

The NEMES Gazette

NEW ENGLAND MODEL ENGINEERING SOCIETY INC.

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Editor's Desk

Victor Kozakevich

I've been putting off this column for a few months, but finally decided it's time. I've been editor for nearly four years, and it's perhaps time to pass the torch and let someone else put their mark on the Gazette.

I thank everyone for their kind words of encouragement, and am glad to have made this contribution to the club. No, there are no plans to move away from snow or additions to the family. I'd just like to make my contribution in a different way.

I'm happy to assist whoever decides to step up. I suppose I should write the essential "How to put the Gazette together guide" and get the next editor off to an easy start.

I'm not in a rush, but hope someone else would like the same opportunity I've had. I value NEMES very much and took on the post because of how much I've gotten from my association with the membership. We each add a little in our own way. The header says we've gotten together 143 times. I still look forward to the next time.

Next Meeting

Thursday, Mar. 6, 2008

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

Membership Info

Annual dues of \$25 (via checks made payable to "NEMES" and mailed to our membership secretary) for the calendar year are due by December 31st of the prior year.

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

Addresses are in the left column.

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President's Corner

Dick Boucher

The Meeting

Our speaker this month will be Julie Kaiser from the OMAX Corporation.

OMAX has been a leading manufacturer of abrasive waterjet cutters worldwide for over 15 years. Engineering new products and solutions to early abrasivejet struggles has established OMAX firmly in the forefront of waterjet technology. Now with eight different machine models and several pump sizes in production, OMAX makes abrasive waterjet cutting viable for companies of all sizes in all industries.

As the OMAX sales representative for the New England area, Julie has over four years of experience in the operation and sales of both new and used waterjets from a variety of manufacturers. Over the years she has worked with fabricators, job shops and OEMs to cut many different materials including metals, stone, plastics, composites, rubber, and foam, creating a solid knowledge of abrasive waterjet applications. She is familiar with the software and maintenance required on the top five producers of waterjet systems in the industry and looks forward to sharing this information. Abrasive waterjets have changed dramatically from their inception over twenty years ago and these new advances have increased the use and benefits of waterjets dramatically.

<http://www.omax.com/>

Our Show

Well I guess one could say we had another successful show on February 16th. Many thanks to those who showed up early and helped to get the tables set up and the hall ready. I apologize for not being able to stay for the breakdown, my band had a gig that night and I had begged off but the other rhythm guitar player got the flu and I was pressed into service. Thanks to those who covered for me.

Once again, the ladies Auxiliary under the able direction of Gail Martha supplied refreshments for both exhibitors and attendees during the day. Her crew this year consisted of Leslie Jones, Sue Brackett, Ramona Bono, Bea Boucher, and a real special treat was to have Cindy Schoppe join us. Thanks for the great job ladies.

Words of special thanks to Frank Dorion for the yeoman's job gathering the fine selection of door prizes again this year.

Lastly I want to thank all of you who brought something to exhibit. Without you the show would not exist.

Miscellaneous Ramblings

Despite the threatening weather on Friday the 22nd Bea and I braved a train ride with hundreds of vacationing school young folks headed to the Disney Ice show at the Garden, to Boston to view the USS Constitution Model Shipwright Exhibit in the USS Constitution Museum.



There were approximately 100 model boats and ships on display from birch bark canoes to carriers ranging in size from ships in a bottle to a 3½ foot model of the USS Maine. My favorites were the fully rigged schooner models of fishing vessels built in Essex Massachusetts. The show continues on through March 8, 2008. If you are around the Charlestown Navy Yard during that time period it is well worth checking out.



The Meeting

Todd Cahill

I also had the opportunity this past week to visit with a fellow I hadn't seen for many years. Arnold is having some serious health issues and is confined to his second floor apartment in a rather old house with steep narrow stairs. As one goes up the stairs, one feels as though he is walking into a Model Craftsman Museum. At the top of the stairs are such treats and a Stuart Triple, a Minnie and many more steam engines on the shelves in that room. On the other side of the room are a number of super detailed "G" gauge locomotives and a 3/4" scale live steam locomotive. Entering the living room one's eyes fall upon a beautiful radio controlled "Tramp" steamer and a number of fully rigged sailing ships.

Entering the room where he is sitting there is a paddle wheel riverboat over his head and a well detailed steam model of the tug JUNO on the adjacent wall. On the opposite wall is a 1" scale Case Tractor. The other side of the room has many steam engine models and a couple of operating (not firing but adjustable) deck gun models along with a couple of old time ignition model airplane engines. This is a truly remarkable display of a lifetime's enjoyment of the model engineering hobby.

