The NEMES Gazette

Vol 2 No 1
May, 1997

The Newsletter of the New England Model Engineering Society,
Stephen C. Lovely, Editor, POBox 277 Milford, Ma 01757-0277, 508-473-8621
Ron Ginger, Founder, 17 Potter Road, Framingham, Ma 01701, ginger@ma.ultranet.com

Our Next Meeting is at 7:00 PM on May 1, 1997 at the Museum, 154 Moody Street, Waltham Ma.

From the Editor's Desk:

This is the first issue of the second year. I'm pleased with the way that things have been going with NEMES, but we do need to get a bit more formally organized. I wasn't sure what to expect when I first agreed to do the newsletter, and sometimes I'm still not quite sure what I got myself into. But I'm enjoying it and with all the practice I'm getting more efficient. The NEMES email list is also starting to pick up, and I plan to be taking some material from it that I think the members without email access might like to read about.

Kay Fisher, our new Treasurer has sent me a report on our finances for the month of April. Thank you Kay.

I'm all the time saying that we need people to contribute material for the Gazette or I won't have anything to print, so thank you to those of you who have answered the call and sent me something. Dick Tomer sent in an interesting piece on carbide inserts, and there are even a couple of letters this issue! I know we can't please everyone all the time, but let me know what you like and don't like about the Gazette. We've managed to hang in there for the first year and things seem to be going pretty smoothly, so now it's time to try to make some improvements.

There's been a lot of talk about saving old iron from the scrapper on the NEMES mailing list. I don't have any of it in this issue, but I have included some info on a project out in Youngstown Ohio to save some of the big steam engines from the steel mills. They already have one engine, and are working to acquire a second. For $20 you can join Jeanette Blast Furnace Preservation Association and be part of the effort to save these engineering monuments from oblivion. (You'll also get a newsletter.)

See you all next Thursday night. -- scl

The Founders Corner
by Ron Ginger

The Internet mail list has become quite active, and a lot of good discussion is occuring there. If you have e-mail access send a message to listserv@adra.com with the message SUBSCRIBE NEMES yourname.

Museum Volunteers

A discussion has started around the idea of our club providing volunteers to the museum. I talked to Karen, and she would be delighted to have anyone volunteer. We briefly discussed the idea of having a permenant NEMES display, where we could keep a model project under construction. As various members had time to spend a few hours at the museum they could work on the project, and explain to visitors about the hobby of metalworking. It seems like a good idea, we need some volunteers to push ahead and make it happen.

Organization

I have received a couple example charters of clubs, and am trying to put together a version that suits our needs. I have had offers from a few guys to be board members. I will attempt to get a draft charter together, then call a board meeting to review and edit it. We should then present it to the entire group for a vote, hopefully by the June meeting.

The question of being an independent organization vs a sub-group of the museum is clearly the most fundamental. I think the leaning so far is toward an independent group, but firmly associated with the museum. I would like to hear more member input on this topic. Please send any suggestions to me by e-mail at ginger@ma.ultranet.com or call me at 508/877-8217.

Shows

We have agreed to have both a late Summer and a winter show. The museum has decided to run a slightly scaled back Steam Expo this year on one day, Saturday October 4. They will have the outside exhibit area for steam engines, and we can have our show both outside for things like aero enignes, and inside for models. They will not be haivng a steamboat meet, since the dock area is under construction.

So mark that day, and start planning for a show! Saturday, October 4.

We have also set the winter date as February 21, 1998.

I will be getting a flyer printed so you can take some to pass around this summer as you go to various engine events.

Next Meeting

At the last meeting Ed Kingsley asked about interest in a speaker on historical aspects of metalworking and there seemed to be great interest. I have asked Frank Morrison to speak at the May meeting. From some of his internet postings I suspect he has a great deal of knowledge about some of our local heritage in machinery. It should be a very interesting evening.

Show and Tell.

We need more show items at our meetings. The top slide Kay brought last month, and Bobs Machined Wood were great, but come on guys, we need more. Isnt someone out there actually building something? Lets have more show, (and Ill try to go easy on the tell)

Newsletter

Well, this marks the first issue of Volume 2. One year of excellent reporting by our Editor Steve Lovely. I think the newsletter is a very critical part of our club, and for many of our members that live some distance from Boston, its the only real part of the club. I extend my

thanks to Steve for a year well done, and hope he continues for many more.

