

# The NEMES Gazette

*The Newsletter of the New England Model Engineering Society*

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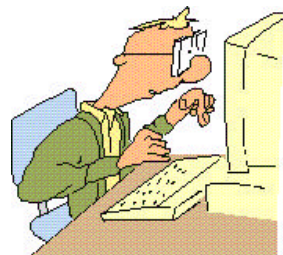
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## The Editor's Desk

Mike Boucher

Recent discussion on the NEMES internet mailing list got me thinking about additional articles that would be nice to see in the Gazette.

Over the course of the summer, I know a lot of our member attend antique engine shows. And during the winter we attend model engineering shows as well as work in our shops. I think that show reports, and shop progress reports would be a worthy addition to the Gazette.

For the show report, what I'm envisioning is a 1 or 2 page description of a particularly interesting engine that was there, who you saw there, and maybe even what goodies you bought. Basically, let people know if it was a good show so next year, when it appears in the "upcoming events" calendar, people might be more interested in attending. A photo of a NEMES member or the interesting engine at that show would be a great addition. If you can't scan photos to email them, I have a scanner. Mailing photographs to me would be fine.

I have written that type of report in the past for the Windsor, VT show (which will have happened between the time I write this and the time you read it) and also Cabin Fever. For example, in

## Next Meeting

**Thursday, September 5, 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).

late September, the Connecticut Antique Machinery Assn. had their annual show. I've never been, but I understand it's quite a show. Errol Groff sent me quite a few photos, and I thank him for that. What about the Dublin, NH, show in early September? I haven't been there in a few years due to schedule conflicts. I know several of our members are attending the American Precision Museum show in Late October. Anyone taking photos? The last Gazette mentions that NEMES had an exhibit at the Topsfield show. Did anyone take pictures of our display, our members, or even an interesting car at the show?

For the "progress reports", I'm convinced that some of our members actually finish building something occasionally, unlike me. Send in a picture and brag! Maybe add a description of some tricky machining? A few months ago Dave Stickler talked at the meeting about his twin tangye, and I really liked the write up. I don't want to volunteer Dave for another, but I'm equally sure he's not the only person who's actually building stuff! You don't even have to have finished the project, if you've hit what you consider to be a milestone, like finishing a major assembly, or even the aforementioned difficult part, let us know!

You'll find an excellent example of this in a few pages. Rollie Evans has a short article on the burner he's building for a boiler.

Also, we've also had a "shop hints" column in previous Gazettes. Don't be afraid to send in little helpful tidbits that the rest of us might be able to apply.

C'ya  
Mike



## *President's Corner*

Norm Jones

### *The Meeting*

Our speaker for November will be Louis Broad. Louis is associated with the CAPSAT program at the Timberlane Regional High School in Plaistow New Hampshire. CAPSAT (Coordinated Algebra(II) & Physics Simulated Satellite) is an educational program at Timberlane where Physics and Algebra are taught in a manner to show how math, science, and technology work together. The last quarter of the school year is spent producing a large-scale project that involves high altitude ballooning, remote control systems, science, math and amateur radio. More information is available at <http://www.mv.com/ipusers/lb/capsat.html>

### *Show Season*

By the time you read this, the "regular" antique machinery shows will be over for the year. It's time to get back to the shop once again and make some "chips". Needless to say, I have quite a selection of casting sets to choose from. I am sure that I am not alone when it comes to stockpiling castings. They need to age! One set in particular that comes to mind is Jerry Howell's Rider Hot Air Engine. The postmark on the carton says Sept 8, 1999. How time flies! Jerry made up 50 casting sets and I know that a number of you have one. I have yet to see one built. Wow, what small parts!

### *Cabin Fever Show*

We have 20 people signed up for the Cabin Fever Show bus trip. Cabin Fever is moving to a new location in York, PA and promises to be bigger and better than ever. There was a waiting list last year, so if you want to go, sign up early. There is a block of 30 rooms reserved at the Holiday Inn Holidome. Please mention NEMES when reserving a room. The rate is \$75.21 including

tax per day. The bus will be going to the Holiday Inn exclusively. We'll have more information on the bus arrangements later.

[Editor's Note: See the article in this issue for more specifics on the estimated hotel and bus costs, as well as the reservation number.]