Dick B.

President Emeritus Richard Boucher called for any new visitors to our meeting which uncovered a few. One in particular, a young student of Errol Groff's yielded some of his handiwork for show and tell. Cody brought in some examples of blacksmithing that he had done that day, coat hooks, forged nails, and one delicate looking flower with sheet metal aluminum petals. Cody handled some grilling questions in stride. Mr. Boucher reminisced about his shop class projects, brass knuckles, in particular. How times have changed.

Allen Bugbee brought in a product that he purchased from American Science and Surplus, essentially a children's toy in the form of many brightly colored gears that spin freely on magnetic bases. One of the gears is motorized which powers the entire train when arranged on something such as a refrigerator. Allen set the display on an easel to delight the membership. Allen handled questions of pressure angles and depth of the gears in stride.

Frank Dorian told of a binocular microscope setup on a Sherline lathe that he saw at the NAMES show last year. What appeared to be a wire without magnification, was in fact a tiny tap being made on the lathe. This got Frank eager to find a suitable microscope that could be mounted on his lathe. The American Science and Surplus catalog revealed a very well made Russian microscope that served Frank's purposes just fine, and at considerable savings.

Ed Rogers talked to the Saugus Ironworks director who has invited us to show our model displays at the Ironworks in April. Quite a lot of interest was shown from the membership to participate. Ed will fill us in with further details in the future.

Mr. Boucher brought in some of the fixtures he made to build a P.M. Research kit, a Pennsylvania pumping engine. The fixture was used to hold and machine the bedplate on all sides. All who went enjoyed our trip to Cabin Fever. On Saturday night all of the exhibitors were treated to a buffet spread at the York Industrial Museum. The museum has a very impressive collection of industrial equipment related to the area. A fully working water powered gristmill, a twin cylinder Corlis steam engine powering an ammonia compressor, and machine tools kept us all wondering around the place grinning.

For our main speaker, NEMES member Rollie Gaucher was invited back to give his talk on lapping. I am tempted to use the *Model Engineer* method of referring back to some odd vol. number from 50 years ago rather than write about it again. For the record Rollie's first talk on lapping was given at the October 1997 meeting and was written up by Steve Lovely in Volume 2. No 6 issue of The NEMES Gazette. Many of us went back to our shops and put his methods to practice. I have included some pictures of the laps that I have made since Rollie's first talk. Webmaster Errol Groff has also videotaped the entire talk and it is available on the NEMES website.

When Dick Boucher asked Rollie to give his talk again, Rollie had just finished lapping a crankshaft and cylinder for a friend. The crankshaft was out of an inspector's railcar. The cylinder was scored considerably and was also out of round. To lap the crankshaft, Rollie made the lap as two halves of a ring, contained and adjustable in a holder. The lap works better in this situation if it is narrow enough to move back and forth in the rather constricted area between the cranks.

Laps can be made out of any material that is softer than the piece being lapped. Aluminum, brass and even wood or plastic can be used. Rollie likes to use 280 grit Clover lapping compound. Lapping is done under power, usually with the part held in the lathe. He recommends 200-300 rpm. At first, lapping proceeds quickly. As the high spots are eliminated, more material has to be removed and the work slows down a bit. The lapping

compound also breaks down and produces a finer finish as the work proceeds. Use newspaper on the ways of the lathe to protect them. It's also very important to clean off any residual lapping compound from the piece to prevent further grinding of a bearing surface once it is assembled. Brake cleaning fluid followed by soap and water cleans the residual lapping compound off of the work piece.

Rollie brought in some commercial brass expansion laps. These come in standard nominal sizes and expand a few thousandths of an inch. I purchased a number of these and realized they can be machined to the size need.

Other commercial laps come in very small sizes and are not much more than a wire with a split in it. A wedge needs to be inserted into the split in order to spread the two halves.

It is very important not to confuse the rigid laps with the spring-loaded "hones" that can be found in auto supply stores. The spring-loaded types or "glaze-breakers" will follow, not correct, a tapered cylinder and can bell-mouth the ends of the cylinders. Rigid laps like those made by Rollie will correct a tapered bore or shaft. These very simple and inexpensive tools can yield the same results of very expensive grinders and honing equipment and can make up for a worn lathe as well.



A collection of some lapping tools I made and acquired since Rollie's first talk on the subject.