-- Ron Ginger

April 1997 Treasurers Report

Previous balance -------- $1025.59

Dues and donations ------- + 35.00

Newsletter postage ---------- 61.44

New balance ---------- $ 999.15

Respectfully Kay R. Fisher

Calendar of Events

Thursday May 1, 1997 -- NEMES MEETING at the Charles River Museum of Industry, 154 Moody Street, Waltham, Ma 02154, telephone 617-893-5410

Thursday June 5, 1997 -- NEMES MEETING at the Charles River Museum of Industry, 154 Moody Street, Waltham, Ma 02154, telephone 617-893-5410

Thursday May 1, 1997 -- NEMES MEETING at the Charles River Museum of Industry, 154 Moody Street, Waltham, Ma 02154, telephone 617-893-5410

Saturday, October 4, 1997 -- STEAM EXPO at the Charles River Museum of Industry, 154 Moody Street, Waltham, Ma 02154, telephone 617-893-5410

Saturday Feb 21, 1998 -- Second Annual NEW ENGLAND MODEL ENGINEERING SHOW at the Charles River Museum of Industry, 154 Moody Street, Waltham, Ma 02154, telephone 617-893-5410

The Meeting, April 3rd, 1997

Ron started the meeting out again, but he had a cold and his voice was pretty much gone, so it's a good thing there was a PA system.

This meeting is the 1 year anniversary of the first NEMES meeting. The first one was on Ron's wife's birthday, this year it missed by one day. Kay Fisher is the new Treasurer of NEMES. Ron passed out new copies of the membership roster - remember it's so you can contact other members -- please don't use it for commercial purposes.

The Bus to NAMES will be leaving in three weeks from the meeting, and Ron will be sending everyone who has signed up to go a letter with the details (you should have already gotten a copy if you were signed up.) By the time this issue gets into the mail the Bus should have already left.

The show in February was a success. We want to do another one, and we need to set a date now so that we can get a flyer printed up and get going on the publicity. The Museum has the Steam Expo in October, so if people are interested in a second show during the year a model engineering presence is an option.

Karen spoke to us as the representative from the Museum. The show was wonderful. This is the anniversary night for NEMES. There was a loose one year basis to the commitment by the museum to see if it would work. The Museum Trustees are delighted with the way that things have worked out. We need to explore options to make the NEMES group closer to the Museum. She would like a group to sit down and brainstorm on how to get closer.

Ron pointed out that NEMES has one of the best meeting sights of any Model Engineering group in the world, based on the email discussions that he has seen about the other ME groups around the world.

We need to formalize enough so that we can get a bank account in the group name, rather than having someone have to put their personal SS number on it. We also need to decide if we should be part of the Museum or a separate organization with close ties to the museum. Sometime during the next month Ron will push to get a charter put together. We need a minumum legal existance. It's been an interesting year and we need to take it one more step.

A Swap-Meet would be a fun activity for NEMES. Howard and Paul did it about a year ago, but they haven't had much luck finding a bigger place to do it again. So, the MIT Radio Club Flea Market has been proposed as a possible solution. It's open to the public and has an existing location. Ron will check with the organizers of it and hopefully the third Sunday of May or June NEMES will meet in one corner of the MIT flea market.

For New Business we started with Errol Groff who said he'd appreciate it if we could start on time, since he has a long way to drive back to Connecticut and he'd like to be able to stay for the whole meeting without having to get home too late. Howard Evers suggested starting at 6:30, but too many people would have trouble getting here that early, especially the ones who have to travel a long way on 128.

Mike Boucher suggested a big round of Applause for Ron for starting NEMES. Ron said he appreciated it, but that he was enjoying it too

Doug White talked about "The Vision Thing." He had some handouts on "Pocket Eyes", a foldup magnifier that you can carry in your pocket, then unfold and clip onto your nose to see those small parts and such. He also had something that is new this year, the LARGE PRINT edition of Machinery's Handbook. It's 75 or 80 dollars from ENCO. It's much easier to read, but no way will you get it into the handbook drawer in your tool chest.

Bob Laverture brought in some sample parts machined from wood. They happened to be the body frames from a 1936 Packard Sedan. They were made from White Ash, the wood of choice for car bodies. The frame was assembled, then the sheet metal was nailed onto it. He brought it in because he thought it was interesting how you could do woodwork using metalworking techniques. He machined the parts on a Bridgeport brand Milling Machine.