## *Security*

We will be meeting in our regular location this month and therefore need to once again "watch" the front door of the museum until 7:00 PM. Thanks in advance for your help. See you on Nov 7th!

*Norm*



## *The Meeting*

Max ben-Aaron

President Norm Jones called the meeting to order in the ground-floor room at the Museum and welcomed any new members.

He drew attention to the Brown steam engine that our esteemed Editor had previously mentioned. (See a separate article about it).

To continue the saga of the welded aluminum chair: it was brought to a show and Gene Martha had the courage to test it. It broke. Will it be re-repaired? Don't hold your breath.

The American Precision Museum's Third Model Engineering Show was on October 26 - 27. We need a volunteer to write a short report on the event for the December Gazette.

## *Show & Tell*

Error Groff showed a mechanical mouse trap made of sheet-metal.

Dick Boucher told us that small tubing can be easily bent by making a 'bending bobbin' from a scrap of aluminum and showed a couple of examples, including the bender he used to make the bends for the Simplex loco he is building.

Ron Ginger regaled us with an amusing slide show about the house and shop he is building down in Maine.

Jim Paquette announced that he had acquired a bunch of steam engine kits that would soon be offered for sale. He didn't specify how many and what kind, but a list is in a previous issue of the Gazette, in the For Sale section. It was a gentleman in Texas selling his "project pile"

## *Scale Model Helicopters*

Joe Howard

Aristotle's formula for happiness: "...the exercise of vital powers along lines of excellence in a life affording them scope." By this criterion, Joe Howard ought to be a happy man. He has managed to turn his avocation, his hobby, building radio-controlled scale helicopters, into a business -- East Coast Scale Helicopters. Most of the business is building custom radio controlled model helicopters to order, but each year he also builds a half a dozen or so models that you can purchase off-the-shelf for around \$6000 each.



Joe Howard with Vario Helicopter

Errol Groff Photo

These are very complicated models, weighing about 14 pounds each and powered by a 91 cc glow-plug engine. Unusually, model helicopters are capable of aerobatics that full-sized machines are unable to perform. The control skills are quite different from real helicopter piloting and being a real pilot is not necessarily an advantage and may even be a disadvantage.

Potential model helicopter pilots are advised to learn on a stripped-down version to gain basic skills and to determine if their interest is sustained. Only when these two requirements are met, is it time to step up to a Joe Howard superb (and relatively expensive) model.

The process of construction has two major components: the actual helicopter body, and the machinery and control systems that enable it to emulate (and even improve on) the properties of full-sized aircraft.

The body is a two-part fiberglass shell with a white gelcoat finish, made by the Vario Company in Germany. It is made in two halves in a mold, split along the vertical plane of symmetry. After the two halves are glued together and the doors and windows fitted, the propulsion, radio and control mechanisms have to be fitted into the cavity. Quite a bit of machining goes into a model to make the specific mechanisms work as they should.

Depending on the options ordered by the customer, anywhere from five to twelve servos may need to be integrated into the control system. Besides necessary yaw, pitch and roll servos, others may be required for pop-up machine guns, 'rocket launchers' or other options. Joe brought one of the most complicated available models to show.

Most conventional helicopters use a tail rotor for yaw control and to counteract the reaction to the angular momentum of the rotor. The beautiful models that Joe brought to show emulate the 1980's McDonnell-Douglas NOTAR ("NO TAIL Rotor) system. McDonnell-Douglas' NOTAR concept, which was based on the standard 500E fuselage, uses reaction torque, generated by a stream of air, much like the propulsive force of a jet. In a full-sized NOTAR helicopter, instead of a tail rotor, the jet is generated by a separate

compressor system. The models use a compressor fan that is driven by the glow-plug engine. The fan is a 5" diameter dual-sided aluminum fan which absorbs about 25% of the available engine power. The door in the tail boom, which modulates the volume of control air, is slaved to the stick.



