

The NEMES Gazette

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The Newsletter of the New England Model Engineering Society

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Contents

The Editors Desk.....	1
Presidents Corner	2
The Meeting.....	3
CAD for the Home Shop.....	6
Cabin Fever Show Report.....	8
Sea Stores.....	11
Shop Hints	10
Upcoming Events.....	14
Treasurers Report.....	11
Shaper Column.....	12
NEMES clothing	12
For Sale	13
Web Sites of Interest.....	15



The Editors Desk

Mike Boucher

Hi folks! This is my first issue as editor, so bear with me as I learn the ropes.

First of all, let me thank our previous editor, Kay Fisher, for all his hard work in producing the Gazette for the past year. I've got some large shoes to fill, and I'm sure Kay will appreciate the newly found time in his shop

Secondly, I have little or no idea what I'm really doing, or where I'm going with the Gazette. I'm still trying to figure out how to effectively use the word processing software! I do have some ideas, but I'm always open to constructive criticism or input. My main goal is to keep the newsletter as good as it has been in the past, if not improve it a bit. Just be warned, criticize too much and I might nominate you as my successor! ☺

Finally, I can only make the newsletter as good as the articles that members submit. I'll continue to write an occasional article as I have in the past, but I have neither the time

Next Meeting

Thursday, March 7, 2002

The Charles River Museum of Industry
154 Moody Street
Waltham, Massachusetts

Annual dues of \$25 covers from Jan to Jan. Please make checks payable to NEMES and send to our treasurer. (Address in masthead).

Missing a Gazette? Send mail or email to our publisher. (Address in masthead).

nor the ability to write the entire newsletter by myself. Our members have submitted great articles in the past, and I hope that I continue to get submissions for the Gazette.

Three great examples of member submissions continue. Alan Bugbee's "Sea Stories", Bob "Mac" MacIrvine's "CAD for the Home Shop", and Kay Fisher's "Shaper Column". All are great articles, and I'd like to thank those members for the articles.

If you have anything for the newsletter, please send them in. I prefer electronic submissions (MS Word 97 or plain text), but will also accept typed manuscripts.

Mike Boucher
295 River St.
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BTW – a few people have asked, so I'll explain my email address. "B" is for Boston. "M" is for Maine. 3714 is a p-4 class 4-6-2, and that's the number on the side of my 3 1/2" live steam engine...

Keep those submissions coming!

A quick note just before I send this to the presses. Yesterday was our annual show, and as usual, it was a great time. Lots of exhibitors, more spectators than I could imagine at some times, just a super show.

The next newsletter will have more about the show, hopefully with some pictures...

C'ya
Mike



Presidents Corner

Ron Ginger

Annual Show

This newsletter had to go to press before our show so I can't say how the show went, but I can say that all the usual folks have said they will be there, and our vendors have again come through with some great door prizes for our exhibitors. We will have a full list next time, but for now my thanks to all those who support this effort and make for a great show.

Next Meeting

Our member Leon Schiff has arranged to have the blacksmith from the USS Constitution be our speaker for the March meeting. The Constitution is the world's oldest navy ship still in active service- an historical treasure we are fortunate to have in the Boston area. Over the last few years major restoration work was done to allow the Constitution to sail again. A good part of that work was the iron work in the rigging and we will hear about that work and how it was done.

Tool Bargains

To me, and I know to many of our members, the search for the tools and machines we 'need' for this hobby is a major part of the hobby. For some the search and collection IS the hobby. So I was very happy a couple years ago when I received a call from Fred Fowler III requesting permission to attend our meeting and sell off some tools.

Fred works in the marketing division of the Fowler company and he explained that he often accumulated tools and instruments that were used in some marketing activity, like a trade show or a photo session for catalogs.

Since the items were opened and used, they could not be returned to stock and sold as new. Fred offered to bring in a batch of such items and offer them to members instead of just scrapping them.

His visit was a most memorable evening, and I know many of us found several bargains that night. Fred told us he would return from time to time as he accumulated more items, but he has not been back.