Ed Kingsley said that last month on the Leadloy 12L14 signup there wasn't a very big turnout, so he asked for people to sign up at the meeting.

Before Christmas he got a Craftsman Tool Cabinet. In the catalog they had drawer liner - $27.95 for 23 square feet. It was 16 1/2" wide, so it was perfect for the drawers. He later discovered that MSC has the same stuff 12" wide for 66 cents a square foot. Grossmans bargain outlet has it as rug underlayment. He says it does a really good job of keeping your tools from sliding

around the drawers of the box, and passed a couple of pieces around for people to look at.

Ed was at ENCO and asked them what their sale to MSC was going to mean to the way they did business. They told him that aside from getting rid of their cheap lines of foreign tools it shouldn't make much difference.

Ed got some "Goo Gone," a citric acid based solvent that is great for taking off price tags and the paper on old plexiglass. Someone asked about old masking tape - he said he'd try it and let us know.

Kay Fisher brought in the top slide for his Myford Super 7. He made the George Thomas threading tool modification to it, so he can retract the tool with the turn of a lever and traverse back to cut the next pass when he is cutting threads. He said it was lots of work and he'd never do it again. He has also just finished making a batch of tool holders for his quick change tool post. He now has 20 tool holders for it. He built the Knurling tool from the Hemingway kit.

Norm Jones brought in the top plate to his Gerry Howel Mizer Engine. He put a decorative pattern on it, using the rotary table in his milling machine. There are 20 circles in 9 rows, from 1/4" to 1" in diameter. He used wooden dowels mounted on 1/2" shafts to fit the collet on the milling machine. The smaller circles came out okay with 900 grit, the bigger ones not as good, so he tried brass rather than wood. Now that it's done he thinks he should have used Cratex. If you have any suggestions on how to get better results he'd like to hear from you.

Don Strang had a workshop session before the regular meeting for people who wanted to build the drill sharpener he'd told us about at the last few meetings. He asked if there were any metalurgists in the club. He has a cover on a Boice Crane Jointer that broke sitting in his shop. He passed part of it around and it looked like it had started corroding along internal cracks or something, with the corrosion pushing the metal apart and destroying the part. He has some hard steel tool bits that are supposed to be able to drill through a file, but he hasn't had much luck with them and wonders if anyone knows how to use them. For nice clean holes in sheet metal he recommends step drills. The ones he has are RotoBores, and he can't find them anywhere anymore except in McMaster Carr.

Joshua Rose wrote a bunch of books. One of them is "Modern Machinery" which is 11x16 inches and 2 inches thick. There are three volumes of it. Don says that if you ever get a chance to look at one of these books be sure to take it. It says that hard steel on hard steel is the best bearing if it's lubed. Second best is steel on cast iron. The cast iron is good because it forms a skin when you rub it. That's what, and why. It's unusual in that most old books tell what, but not why.

The Main Speaker for the night was Roland Gaucher, who gave us the talk on "Roland's Father's Method to Align a Lathe" that we'd been looking forward to since the subject was brought up at the last meeting. He started off with a couple of related lathe topics. He had some photocopies of the sketchs of his ball turning fixture for anyone who wanted them. Then he showed us his faceplate centering and balancing fixture, which was covered in an earlier Gazette, and offered us some more water pump bearings so we could make our own.

To show us yet another time that a faceplate could be a real timesaver he showed us a universal joint. He'd had someone come into his shop who needed the bore of one end of a universal bored out 15 mils. It wasn't the sort of part that you could hold very well in a chuck without a lot of fiddling around. He put the face onto the faceplate, lined it up, clamped it down, and bored it out all in less than 15 minutes. Any way other than on the faceplate would have taken a lot longer to line up the part.

This is not meant to be the only way, or even the best way to line up a lathe, but it's a practical way and it works. The traditional way is to use a precision level to compare the headstock and the tail stock to insure that the twist is out of the bed. The longer the lathe, the more susceptible it is to twist. If the level shows the same reading at the headstock and the tailstock, then the carraige should follow the geometric centerline of the spindle. To cut straight, without taper, the tool must follow the geometric center line of the spindle.