RC Helicopter

Errol Groff photo

Because of real-world scale effects (Reynold's numbers and so forth), a model cannot simply be a scaled-down copy of the real thing. The models differ significantly from full-sized helicopters. Speeds do not scale linearly and the heads rotate three times faster (in proportion) so models have to have a 'fly-bar' above the main rotor that full-sized aircraft lack. Also, the main rotor blades of models are not articulated in the same way. In the model, the fly-bar is under control and its pitch controls the main rotor to stabilize and maneuver the aircraft. Due to gyroscopic precession, the forces are exerted 90 degrees later through a swash plate so the fly-bars control the pitch of the main rotors just like their big brothers. For stabilization, the computer is programmed to couple the throttle to the control system so that consistent rpm from hover point to full throttle can be achieved. The elevator controls the speed. All the controls are coordinated by the computer through a "revolution mix".

Since painting and finishing models is a perpetual headache to NEMES members, Joe was extensively grilled about the techniques he uses to achieve the superb finishes evident in the models he brought. Joe started out doing auto finishes and uses basically the same techniques. He uses a regular auto paint sprayer and water-based auto finishes rather than an airbrush.

His advice boils down to this: Contrary to the model engineering notion that "a coat of paint hides a multitude of sins", Joe advises that the paint exaggerates every flaw. The real secret is



absolutely meticulous preparation before painting. [Editor's note: My model railroad hobby shows this to be an unbreakable law of the universe.]

He uses green putty and other methods to make sure that the body is flawless before even priming. He uses wet/dry abrasive paper, but never wet.

Contrary to conventional wisdom, Joe paints the dark colors first, then masks off the necessary areas and sprays the lighter colors.

Thanks to Joe Howard for a fascinating and illuminating talk. Joe's company is:

East Coast Scale Helicopters  
741 Lincoln Street  
Franklin, MA 02038

Phone: (508) 520-1867  
Fax: (617) 262-6811

[info@eastcoastvario.com](mailto:info@eastcoastvario.com)

Max

## *Cabin Fever Trip*

Rob McDougall

Join us on the bus to...

### *Cabin Fever 2003*

*The Date:* January 17<sup>th</sup> to 19<sup>th</sup>, 2003

*Departure:* Leaving from MBTA Riverside Station, Newton, MA, at 9:00 AM **SHARP**. Plan on being at Riverside by 8:30 for loading.

*Return Time:* We strive to leave the show by about 1:00 pm on Sunday afternoon. That gets us back to Riverside around 7 to 8 pm.

*Accommodations:* **Holiday Inn**, 2000 Loucks Road, York, PA, 17404, (717) 846-9500. **YOU MUST CALL PERSONALLY TO BOOK YOUR ROOM.** The block of rooms will be held until December 18, 2002. After that date, neither the

room nor the rate can be guaranteed. The bus will be going to this hotel, and this hotel **ONLY**. If you are planning on going, you must book a room yourself! Sleeping on the bus is not recommended (and probably not allowed!)

#### *Estimated costs:*

?? Bus: \$62 (estimated)

?? Room: \$150.42 for both nights, taxes included.

?? Show entrance fee: \$6 for both days.

If you only go to one show a year, it should be our show in February! But, this is the other show you must attend. It is arguably the biggest in the country at this point. We have about another 30 minutes drive this year because it has moved to an even bigger venue in York. Norm has pre-booked 30 rooms at the Holiday Inn where we will be staying, so when you call, **make sure you say you're with NEMES!** The rate is \$75.21 per room, per night. You can double up if you want, or have a room to yourself. As usual, we will stop to pick-up and drop off Rollie, Frank and Allan along the way. If anyone else needs to be picked up, let me know and we will make mutually convenient arrangements. We also make a lunch stop about half way.

We encourage everyone to come along. Last year we had 40 and it was pretty much full on the bus. So, sign up now if you want to go.

Either let me know directly by phone (781 647-0689), e-mail ([rcmcdougall@attbi.com](mailto:rcmcdougall@attbi.com)) or letter (357 Crescent Street, Waltham, MA 02453), or at the next meeting. I'll put a sign up sheet at the front. Please pay the \$62 for the bus fare by end of December. **ALL ABOARD!!!**

Rob



## Nearby Stationary engines

Various NEMES  
members

In last month's "Editor's Desk", Mike Boucher talked about a C.H. Brown steam engine in Chelmsford, MA. This prompted a bit of discussion on the NEMES mailing list about stationary steam engines in the area

Fred Jaggi informed us that there are two articles in the latest bulletin of the International Stationary Steam Engine Society bulletin about C. H. Brown engines. One is a general article on the engines and the other is about the 17" bore x 41" stroke engine that was donated by Clark's trading post to the Connecticut Antique Machinery Association.

