> Assembly Equipment<br>B <input type="checkbox"/> CAD/CAM Systems<br>C <input type="checkbox"/> Cleaning Systems<br>D <input type="checkbox"/> Continuous Improvement/Lean Mfg.<br>E <input type="checkbox"/> Conveyors/Material Handling<br>F <input type="checkbox"/> Coolants & Lubricants<br>G <input type="checkbox"/> Cutting Tools<br>H <input type="checkbox"/> Deburring/Surface Conditioning<br>I <input type="checkbox"/> Drilling/Tapping<br>J <input type="checkbox"/> EDM<br>K <input type="checkbox"/> Factory Automation<br>L <input type="checkbox"/> Flexible Mfg. Systems/Cells<br>M <input type="checkbox"/> Forming & Fabricating<br>N <input type="checkbox"/> Grinding/Abrasives | O <input type="checkbox"/> Job Shop Services<br>P <input type="checkbox"/> Laser/Plasma Cutting<br>Q <input type="checkbox"/> Lathes/Turning & Boring<br>R <input type="checkbox"/> Machining Centers<br>S <input type="checkbox"/> Metal Cutting Saws<br>T <input type="checkbox"/> Milling Machines<br>U <input type="checkbox"/> Moldmaking<br>V <input type="checkbox"/> NC/CNC/DNC<br>W <input type="checkbox"/> Quality Measurement Systems<br>X <input type="checkbox"/> Robotics<br>Y <input type="checkbox"/> Safety/Ergonomics<br>Z <input type="checkbox"/> Screw Machines<br>AA <input type="checkbox"/> Workholding |
|---|--|

**4. Indicate your department's total budget for Machine Tool and Metalworking Technologies during the next 12 months:**

- |  |  |   |
|--|--|---|
| A <input type="checkbox"/> Up to \$20,000<br>B <input type="checkbox"/> \$20,001 - \$50,000<br>C <input type="checkbox"/> \$50,001 - \$200,000 | D <input type="checkbox"/> \$200,001 - \$500,000<br>E <input type="checkbox"/> \$500,001 - \$1,000,000 | F <input type="checkbox"/> \$1,000,001 - \$5,000,000<br>G <input type="checkbox"/> Over \$5,000,000 |
|--|--|---|

**5. Classify your company:**

- O  Original Equipment Manufacturer  
 S  Contract Manufacturer/Job Shop  
 N  Neither

Please call (800) 733-4763 should you require special assistance