A long time ago, Roland's father showed him this way to line things up. First, you need a bar. It doesn't have to be perfectly straight, but is has to be round. Being in the automotive business, Roland uses an old McPherson Strut shaft. Put the bar in the 3 jaw chuck and an indicator on the tool post. The bar needs to be robust enough so that it won't bend. Set the indicator at the headstock end so that the runout is centered at the 0 point of the indicator, -5 ot +5, -12 to +12 or whatever it happens to be. Pull the indicator tip back away from the bar so it won't be damaged, and traverse the carriage down to the tailstock end. Check the runout again. It will probably be larger than at the headstock end, but if the alignment is correct then the runout will still be centered at 0, ie from -32 to +32. If it is -10 to +20, then the lathe is out of alignment. Correct it by shimming under one of the legs at the tailstock end until the runout is centered at both ends.

A piece of newspaper under a leg of Roland's lathe makes a difference in the alignment. Leaning on the headstock will affect it. (Just imagine what happens when you tighten up the belt on a 9" South Bend.) Timken brand Preloaded Bearings are the best, because the preload reduces the amount that things go out of line when you put something in the chuck.

Requirements for the bar are fairly simple. It needs to be rigid, round at the measuring points, and it's nice if it's sort of straight. Using a flat end on the indicator is best - it'll minimize any problems from up an down motion of the bar. If you check in the middle and the results are off after the ends are okay, then there is a problem with the lathe. This aligns a lathe that is correct, it doesn't correct for a sag in the middle or whatever.

It sounds complicated, but once you try it you'll realize that you can do it, and it works.

Tips And Techniques
by Ed Kingsley

The Metal Buy

We've run into a snag on the 12L14 & Cast Iron purchase. It turns out that there is a hefty cutting charge for each item, an expensive detail which had not been mentioned to me when I initially spoke with the salesman at Peterson's. I am, therefore, talking with other suppliers in hopes of keeping the prices within reason. I expect to have a firm price, in hand, by the next meeting. The size of the order is now more than 950 pounds, another "detail" that also has to be dealt with.

Shapers

There was a good bit of conversation on the NEMES Mail List, recently, about Metal Shapers. Enough so, that it seemed there might be sufficient interest amongst the membership to have an informal "subgroup" on the subject. One of our members (who presently owns four) has shown a willingness to give a talk on the subject, if enough people are interested AND would be willing to share >their< experiences with the machine.

Goo Gone

Don Strang asked me at the last meeting, whether "Goo Gone" (see last month's column) was strong enough to remove the "petrified remnants" of very old masking tape. Threre's certainly not much in the way of "goo" to remove in that situation, Don, but I did try it, and it worked very well. The best quality of "Goo Gone" is it's ability to remove the sticky mess that other solvents just seem to push around, and to do it with one application and wipe off. (Brooks Drug)

A1 Tools

For 22 years (give or take) I was a regular customer at RPM Tools, a mom & pop used tool business, on Brookline Street in Cambridge, MA,. The "RPM", in this case, stands for Reginald P. Moser, the owner. Over the course of two decades I added considerable weight to my basement and outfitted a small shop in the process.

Three years ago, Reg and Marie sold their digs in Cambridge, moved to Dracut, MA, and set up a new business called "A1 Tools". It's a bit farther than Cambridge for me, but I still try to get up there every couple of months. Why is it that no matter how many tools you have, there is always room (and a NEED) for something else? At what point do we stop being machinists and start becoming collectors - or is it really all the same thing (?)

If you live up thata' way or find yourself in the Lowell area, or you're on the way to ENCO or Rockingham Park, drop in. The hours are 8:30 - 5:00, Tuesday thru Friday and 9:00 - 3:30, on Saturday. They are not open Sunday or Monday. A1 Tools is on Route 113, at the corner of Lakeview Ave, in Dracut, and their phone is (508) 957-7300. It's about 15 minutes off of Route 93, on 113. Tell em' I sent ya.

Speaking of ENCO, they have been purchased by MSC and are apparently getting rid of some of their lower priced, less-than-premium imported lines of tooling. I took advantage of that supposition and ordered a (12) piece set of 5/8" diameter shank, carbide tipped boring bars, for the sum of $15.99 - that's just $1.33 per boring bar! And, they appear to be the same quality as the (9) piece, 3/8" diameter set I bought from MSC two months ago (on sale) for $19.99. ENCO has a similar set (3/8") on sale this month for $6.99! Hard to beat at those prices, stock up now.

ENCO also has a (10) pair set of 1/8" thick x 6" long parallels, from 1/2" to 1 5/8" high, for $28.99. I bought them and the wooden box is a bit crappy, but the parallels seem a very good value @ $2.90 a pair. I know, I know, money isn't everything, but it's pretty close. There is a price threshold for things that can get you holding your breath and taking a risk, and, since low expectations are the secret of happiness, sometimes you do get a bargain.