At the Cabin Fever Expo, on Friday night a bunch of us were sitting around the lounge before dinner. Among the topics that came up was tool bargains, and I related the Fred Fowler story, and wondered why he had never returned. At the table was Bob Cummings and his wife, proprietors of the New England Brass and Tool company. Bob explained that his wife, a member of the Fowler family, had prevailed on higher management to stop Fred from offering such deals to our club. They thought it was unfair to have Fred selling such used items to the club.

So, if you have wondered why Fred has not returned, you now know 'the rest of the story'.

Cabin Fever

For me, and I think for everyone on the bus, this was another great show. As usual the weather was perfect (I sure wish I knew how Gary arranges this every year), the bus was comfortable, the conversation was lively and the exhibits were first class. The show has grown again, and Gary announced that next year will move again to yet bigger and better facilities (including more hotel choices) in York PA. We had 40 people on the bus which seats only 47. Maybe next year it will be a convoy of busses?

Ron



The Meeting

Max Ben-Aaron

The meeting was opened by our venerable founder, Ron Ginger. Some final details about the trip to Cabin Fever were hashed out. A one-time deal has been made to allow a group purchase of a Cabin Fever Video that is in the making. It will be available for \$25 to club members, provided that a minimum of 20 are ordered. Normally it sells for \$35.

The Show, on the 16th would not have a compressor, unless some good Samaritan took it on himself to provide same. It looks like the rig put together by John Wasser is irretrievably lost. Volunteers are needed to assist with setting up the tables at 8 am.

The Ladies Auxiliary would provide coffee, doughnuts and snacks as usual. This is your opportunity to donate a dozen doughnuts (or other goodies) and buy some back again!

As usual, the Museum does not allow any commercial vending on the premises, but Mike Boucher would have some NEMES T-shirts for sale.

Mike announced that a preliminary sweatshirt order would be put in, but members would have to order (and pay) in advance. The cost is expected to be in the \$20-\$25 range. By ordering in advance, you will be able to choose the color --either white or gray.

Errol Groff lauded the start of the Gazette series on CAD programming and suggested that a one-day Saturday seminar (like the scraping meeting) might be a good idea. There was an enthusiastic response.

Henry Szostek brought in a huge reamer, which he said, has never been used. He had no idea what it was made for. It was free to whoever wanted it. Dick Boucher won the 'prize'. Henry's trans-Atlantic rowing team came in 11th out of 36.

Dick Boucher brought in three gauges intended to measure inside bores. They were a telescoping gauge, a ball gauge and a half ball. Since they are set to the bore size and the size is not measured directly by the gauge itself (but by a mike or verniers), they are 'transfer type' tools.

In a previous Gazette, mention was made of the Swedish vessel 'VASA' that sank immediately after launch. NEMES member Dennis Nordin visited the Vasa Museum in Stockholm, Sweden, and has become a Vasa aficionado. He has diskettes with pictures, information, a slide show, a book and other Vasa memorabilia and is willing to share his enthusiasm. His email address is:

denordin@channel1.com

The speaker at the next meeting will be ????, who is the blacksmith on the U.S.S. Constitution.

By the time you read this the show will have been held. One again it has been a roaring success, especially for the Museum. More than 500 guests paid admission. . .

Team Tormentum

Our speaker was Eric Ludlum, Captain of Team Tormentum, ably assisted by David Shepard. Team Tormentum builds modern siege engines. The team takes its name from the Greek word 'Tormentum', which is a general term for either a catapult or a ballista siege engine.

Perhaps you may have seen the PBS segment of "NOVA", about the effort to reconstruct a trebuchet, which was a war-engine -- a catapult designed to smash down defensive walls, like the battlements of a castle, by hurling huge rocks at them. This was before the advent of gunpowder and cannon in the west. Contrary to popular belief, trebuchets were so successful as siege engines that they had already made defensive walls obsolete by the time cannons came on the scene and provided the coup de grace.

You may also recall a episode on TV of "Northern Exposure" in which a grand piano was thrown into the river. A trebuchet was used for that feat.

There is not much call for throwing boulders at castles these days, so siege-engine-builders make do with throwing pumpkins (referred to as 'Punkin Chunkin') as far as possible. This is a challenge that some people, like Team Tormentum find irresistible, so they design and build siege engines to compete in charity Punkin Chunkin competitions, preach the gospel of Punkin Chunkin in classrooms and television shows and help raise money for local charities.