Jay Stryker mentioned that, at the Brickstone Company's mill, High Street in North Andover, MA, there is a reception area and behind it is the remains of the mill engines: a large horizontal, and two high-speed engines for dynamos. The boiler house is gone, but the smokestack was still standing in 1997.

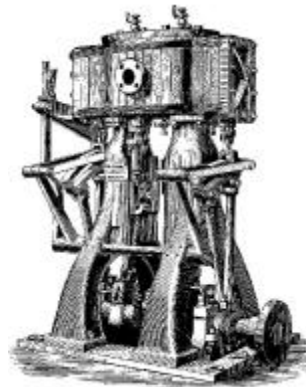
David Stickler mentioned an gas engine in the Harvard/Ayer, MA area. Going north on Route 111 from route 2, toward Ayer, there is a tractor dealer with a largish gas engine out front (town or producer, I would guess.) It has a Bessemer nameplate, and is built essentially as a horizontal steam engine, except for the cylinder. It looks like most of the intake and ignition components are long gone, but the basic engine appears intact.

Ron Ginger mentioned an engine in the mill building in formerly owned by Digital Equipment Corp. (DEC) in Maynard, MA. At the Walnut Street end of the old DEC mill there is a lobby entrance now that has the horizontal steam engine and a generator.

The engine was the first electrical plant in Maynard and has remained intact, at least it was intact as long as DEC owned the building. One of DEC's Vice Presidents tried to get it to run on compressed air. He never got it to go. We had a

tour of the engine and clock tower once with the Straw Hollow Engine club. Day Fay was along, looked at the engine and air line and instantly saw the cutoff governor was set such that the engine wouldn't run, but by then the air line was dead, so we didn't get to test this theory.

After DEC was sold, the mill building was renovated and that end of the building was opened up to a lobby. The wall between it and the engine was either removed or changed to glass. You can see it from the road passing by, but I have never had time to stop and look.



## Marine Boiler Burner

Rollie Evans

I brought my new burner that I have been developing to Roland Gaucher's open house. I thought I would show the new burner I am making for my new marine boiler.

It is not a new idea. They were made in Scotland in the late 1800 before electricity was available. I have been unable to find detailed drawings but do have a description of operation.

The mode of operation is to self generate steam. A pressurized tank of air over water is used. The air is used to atomize the oil till the vaporizing coils get hot enough, less then a minute and then a three way valve is used to switch over to water.

The water is vaporized to steam at the pressure in the tank, about 10 to 20 pounds. Super heated, the actual temperature is much higher. The main problem I had was to size the coils large enough to vaporize the water. They are now 1/2" OD Stainless steel and have a 3/8" metal filler in the center of the tube so the water is only on the inside skin of the tube.

The other problem is the nozzle design. It has to give a cone or flat wide spread to the flame so the vaporizer tubes get hot enough to make steam. It also has to be designed to draw suction on the fuel so it can be below the burner and without a pump.

The burner is designed to burn about two gallons of oil per hour. Every thing is working fairly well, but it still needs some fine-tuning and boiler testing.



Rollie's burner in action

Rollie Evans photo



Burner nozzle

Rollie Evans photo

## Connecticut Antique Machinery Association

Errol Groff

Here are some photos of the show, sent in by Errol. Hopefully I correctly matched the descriptions with the photos.

Some enterprising soul decided to section a Gravelly tractor, instead of restoring it to operating condition. [Editor's note: this looks like one of my electric trains on steroids.]

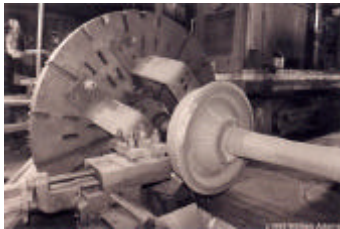


As briefly mentioned by Fred Jaggi in an earlier article, Clark's Trading Post recently gave the Connecticut Antique Machinery Association a C. H. Brown engine. They've reassembled it, as can be seen here. Doesn't look like they have the steam line connected yet!