-- Ed Kingsley

CARBIDE INSERTS

by Rick Tomer

There seems to be a bit of interest for information on the subject of carbide inserts. Here is what I have to offer in the form of both experience and opinion with respect to the application of carbide in the HSM environment. This will apply mainly to turning inserts, but the information will be relevant to many milling applications as well. The sad fact is the most of the new insert shapes and grades have little value in the home machine shop.

One reason is cost. Many inserts must be purchased in full package quantities of 10 at $3.00 to $25.00 per insert and the need of tool holders at $25.00 to$100.00 each.

The main reason that these are not useful in the home shop is that these inserts are designed for a production environment. In this type of use one of the main problems is what is known as chip control, breaking up the chip so a rats nest is not formed around the tool or the part. That is the purpose for the grooves and bumps on the top of the insert. This chip breaking geometry is designed for a specific depth of cut and feed rate. Combine this with the high surface speed that these coated inserts must run at and you will find that most manual lathes do not have the rigidity or the horse power to use these inserts economically.

For most small, low horse power lathes I would use brazed carbide tool bits. They are low cost, regrindable with a green silicon carbide wheel, and will fit the machine. I have not found any big difference in tool life in low volume production between the most common grades. C2, recommended for non ferrous materials is a harder grade, more resistant to abrasion but more prone to chipping. C6, recommended for steel, is a tougher but softer grade, so use what you have. A diamond hone or EZE-LAP can be used to put the required radius on the corner or improve the edge quality.

If you have a bigger lathe and want to use inserts I would get a tool holder for a TPG or TPU insert. These can be gotten at a very reasonable cost and using positive rake do not have the speed and HP requirements of the advanced inserts, although to get best tool life you should run at the recommended surface speed. If you were cutting cold rolled steel that would be 300 to 500 feet per minute or 1100 to 1900 RPM for a one inch diameter bar. Using coated inserts you could increase the speed about twenty-five percent.

The use and selection of carbide inserts is really a very complex issue that can not be covered in a short discusion or article, there are just too many variables to be considered, and the biggest are the part being machined and the machine doing the work. If an application engineer from one of the carbide companies came to a shop to solve a problem they would first check the setup, then the machine, and then try a part using recommened starting conditions of speed and feeds. They would then make changes based on the results of the testing.

For most of the other HSM turning needs (threading, grooving) I would stay with high speed steel. If anyone wants more information, all of the manufactures of inserts have rather thick books describing all their inserts, grades, and recommended application. The best place I know to get this is the EASTEC show in Springfield MA this May 20-22. I believe the last HSM issue had an ad that could be used for admission. It is a good show to see the tools and machinery in use in the machine shops of today.

-- Rick Tomer

Classified

Bashim Boiler Works, Dewey Bashim Proprietor. All welding done to the state criminal code. Code stamps I,O,U available. We stand behind our work, far, far behind. 617-555-BOOM

Resources

Jim Chetwyn Sr. reports a good buy on steel rod at the Grand View Flea Market (on Rt 28 in NH, just after the Robert Frost farm going from Salem to Derry.) A man named Jim downstairs, behind the sliding glass doors on the left as you approach has two barrels of steel rod. about 9/10ths diam by 6 ft, $2 each, or from the bucket of smaller rod, from 1/4 to 6/10ths about for $1 each.

Letters

Looking For a Few Good Valves -- Anyone who was doing setup before our February show knows that our air manifold has one big problem: The outlet valves leak when closed! I guess you can't expect much from $2.99 valves designed to throttle air tools. We worked around the problem by borowing 1/4" NPT plugs from the museum to plug up the unused valves but that should not be the final solution.

What we need are gascocks with a 1/4" MPT inlet and 1/4" FPT outlet. The local plumbing supply house had ball valves for $8 each but since we need twelve of them I am looking for something less expensive, preferably under $5 each.

If you have a source for such valves, send the ordering information to me by EMail or bring it to the next meeting. I would like to have the new valves in place before the October show.