There seems to be a whole tribe of Siege Engine builders, of all varieties, united by the common urge to chuck stuff really far. They tackle the task of creating machines in very different ways. Some delight in

reconstructing historical machines as authentically as possible; others respect the historical element but are prepared to use modern techniques where appropriate. Still others ignore tradition and cobble machines from whatever materials are handy and available.

Team Tormentum belongs to the scavenging arm of the movement. They delight in rescuing lumber from the side of the road, pallets from behind factories and scarfing bearings and bike bits wherever and whenever they can. A favorite occupation is wandering around scrap yards, looking for that perfect bit of rusty junk that might solve some imagined problem. They did not admit it, but I'll bet that they are not above dumpster diving.

The team, based in Hudson MA, is chock full of high powered software engineers living in Eastern MA. As team Captain, Mike is interested in physics and the history of different machines, but when replicating said machines he has no compunction about using something obtained from Home Depot if it fits the bill.

Siege engines may be classified according to the method used to impart energy to the projectile:

- Trebuchets - ancient
- Ballistas - ancient
- Catapults
- Gas-propulsion (==guns) – modern, no explosives.
- Centrifugal machines

As usual, there are miscellaneous devices that do not fit neatly in any scheme.

At Punkin Chunkin contests, the engines compete in different classes according to size and power rating.

A trebuchet has a swinging arm that is rotated by a falling weight. The projectile is attached to one end of the arm and the other has a heavy weight. As the arm reaches the top of its trajectory, the missile is released. The trick in trebuches is to have the weight fall as vertically as possible, which leaves room for ingenuity in the camming method to provide maximum energy to the missile, as well as in the triggering mechanism. Sometimes triggering can be as crude as cutting through a cable with a torch.

One of the trebuchets which appeared in a Delaware Punkin Chunkin contest was built to the same specifications as the one used in the 'NOVA' show, by the same timber framers.

A ballista is based on the power storable in a pair of bundles of twisted cords to throw the projectile. Ballistas may be the oldest siege engines. It is not unlikely that Archimedes used a ballista to hurl boulders on the Roman fleet during the siege of Syracuse.

Catapults use either rubber bands or springs to store the energy for propulsion. The big ones can be frightening to observe because the coiled power is more or less 'visible', when they are cocked ready to fire.

Guns use the power released by expanding compressed gas. Some guns used to use helium or nitrogen under very high pressure (3000 lbs/sq. in.), but now only compressed air is legal.

Centrifugal machines, as the name implies, whirl the projectile round and round, until it has maximum possible energy when it is released to fly off tangentially. If the diameter of the circle is large, it does not take many rpm to achieve very high circumferential velocities.

The fundamental goal is to throw a pumpkin as far as possible. The pumpkin is a white pumpkin, weighing between 8 and 10 pounds, and which may not be modified in any way (no whittling to fit in a gun barrel, say.). The pumpkin must be intact as it leaves the machine.

Crossing the starting line is cause for disqualification. No explosives may be used.

The record stands at a tad over 4000 feet.

The talk was liberally supplied with pictures. The pictures of some of the 'big guns' shows that they are impressive contraptions. Some of the other engines in the unlimited class are also monstrous and powerful.

Most, if not all, the pictures shown at the meeting can also be viewed on the net by going to Tormentum's website at:

<http://www.siege-engine.com>

The big competition (and the grand-daddy of them all) is a Punkin Chunkin contest in Delaware. Now there are many other competitions all over the country, but none here in the northeast yet.

The team brought some models of siege machines, including a model illustrating the concept behind the ballista they are in the process of designing and building, and gave a small demonstration.

Max



CAD for the Home Shop

Bob "Mac" MacIlvaine

The first article in this series generated some questions. So this time we'll start with the mailbag.

Q: Why should I use a computer when I have a drafting board and pencil?