Finally, Errol's favorite car is the Crosley. There were a few at the show. Here is one of them. In addition to these small autos, they built a biplane known as the "Moonbeam"





## *Industry News*

Bob Neidorff sent in this press release. I felt it was interesting enough to print. The Bridgeport Machine factory recently closed, leading us to fear that the most popular name in machine tools is gone forever, along with support for our treasures. But that's not the end of the story. Read on. (Editor's note: The SEC required "company information" and "blue sky" notices have been left off to conserve space.)

### ***Hardinge Forms Alliance With Bridgeport International***

Elmira, N.Y., September 16, 2002 -- In a joint statement today, Hardinge Inc. (HDNG) of Elmira, NY, and BPT Holdings, Inc. along with its wholly-owned subsidiary Bridgeport Machines Ltd. (Bridgeport UK and collectively Bridgeport International), Leicester, UK, announced that they have signed a letter of intent whereby Hardinge Inc. intends to assume responsibility in North America for the manufacture and distribution of Bridgeport knee mills, related parts and service support functions, and other activities concerning products previously produced by the Connecticut operations of Bridgeport Machines, Inc.. Consummation of the transaction is contingent on the execution of definitive agreements and the satisfaction of certain conditions.

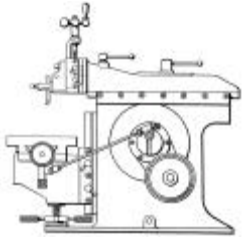
Stuart Wilkins, Chief Executive Officer of Bridgeport International commented, "I am delighted to announce our intention to form an alliance with Hardinge. They are our number one choice to carry on the American tradition of Bridgeport knee mills and provide related parts and service support for our enormous installed base of products in North America. Hardinge has the combination of machine tool heritage, high quality manufacturing, and strong customer service and support we seek in our partners. I am genuinely excited about the opportunities for Bridgeport International customers, distributors and vendors that this alliance should bring, in addition to the joint marketing, distribution and revenue opportunities for Bridgeport International and Hardinge."

J. Patrick Ervin, President and CEO of Hardinge Inc. said, "We too are excited to be joining together two of the great names of the U.S. machine tool industry. The addition of Bridgeport knee mills to our product line will be a tremendous addition to our product offerings serving the important North American job shop markets. We will also be able to further leverage our growing machine services business by adding to it the repair parts and service business of Bridgeport."

"The machines produced in Elmira, NY, will continue to carry the proud 'Bridgeport' name," continued Ervin. "The industry for small parts manufacturing was founded on Hardinge lathes and Bridgeport mills, and I dare say that you cannot go into any quality job shop in North America without finding a Bridgeport knee mill and Hardinge manual lathe standing side by side."

Hardinge currently expects to be supplying parts and services as soon as definitive agreements with Bridgeport International are concluded, and plans to be in production of machines at its Elmira, NY facility in the first quarter of 2003. Customers and suppliers will be contacted shortly to ensure their needs are addressed.





## *Shaper Column*

Kay Fisher

### *AMMCO acquisition*

I received this acquisition tale from Steve Bachanek, in Ontario, Canada.

I have been looking for one of these small critters for the last two years without having to go to great travel or shipping costs. Being in Thunder Bay, Ontario (NW shore of L. Superior), we are kind of isolated from large cities and industrial areas where surviving wild shapers roam.

One of the comments on your site referred to the silliness of anyone being unwilling to travel a thousand miles if necessary to get something he really wants. Hmm. Made me think carefully about that.

My ship came in - in the form of a 6" AMMCO that was being sold off from a retiring machinist in a town only a couple of hundred miles away.

It was the smallest item in his shop, which was set up to repair mining equipment. His **small** lathe was a 16 inch South Bend and the large one was a 24 inch Progressive with a 3 inch hole in the head stock. They will probably be for sale for some time to come, given the logistics involved in moving them any great distance.

The shaper was in fine shape as it had retired from its keyway cutting a few years ahead of the owner who subsequently used a milling machine.

It was no problem to break it down into three parts: motor/pulleys, shaper, and shop-made steel stand. That way, I only got three smaller hernias ~~s~~. Well not really - the spouse helped and I'm going to owe her big time. Seriously though, any machine should be disassembled as much as possible both for its safety as well as yours. Sermon ends.