Aluminum split laps for lapping outside diameters and the holder that clamps them closed as they wear.



Some small commercial laps that range in size from .045" to .187" diameter. Handy for sizing small bearings. The steel clamps to the right are used to wedge open the splits in the laps.



Some commercial brass flex laps. A setscrew in the end of the arbors expands the brass sleeve. These come in nominal sizes but also can be turned to whatever size is needed.

T.D.C.



The Steam Man of the Prairies

BY EDWARDS ELLIS,



CHAPTER III.

A GENIUS.

HAVING progressed thus far in our story, or properly having begun in the middle, it is now necessary that we should turn back to the proper starting point.

Several years since a widow woman resided in the outskirts of St. Louis, whose name was Brainerd. Her husband had been a mechanic, noted for his ingenuity, but was killed some five years before by the explosion of a steam boiler. He left behind him a son, hump-backed, dwarfed, but with an amiable disposition that made him a favorite with all with whom he came in contact.

If nature afflicts in one direction she frequently makes amends in another direction, and this dwarf, small and misshapen as he was, was gifted with a most wonderful mind. His mechanical ingenuity

bordered on the marvelous. When he went to school, he was a general favorite with teachers and pupils. The former loved him for his sweetness of disposition, and his remarkable proficiency in all studies, while the latter based their affection chiefly upon the fact that he never refused to assist any of them at their tasks, while with the pocket-knife which he carried he constructed toys which were their delight. Some of these were so curious and amusing that, had they been secured by letters patent, they would have brought a competency to him and his widowed mother.

But Johnny never thought of patenting them, although the principal support of himself and mother came from one or two patents, which his father had secured upon inventions, not near the equal of his.

There seemed no limit to his inventive powers. He made a locomotive and then a steamboat, perfect in every part, even to the minutest, using nothing but his knife, hammer, and a small chisel. He constructed a clock with his jack-knife, which kept perfect time, and the articles which he made were wonderfully stared at at fairs, and in show windows, while Johnny modestly pegged away at some new idea. He became a master of the art of telegraphy without assistance from any one, using merely a common school philosophy with which to acquire the alphabet. He then made a couple of batteries, ran a line from his window to a neighbor's, insulating it by means of the necks of some bottles, taught the other boy the alphabet, and thus they amused themselves sending messages back and forth.

Thus matters progressed until he was fifteen years of age, when he came home one day, and lay down on the settee by his mother, and gave a great sigh.

"What is the matter?" she inquired.

"I want to make something."

"Why, then, don't you make it?"

"Because I don't know what it shall be; I've fixed up everything I can think of."

"And you are like Alexander, sighing for more worlds to conquer. Is that it?"

"Not exactly, for there is plenty for one to do, if I could only find out what it is."

"Have you ever made a balloon?"

The boy laughed.

"You were asking for the cat the other day, and wondering what had become of her. I didn't tell you that the last I saw of her was through the telescope, she being about two miles up in the clouds, and going about fifty miles an hour."

"I thought you looked as though you knew something about her," replied the mother, trying to speak reprovingly, and yet smiling in spite of herself.

"Can't you tell me something to make?" finally asked the boy.

"Yes; there is something I have often thought of, and wonder why it was not made long ago; but you are not smart enough to do it. Johnny."

"Maybe not; but tell me what it is."

"It is a man that shall go by steam!"

The boy lay still several minutes without speaking a word and then sprung up.

"By George! I'll do it!"

And he started out of the room, and was not seen again until night. His mother felt no anxiety. She was pleased; for, when her boy was at work, he was happy, and she knew that he had enough now, to keep him engaged for months to come.

So it proved. He spent several weeks in thought, before he made the first effort toward constructing his greatest success of all. He then enlarged his workshop, and so arranged it, that he would not be in danger of being seen by any curious eyes. He wanted no disturbance while engaged upon this scheme.

From a neighboring foundry, whose proprietor took great interest in the boy he secured all that he needed. He was allowed full liberty to make what castings he chose, and to construct whatever he wished. And so he began his work.

The great point was to obtain the peculiar motion of a man walking. This secured, the man himself could be easily made, and dressed up in any style required. Finally the boy believed that he had hit upon the true scheme.

So he plied harder than ever, scarcely pausing to take his meals. Finally he got the machine together, fired up, and with feelings somewhat akin to those of Sir Isaac Newton, when demonstrating the truth or falsity of some of his greatest discoveries, he watched the result.

Soon the legs began moving up and down, but never a step did they advance! The power was there, sufficient to run a saw-mill, every thing seemed to work, but the thing *wouldn't* go!