A: No one said you did. In fact, after 20 years or so in the CAD/CAM business, I have both and use them both regularly. After I get through some of the basics, I intend to show some tricks you can do with both and some you can only do (or easily do) with CAD. In a home shop a drafting board may be all you ever need. CAD on the other hand will allow you to use existing geometry in ways that are very tedious or impossible on the board.

Q: How do I know that one part will be a sliding fit with a CAD package anymore than if I did it with a drafting table?

A: You don't. You specify it the same way you did on paper. If you want a specific fit then the drawing (electronic or otherwise) has to say what fit is required. In the case of a highly automated manufacturing facility, the CAD drawing may contain data that specifies things, like fit, in a format that can be interpreted by other computer programs; but it still has to be there in some form.

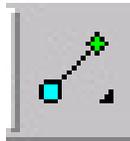
This is a good point of discussion. You see the data stored in a CAD file is specific. That is, a hand drawing, no matter how good or careful the draftsman is only indicates a line is supposed to be 2 units long. In a CAD file, what you see on the screen or coming from the printer is the representation of a line that is defined in the data as 2.0000 units. (Internally, the data is actually defined to far more than 4 decimal places.) So when this data is used for another purpose, say to drive a CNC mill, the line comes out 2.0000 units, within the tolerance of the machine.

Note, I said 'units' not inches or millimeters. That's because the CAD data itself is unitless. The units of measure are applied when it renders the data for us, for example, on printed output or in a dimension on the drawing, or when the data is being used to drive a CNC machine.

One last note about specifying fits, or weld types, etc. You still need to specify these in the CAD drawing. Because that's how these details get passed along to the next guy in the chain. For instance: the guy who's programming the CNC machine or the quality inspector.

So let's get to some more drawing. A quick review:

To start a line; type the "line" command or click the line icon



You can enter coordinates by:

- Typing '20,10' (absolute Cartesian coordinates)
- Typing '@1500,0' (relative Cartesian coordinates)
- Left click the mouse, and get whatever coordinate the mouse cursor happens to be sitting at.

Here's an additional way to enter a coordinate: type '@20<45'. This is called relative polar coordinates. The result will be a line from the current point 20 units long at an angle of 45 degrees.

So you can enter coordinates. But what happens if there exists geometry that you want to use to get accurate points or lengths? Well, that's where 'entity snaps' come in.

If you look up entity snaps in the IntelliCAD help, here is what it says: "Entity enable you to quickly select exact geometric points on existing entities without having to

know the exact coordinates of those points. With entity, you can select the end point of a line or arc, the center point of a circle, the intersection of any two entities, or any other geometrically significant position. You can also use entity to draw entities that are tangent or perpendicular to an existing entity."

Let's try it. Draw a line. Any line will do. Now start another line somewhere on the screen by entering the first point. Now type 'end'. Notice the prompt changed to "Snap to endpoint of" and the cursor changed shape. Now move the cursor close to the end of the other line and click. Now the second point of this line has exactly the same coordinate as the end of the other line.

Note the cursor after you typed 'end'. The box that appears is the aperture, within which, IC will attempt to find the end point condition. The icon attached to it indicates the condition it will seek.

There are several entity snap types; we just used the end point snap. There are also:

- Near point (typed as 'nea'), point on an entity closest to the cursor.
- Mid point ('mid'), mid point of an entity
- Center ('cen'), center of a circle or arc
- Perpendicular ('per'), perpendicular from the last point to the entity under the cursor.
- Tangent ('tan'), tangent to the entity under the cursor
- Quadrant snap ('quad'), the nearest quadrant of the circle under the cursor.
- Intersection ('int'), intersection of two elements.
- Insertion point snap ('ins'), insertion point of an entity (this applies to text or blocks)
- Node ('node'), a node is a point entity.
- Plan view intersection (3D stuff here...more later)

Draw some lines and try some of these out. If your adventurous, use the 'circle' command, draw a circle, then try the center and quad snaps.

As usual, these all have icons on the toolbar. Look for these in the IC window and roll the mouse over them to find out which is which:



If you click on one before starting a line command, it stays on all the time. You can set multiple snap modes. In this mode IC will attempt to find the most logical of the selected snap modes, within the aperture box. IC indicates which it thinks it found by the icon attached to the cursor. This can be useful, but get comfortable with snaps before you get carried away.