I believe my model was actually produced by AMMCO before they sold the production line to Rockwell. It differs some from the one shown at the web site [www.lathes.co.uk/ammco/index.html](http://www.lathes.co.uk/ammco/index.html). This one has a v-belt from motor to jack-shaft but a three-level flat pulley from jack to shaper. Yes, it really appears to be original. Someone has painted the shaper green but the underlying fire-engine red shows through in several places on the shaper and motor mount/spindle.

I surprised myself by locating a local source of flat belting. Theirs was identical rubber and canvas-like material but 4 ply. They showed me how to remove one ply to match the existing 3-ply belt and install the toothed hinge connection. In case anyone wonders, that fourth ply makes it a bit too stiff for this little machine and is marginal for clearance between the large fat flat pulley and the machine parts at that end.

The one thing missing other than the belt guards is any instruction manual.

[I sent AMMCO/Rockwell documentation to Steve - KRF]

I will make new safety guards. I will also keep in touch as I get it cleaned, reassembled and back in operation.

### *Shaper Book Reviews*

Steve Bachanek also sent along several book reviews. As for your shaper reading reference section, the following books contain shaper information of good utility.

The first two are of the textbook variety and each contains a shaper chapter with useful charts and instructions. They are likely out of print, but could be obtained from the used book resources on the Internet.

Machine Shop Theory and Practice revised edition (1989) by Fred H. Hallett, the Macmillan Company of Canada Limited Toronto. [no ISBN]

Machine Shop Training by S. F. Krar and J. W. Oswald, McGraw-Hill Ryerson Limited. ISBN 0-07-548951-1

The third listing is a two-volume set with more shaper info than the others. The shaper is covered in the second volume, Part Two. This two-volume set is a gold mine of info on all the machine tools and their accessories in its roughly 1200 pages and I would strongly urge any HSM to try to get one through used book resources.

Machine Tool Operation by Henry D. Burghardt, Aaron Axelrod and James Anderson. Webster division, McGraw-Hill Book Company.

Part One contains the following divisions: Safety, Measuring Tools, Bench Work, The Drill Press, The Lathe, and Forge Work.

Part Two contains the following divisions: The Shaper, The Planer, The Milling Machine, The Grinding Machine, Hydraulics, Metal Band Saws, Metallurgy, and Cutting Fluids.

And a whole lot more like how to drill and lace a leather flat drive belt in a very special sequence... the kind of stuff that is being lost to common knowledge.”

After receiving a copy of the AMMCO documentation Steve replied:

“The two PM-1737 manuals for the Delta-Milwaukee (1950) and Delta (1955 update) arrived today and will be invaluable to me in ensuring the proper lube and adjustment of my AMMCO.

As expected, my AMMCO is fairly identical to the later Delta variants except for the flat belt pulleys and different drive unit.

But I was really surprised to see that the Deltas have a side mounted crank-elevating screw, driving miter gears to raise or lower the shaper table. Mine has the crank on a shaft directly underneath the unit, requiring a hole in the bench top, but obviously not needing the miter gears. While the Delta's newer placement of this crank is more practical, the old style is no big deal to operate. But the Delta's newer location does have the portability advantage of being instantly movable to any solid bench or table top, without having to bring a drill for a hole.

Using mine on the kitchen table (and drilling that hole) would be hazardous to my health, although it would make a good story after I regained consciousness.”

Thanks Steve for that story and the shaper book reviews.

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:  
[Fisher@naisp.net](mailto:Fisher@naisp.net)

Kay



## Treasurer's Report

Rob McDougall

As of 9/30/02

|                          |                   |
|--------------------------|-------------------|
| Balance as of: 8/31/02   | <b>\$5,073.30</b> |
| Dues Received            | 50.00             |
| Sales of Dave Bono Plans | 80.00             |
| Interest Income          | .62               |
| <i>Less</i>              |                   |
| Gazette expense          | -204.65           |
| Balance as of: 9/30/02   | <b>\$4,999.27</b> |

Rob



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. \$5.00 shipping included.

Errol Groff  
180 Middle Road  
Preston, CT 06365 8206  
[errol.groff@snet.net](mailto:errol.groff@snet.net)

**Last Word DTI.**

Starrett #711T1SZ. readings = .0001, range = .008, dial 0-4-0 in case with body clamp, height gage attachment, tool post holder, and an s shaped bar, with original box in almost perfect condition. Will deliver any afternoon for shop visit.