--John Wasser (wasser@tiac.net)

Hi folks,

Last night, when Kay Fisher was showing his modifications to his cross slide, there was some discussion about moving the compound slide to take small cuts of the workpiece. Here's a chart I got off the net a while back giving some numbers:

Angle	Compound feed	Cross Slide Movement	Reduction in work dia
5	0.001	0.00008	0.00016
15	0.001	0.00025	0.00050
30	0.001	0.00050	0.00100

CAVEAT - I haven't checked the math, but I've tried it with the compound at 30 deg, and it seems to work.

As you can see, if you keep your compound at 29.5 for threading, then when you advance the compound 0.001", then you take 0.001" off the work. Easier than trying to move the cross slide 0.0005"...

c'ya Mike ---- Mike Boucher Internet: MBoucher@exapps.com

High their:

The felt wipers on a lathe ought to be replaced periodically. Where does one get suitable felt?

Max ben-Aaron (xeno357@ix.netcom.com)

Historic Preservation in Ohio

I collected this information from postings to the livesteamers email list by Rick Rowlands and have included it here because I thougt it was the sort of thing that NEMES members would find interesting. Let me know what you think. --scl

After my post about the Bethlehem industrial museum, I got to thinking about the last five big ststionary engines in the U.S.

Of these, four of the five have been or are proposed to be preserved.

Mesta 40" x 50" 2 cyl. simple engine - preserved in Homestead, PA Tod 34" x 68" x 60" cross compound- preserved in Youngstown, OH United 42" x 66" x 60" twin tandem compound reversing engine- proposed to be included in a planned steel museum in Weirton , WV Tod 46" x 76" x 72" twin tandem compound reversing engines (2) - Bethlehem, PA. One is to be dismantled and moved to the Bethlehem industrial museum.

The unlucky one seems to be the Tod at Bethlehem, PA. It will be scrapped probably when the other sister engine is moved.

We have already saved the Tod here in Youngstown, and within a short period of time it will be completely placed in storage in a building that we may own if all goes well. Total cost for moving 200 tons, about $6,000. However, our Tod engine is a cross compound non reversing, with 20' flywheel, and is very different in appearance from the big reversing engines.

Would it not be desireable to preserve an example of the two different types of Tod engines at our museum? Could we acquire, dismantle & ship that other big Bethlehem Tod engine back home again to be restored and run in Youngstown?

To all of our supporters and friends, I ask: Should we pursue trying to acquire this last unpreserved Tod engine? Would there be any people within driving

radius of Bethlehem that could help with the dismantling?

I know that we have our hands full with our Tod, but once that other one is gone, it is gone, and our chance to preserve the two types of Tod rolling mill engine in Youngstown will be gone too.

What do you think? Have I gone off the deep end yet?

Rick Rowlands Tod Engine Project

I am making progress with the Bethlehem, PA Tod twin tandem compound reversing engine (I just love that name). later this week my contact will talk with a Bethlehem Steel VP about our request to acquire the engine. I am having a video of the engine in operation sent to me and should arrive in a few days. I finally found out what size it is. It is a 40" HP bore x 66" LP bore x 54" stroke engine, total weight 1,000,000 lbs. and built in 1906 as part of an order for EIGHT identical engines by Bethlehem Steel. Total engine length 54' , total width 30' . Horsepower is about 25,000. There is a much larger Tod engine there that will be saved for the museum.

This morning I recieved a home video of the operation of the 40" x 66" x 54" twin tandem cross compound engine at Bethlehem Steel. I must say I am impressed. One interesting thing I noticed was that the engine has a crankshaft and a driveshaft. The two are connected via gears in the center of the engine. They probably did that to avoid transferring all that power through a return crank arrangement. I can think of no other reason.

According to the video the engine last ran in 1995. 89 years of service.

Actually, the organization that is technically sponsoring the preservation of the engines is called the Jeannette Blast Furnace Preservation Association. We are in the process of applying to become a local chapter of the Society for Industrial Archeology. Our name would then become the Youngstown Steel Chapter. We have memberships available for $20 per year. Dues right now go toard keeping this entire project afloat.

Our address is:

1941 Wick Campbell Road

Hubbard, OH 44425

Make check payable to JBFPA. Even though you will read more about the project on the net than you would from our newsletter, membership dues are what makes this project possible, by showing funding sources that we have supporters and also by paying those little incidentals like postage, insurance, phone bills etc.

Rick Rowlands Tod Engines Project

The NEMES Gazette

c/o Stephen C. Lovely

Post Office Box 277

Milford, Ma. 01757-0277

newsletter of The New England Model Engineering Society