If you have questions about the things we've covered so far or about CAD in general feel free to contact me. My email is suemac@empire.net.

Mac



Cabin Fever Show Report

Mike Boucher

As is our tradition, almost 40 NEMES members boarded a bus from Riverside to Lebanon, PA for the 6th annual "Cabin Fever" model engineering show.

We left Riverside at 9:00 AM, made a couple of stops to pick up members who live further west, stopped in New Jersey for lunch, and were in Lebanon around 4:30. There were some lively discussions on the bus, and one member stunned several other members by solving a Rubic's cube.

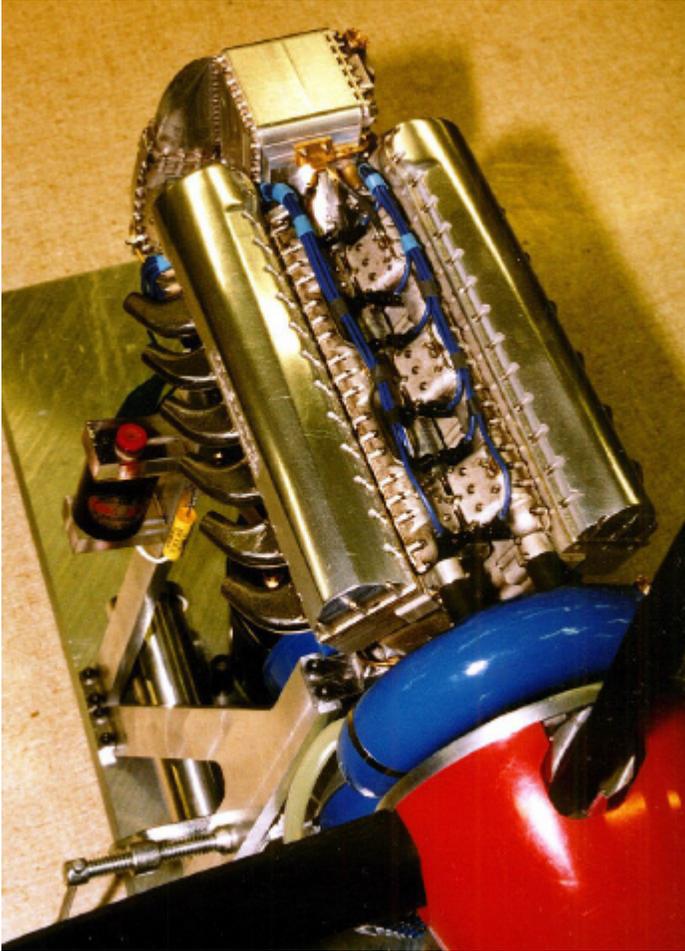
A flurry of activity ensued, as members unloaded the bus and set up our display. We commandeered about 10 tables, all in a row. Our fearless leader, Ron, gave everyone about an hour to walk around and see what deals they could get. More than a few members made purchases that hour!

Saturday morning we finished setting up and the crowd arrived in droves. By noon, getting through the crowd was difficult, and there was a huge line for lunch!

The stars of the show were two Rolls Royce Merlin engines. The full size one was in the lobby, the 1/8th scale one was at the front of the display room. It was built by Richard Yeagley over 7 years, and is a remarkable achievement.

Words and photos don't do this engine justice, but I'll try with a couple of photos...





Another model that drew a crowd was a 3/16th scale model of the USS Boston CAG-1 heavy cruiser. Jerry Kirk built the model. He served on the ship during the Vietnam War, and had a lot of information about the prototype and the cruises he was on. The model was about 8 feet long, displaced 170 pounds of water, and was controlled by a 23 channel radio control unit. If it moved or lit up on the real ship, it moved and lit up on the model. The model was a very impressive piece of work.