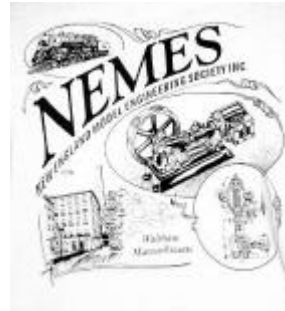
\$100

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

**WANTED: RUSTNOCK Milling head.**

Price commiserate w/condition.

Howard Evers (508) 987-0654 or  
[hwevers@charter.net](mailto:hwevers@charter.net)

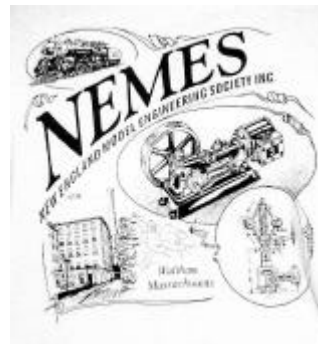


NEMES Clothing

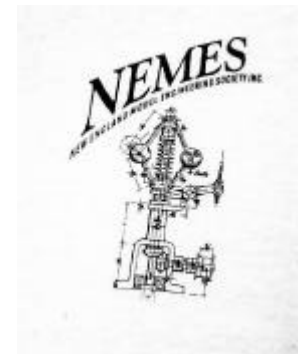
**NEMES Tee Shirts**

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

Artwork:



Rear



Front

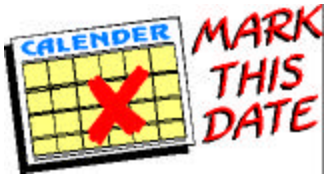
Prices:  
S, M, L, XL \$12.00  
XXL \$14.00  
XXXL \$15.00

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@attbi.com](mailto:bandm3714@attbi.com)





## Upcoming Events

Bill Brackett

### **Nov 1-3 - 17th Annual World Championship Punkin Chunkin Competition**

Intersection of Route 305 and 306, Millsboro, DE

<http://www.worldchampionshippunkinchunkin.com>

### **Nov 7 - NEMES Monthly club meeting**

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

### **Nov 5 - NEMES Monthly club meeting**

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

### **Dec 8 - Straw Hollow Frostbite Show**

Boylston, MA. Roger (508) 869-2838

### **Jan 2 - NEMES Monthly club meeting**

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

### **Jan 18-19 - Cabin Fever Expo**

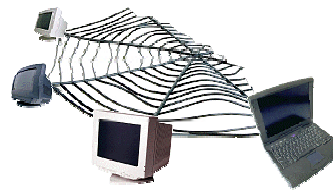
York PA. Gary Schoenly (800) 789-5068.  
See article in this issue about the NEMES bus trip.

### **Feb 15 - NEMES Model Show**

Charles River Museum of Industry, Waltham, MA (781) 893-5410 or Ron Ginger (508) 877-8217

To add an event, please send a brief description, time, place and a contact person to call for further information to Bill Brackett at [wbracket@rcn.com](mailto:wbracket@rcn.com) or (508) 393-6290.

Bill



## Web Sites of Interest

### **Connecticut Antique Machinery Association**

This link brings you to a page on their C. H. Brown engine. You can easily navigate to their home page from there.

<http://www.ctamachinery.com/Projects.html>

### **CAPSAT program**

The program at Timberlane Regional High School in Plaistow New Hampshire our November speaker is affiliated with.

[www.mv.com/ipusers/llb/capsat.html](http://www.mv.com/ipusers/llb/capsat.html)

### **“Pitch Drop” experiment**

The Physics Department at the University of Queensland (Australia) has been conducting an experiment since 1927! It's a demonstration, really, since the conditions aren't controlled.

Imagine that a seemingly brittle solid is actually a liquid with a measurable viscosity. They put some in a funnel, and they get a single drop about every 10-12 years!

Two links describing the same experiment.

<http://www.physics.uq.edu.au/pitchdrop/pitchdrop.shtml>

[http://www.physics.uq.edu.au/physics\\_museum/pitchdrop.shtml](http://www.physics.uq.edu.au/physics_museum/pitchdrop.shtml)

[Editor's Note: I have been told that stained glass is actually a liquid as well, and some medieval cathedrals have windows which are noticeably thicker at the bottom of each pane. Comments?]