The boy was not ready to despair. He seated himself on the bench beside the machine, and keeping up a moderate supply of steam, throwing in bits of wood, and letting in water, when necessary, he carefully watched the movement for several hours.

Occasionally, Johnny walked slowly back and forth, and with his eyes upon the "stately stepping," endeavored to discover the precise nature of that which was lacking in his machine.

At length it came to him. He saw from the first that it was not merely required that the steam man should lift up its feet and put them down again, but there must be a powerful forward impulse at the same moment. This was the single remaining difficulty to be overcome. It required two weeks before Johnny Brainerd succeeded. But it all came clear and unmistakable at last, and in this simple manner:—

(Ah! but we cannot be so unjust to the plodding genius as to divulge his secret. Our readers must be content to await the time when the young man sees fit to reveal it himself.)

When the rough figure was fairly in working order, the inventor removed everything from around it, so that it stood alone in the center of his shop. Then he carefully let on steam.

Before he could shut it off, the steam man walked clean through the side of his shop, and fetched up against the corner of the house, with a violence that shook it to its foundation. In considerable trepidation, the youngster dashed forward, shut off steam, and turned it round. As it was too cumbersome for him to manage in any other way, he very cautiously let on steam again, and persuaded it to walk back into the shop, passing through the same orifice through which it had emerged, and came very nigh going out on the opposite side again.

The great thing was now accomplished, and the boy devoted himself to bringing it as near perfection as possible. The principal thing to be feared was its getting out of order, since the

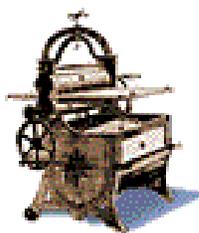
slightest disarrangement would be sufficient to stop the progress of the man.

Johnny therefore made it of gigantic size, the body and limbs being no more than "Shells," used as a sort of screen to conceal the working of the engine. This was carefully painted in the manner mentioned in another place, and the machinery was made as strong and durable as it was possible for it to be. It was so constructed as to withstand the severe jolting to which it necessarily would be subjected, and finally was brought as nearly perfect as it was possible, to bring a thing not possessing human intelligence.

By suspending the machine so that its feet were clear of the floor, Johnny Brainerd ascertained that under favorable circumstance it could run very nearly sixty miles an hour. It could easily do that, and draw a car behind it on the railroad, while on a common road it could make thirty miles, the highest rate at which he believed it possible for a wagon to be drawn upon land with any degree of safety.

It was the boy's intention to run it twenty miles an hour, while where everything was safe, he would demonstrate the power of his invention by occasionally making nearly double that.

As it was, he rightly calculated that when it came forth, it would make a great sensation throughout the entire United States.



NEMES Gazette ***Editorial Schedule***

<u>Issue</u>	<u>closing date for contributions</u>
April '08	March 21, 2008
May '08	April 18, 2008
June '08	May 23, 2008



Meeting Video

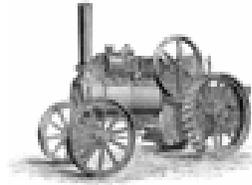
At the February meeting I video taped some segments during the show-and-tell portion of the meeting. Also taped was Rollie's talk about lapping. If you have watched these clips on the web it is obvious that lighting is a problem for this kind of work. At the March meeting I want to discuss what the membership thinks about resolving this dilemma. More lighting will make the video clips easier to watch but will take away from the video projector up on the wall.

(From: <http://neme-s.org> New Pages- Feb.'08)



Is it worth trying to tape these talks at all? What did you think of the February taping? I did not think that the actual taping was intrusive but others may disagree. With the camera off to the side as it was I don't think that I was in anyone's way when I made adjustments to the camera. I was worried about the sound pick up but being right in front of one of the speakers took care of that problem. Questions from the audience were pretty much inaudible and that will have to be addressed in the future. I have received only one comment about the video and that was from one of our members who was not at the meeting. So, good or negative your thoughts will be welcome.

Errol Groff



NEMES Show

The 2008 NEMES show marked another rousing success for our group. Attendance was strong and the mechanical marvels on exhibit were a delight to all. Thanks to the generosity of our door prize contributors, there was an impressive array of door prizes available to our exhibitors. There were too many great prizes to enumerate here, so I'm going to save a few trees by simply providing a list of the businesses and individuals who were kind enough to help make our show a success by contributing door prizes. I would also like to thank Ed Rogers and Steve Cushman for their help in picking up some of the door prizes from the donors.