The biggest crowd draw from the NEMES display was Ron Ginger's newly operating "Busker Organ". Made mostly of wood, it operates in a similar manner to a player piano. There is a manifold with 20 holes in it, and a roll of music moves over the manifold. As the holes in the paper move over the holes in the manifold, air goes into the appropriate pipe to make the right note. It seemed like Ron spent most of Saturday cranking and cranking. Ron was still working out some bugs. On Saturday evening, Bill Shoppe saved the day by donating the exact size rubber band needed to keep the organ running. Bill just happened to have the right size wrapped around his wallet. Unfortunately, I didn't get a photo of it, but if you attended the February show, I'm sure you saw it...

My portion of the display was directly between Ron's Busker Organ and Henry Szostek's concertinas. I was definitely in the musical section. I'll have to bring a steam whistle next time!

As in previous years, there were some clinics for attendees. NEMES member Dave Bono gave a clinic on precision metal bending. Dave had his 3 1/2" gauge Climax and a 1" scale Case traction engine as samples of his work. Unfortunately, I didn't get a chance to attend the clinic, but Dave told me that it went well.

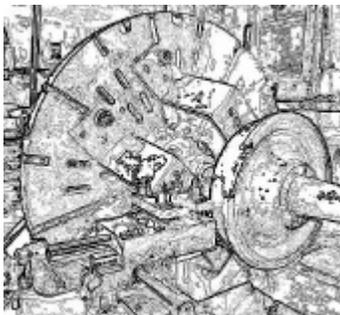
As usual, there was more weight on the bus coming home than going down. Even the

bus driver got into the act, by purchasing a bench vise from New England Brass!

My haul: a 2" boring head and some R8 collets for my milling machine, the new Koza Book on the Pennsy A3 from Village Press, a new set of Rudy Kouhopt plans for a V4 steam engine, a hand scraper, castings for a small oscillating engine, and a few other small odds and ends.

By all reports, all the participants had a good time. Rumor has it that Cabin Fever has already outgrown the hall, and next year will be moving to a larger hall in York, PA. The bus ride will be slightly longer, but I'm sure it will be worth it!

Mike



Shop Hints

Compiled by
Mike Boucher

Locating A Cross Hole In A Shaft

By Dick Boucher

Editors note: There was some discussion on the NEMES internet list about how to accurately locate a cross hole through a round shaft. Following is Dick's response to the discussion...

I have been following the thread about accurately locating a cross hole in a shaft with some interest.

The method for locating any hole accurately is to drill the hole, bore it to location and ream to size.

The key word is "accurately". The method I would use to locate such a hole to less than one thousandth (within tenths of an inch) would be to first make sure my milling machine head is accurately trammed in. Any amount of angular deviation in the vertical position of the head will magnify itself in lost accuracy as you move the table or spindle from the position in which you locate the center of the shaft to the position used to do the actual machining.

The methods mentioned for finding the center of the shaft are all good. The most accurate method mentioned is to use the indicator. This does not require any movement of the table using the lead screw or associated measuring arrangement on the machine as the part is exactly centered under the spindle when the operation has been completed. After the shaft has been located lock the machine table in both directions. Check the location to be sure that the locking operation didn't move the table.

I always mill a flat on a round shaft to insure that the combination center drill doesn't walk when I start the hole. It was mentioned that a flat on the shaft was useful if it was horizontal. Mill the flat on the shaft in the setup before finding the center of the shaft, it's surface is now parallel to the ways of the machine.

Combination center drills are always a good idea when drilling any hole as they are short and stiff and either pick up a punch mark well or start a hole easily when dialed to location.

If an endmill is available that is slightly undersize of the finished hole required it is possible to use this to drill the hole after a pilot hole has been drilled. This will eliminate the problem of the drill hitting the high spots on the curved surface of the shaft. If the end mill is not available step drill the hole using

progressively larger drills and working very carefully as the drill enters the part.

Open the hole to within .025 - .030 inch under the required finished size, or more if you are not familiar with the process, and then use a boring head to accurately locate the hole. The method is to take a pass with the boring tool that will clean up the entire bore then measure the distance from the bore to the side of the shaft on both sides and make any minor corrections in the location that might be necessary. Take another pass and check the dimensions again. If it is correct either use a reamer to finish the hole or use the boring setup to finish the hole to size.

Dick



Sea Stores

Alan Bugbee

I found Captain Ross's chart chest in my grandmother's attic. It had his charts of oceans and harbors all over the world. I gave them to my cousin William Ross, the most direct descendant. One chart of the southern 2/3 of South America showed thirteen trips from east to west around Cape Horn - plotted every day. Some they had no problems while others took days and days trying to make it into the Pacific.

Alan



Treasurers Report

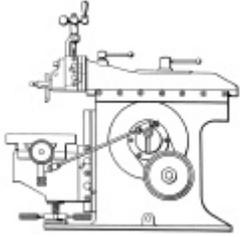
Rob McDougall

Balance as of 12/31/2001:	\$239.46
<i>Income</i>	
Club T-Shirt Sales	740.00
Cabin Fever Bus Fees Received	1,488.00
2002 Dues Received	2,350.00
Proceeds from CD Sales	51.00
Interest Income	.40
<i>Expenses</i>	
Gazette expense	-224.64
Front door security (December)	-50.00
Balance as of: 1/31/02	\$4,594.22

I will be in Australia for the month of March, so there will not be a Treasurer's Report next month. If there are any Treasury needs through the month of March, please contact Mike Boucher, who is a co-signer on the club check account.

As you can see, the club coffers are back up to a healthy amount to get us through the year. The Cabin Fever trip was a great success again this year with a slightly positive cash flow to the club for the difference between the bus fare charged and actual expenses (this year we did not have to pay for the driver's room or meals). I took the liberty of depositing the extra to the club

Rob



Shaper Column

Kay Fisher

I found an interesting story on the world wide web in the news group rec.crafts.metalworking. The author "Gunner" has graciously given me permission to repeat it here.

Gunner Got a Shaper

"Due to the good graces of a most gracious man, Jack Erbes, and the fact that they are not carry on luggage, Gunner is now the proud owner of an 8" Logan shaper.

"Sunday morning Nov 11th, long before daylight, Gunner fired up his old pickemup, and headed 375+ miles north to Sonoma, Ca. He met Jack (a fine gentleman) at his shop, and they proceeded to load Jack's 8" Logan shaper. Long after the sun went down, Gunner crawled out of his truck, pausing only for a few minutes to fondle his new shaper, then curl up beside it and go to sleep. At sunrise the next morning, after unloading it, Gunner was knee deep in chips, chortling a mad tune in time to the ram, watching the red hot chips popping all over the floor of his shop while he learned the basic ins and outs of adjustments, stroke, return, feed rates etc.

"YES!!!!

"He then proceeded to sharpen several pieces of tool steel to the semi proper shape (practice hopefully will make perfect) and then hogged out a scrap of aluminum to the proper shape for a pair of rifle scope mounts.

"YES!!!!

"He then reverently oiled it up, and carefully covered it with a brand new tarp, ready for work next weekend. He then entered his humble residence and poured over a number of machine tool "How To" books for more information on tooling, setups etc. A great day was had by the shaper, and Gunner, who got a shaper on his birthday.

"Gloat! Giggle!

"Gunner"

Thanks Gunner for that great acquisition tale. I hope you all enjoyed it as much as I did. Keep sending letters and email with questions and interesting shaper stories.

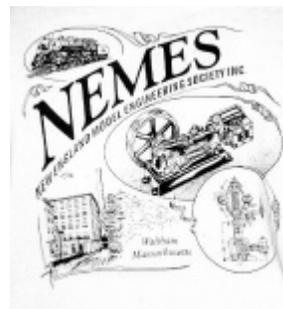
My mailing address is:

Kay R. Fisher
80 Fryeville Road
Orange, MA 01364

My email address is:

Kay.Fisher@Compaq.com

Kay



NEMES clothing

NEMES Sweatshirts

Several members have requested that we get sweatshirts with the same design as the club tee shirts. As we still haven't broken even on our tee shirt sales, we will be ordering a limited number of sweatshirts.

We will base the number of sweatshirts ordered on PRE-ORDERS!!!

If you want a sweatshirt, you **must** order in advance!!! We will be placing the order **after the March meeting**, so get those orders in before then. The sweatshirts should be available at the April meeting.