2008 NEMES Show Door Prize Contributors

Home Shop Machinist magazine
The Tool Shed – Worcester
The Tool Shed – Waltham
Wholesale Tool, Inc. – Stoughton
New England Brass & Tool – Winchester
Tools for Cheap (Jeff Beck) – Harvard
Used Tools (Jim Paquette) - Uxbridge

Alan Bugbee
Steve Cushman
Frank Dorion
Marty Feldman
Ed Ferguson
Errol Groff
Ray Hasbrouck
Al Kamishlian
Harvey Noel



For Sale

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. The CD now has a lot more info on it, and the price has increased accordingly. \$10.00, shipping included.

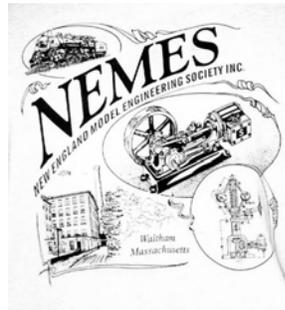
Errol Groff
180 Middle Road
Preston, CT 06365 8206
errol.groff@snet.net

NEMES Shop Apron



Look your best in the shop! The NEMES shop apron keeps clothes clean while holding essential measuring tools in the front pockets. The custom strap design keeps weight off your neck and easily ties at the side. The apron is washable blue denim with an embroidered NEMES logo on top pocket.

Contact Rollie Gaucher 508-885-2277

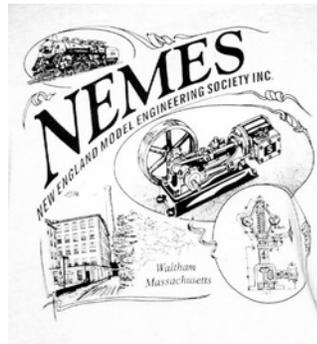


NEMES clothing

NEMES Tee Shirts

NEMES tee shirts and sweat shirts are available in sizes from S to XXXL. The tee shirts are gray, short sleeve shirt, Hanes 50-50. You won't shrink this shirt! The sweat shirts are the same color, but long sleeve and a crew neck. Also 50-50, but these are by Lee. The sweat shirts are very comfortable!

Artwork by Richard Sabol, printed on front and back:



Rear



Front

Prices:

	Tee Shirts	Sweat Shirts
S - L	\$12.00	\$22.00
XXL	\$14.00	\$24.00
XXXL	\$15.00	\$25.00

Add \$5 shipping and handling for the first tee shirt, \$1 for each additional shirt shipped to the same address. Sweat shirts are \$7 for shipping the first, and \$1.50 for each additional sweat shirt.

Profits go to the club treasury.

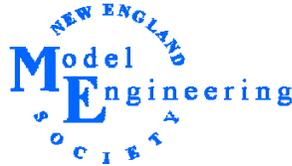
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**MARK
THIS
DATE**

Upcoming Events

Bill Brackett



Membership Renewal Form

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

Bill

March 6th Thursday 7PM
NEMES Monthly club meeting
Charles River Museum of Industry
Waltham, MA
781-893-5410
<http://www.neme-s.org>

April 3rd Thursday 7PM
NEMES Monthly club meeting
Charles River Museum of Industry
Waltham, MA
781-893-5410
<http://www.neme-s.org>

April 20th 9:00am The Flea at MIT
Albany Street Garage at the corner of Albany
and Main Streets in Cambridge
<http://web.mit.edu/w1mx/www/swapfest.shtml>

April 19th – 20th NAMES Expo
Toldeo, OH
www.modelengineeringsoc.com

Renew your NEMES membership for the calendar year 2008. Enclose a check for \$25 payable to: NEMES

Name _____

Address _____

City _____ State _____ ZIP _____

Home Phone _____

Work Phone _____

Email _____

Please bring this form to the next meeting or mail to:

**Richard Koolish
212 Park Ave.
Arlington MA 02476**

(If bringing cash, place in an envelope with your name and address on outside)

IMPORTANT – PLEASE READ

For people who haven't yet paid 2008 dues, I printed a note on their mailing labels that says:

Last Issue 2008 dues unpaid

To avoid termination of your subscription to the gazette, please check your mailing label to see if dues are owed. If your dues are unpaid, this will be your last issue unless you send in a check soon. Labels were printed a few weeks in advance, so if you paid dues recently and see this message, please accept my apologies and disregard this warning.

Bob Neidorff