We do not have a firm price on the sweatshirts, as we don't have a firm quantity. Expect the price to be between \$20 and \$25 per sweatshirt, XXL and XXXL will probably be \$2 or \$3 extra, just like the tee shirts

One bonus, since we're taking orders, you can pick your color! Since we need to keep the printing the same color (black), the colors are limited. As some people requested white tee shirts, the options for sweatshirts are either white or gray (same gray as the tee shirts)

Caveat: if we don't get enough orders, we won't order any. Ordering 4 or 5 just isn't worth it.

Like the tee shirts, profits will go to the club treasury.

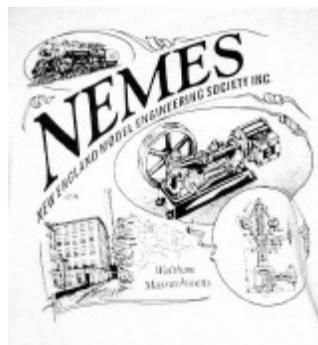
Send your size and color preference!

Mike Boucher
295 River St
Waltham, MA 02453-6007
Bandm3714@mediaone.net

NEMES Tee Shirts

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

Artwork:



Rear



Front

Prices:

S, M, L, XL \$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
295 River St
Waltham, MA 02453-6007
Bandm3714@mediaone.net



For Sale

Gerstner Tool Chest

Model 42, "Journeyman" style chest, oak with nickel fittings. Vintage ca 1950. Has been cleaned up and the drawers relined with felt, lock fixed. The top compartment has not been relined. Very good physical condition and some "character" from use. \$250 OBRO.

Dave Stickler
(978) 369 0214
dstick@aerodyne.com

NEMES CDs

NEMES Gazette CDs. The complete set of all Gazettes ever issued in Adobe Acrobat format. All Gazettes from Volume 49 May-2000 in Microsoft Word format also. The US Army's "Fundamentals of Machine Tools manual in Adobe Acrobat format. \$5.00 shipping included. Profits go to the club treasury.

Kay R. Fisher
80 Fryeville Road
Orange MA 01364

Metalworking Books on CDs

I found three old books and three new books on the web. All are in the public domain and had good information on using and maintaining metalworking tools. The old books are high-resolution scans, so they take up a lot of bytes. It took me hours to download them from the web, so the best way to make them available is by CD-ROM. Here are the titles on this CD-ROM:

- Modern Machine Shop Practice Vol I, Joshua Rose 1887
- Modern Machine Shop Practice Vol II, Joshua Rose 1887
- The Advanced Machinist by William Rogers 1903
- Machinery Repairman - US Navy 1993
- Fundamentals of Machine Tools - US Army 1996
- Welding Theory and Applications - US Army 1993

\$5.00 shipping included. Profits go to the club treasury.

Bob Neidorff
39 Stowell Road
Bedford, NH 03110
Neidorff@TI.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 are 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

Wanted

Any available documentation on the LeBlond No 1 Universal Tool and Cutter Grinder.

Kay R. Fisher
80 Fryeville Road
Orange MA 01364
(978) 575-0663
Kay.Fisher@Compaq.com



Upcoming Events

Bill Brackett

Note EASTEC is May 21-23 this year and the tickets are available now. Advanced registration is free if completed before May 3rd. It's \$50 at the show. Online registration is available at www.sme.org/eastec. Enter code 2 when you register. Forms are available to register by mail and can be photo copied.

Editors Note: Next issue I hope to have the EASTEC registration form included with the Gazette. Time constraints prevent it from being included in this issue...

Mar 7 Thursday 7PM

NEMES Monthly club meeting

Waltham, MA
Charles River Museum of Industry
781-893-5410

April 4 Thursday 7PM

NEMES Monthly club meeting

Waltham, MA
Charles River Museum of Industry
781-893-5410

April 27-28 N.A.M.E.S. Show

Southgate, Michigan
www.modelengineeringsoc.com

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**

Team Tormentum

<http://www.siege-engine.com>

Self powered slug Robot

<http://www.coro.caltech.edu/People/ian/tta.html>

“The Engineers Emporium”

<http://www.theengineersemporium.co.uk/index.html>