

The NEMES Gazette

The Newsletter of the New England Model Engineering Society

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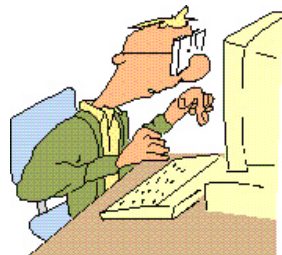
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The Editor's Desk

Mike Boucher

Well, it's now Memorial Day weekend, the unofficial start of summer. Amazing how time flies. Seems like just last weekend it was snowing!

This summer I'm going to be pretty busy getting a new house built and moved in, and also planning a wedding. Added to that I've started a new job, so my free time is at a minimum right now. That means I'm not expecting to get a lot of time to work down in the shop this summer.

Fortunately, I have found that I get a spare hour or so where every so often. Then the question becomes, "What can I do in an hour?"

So, I've started looking around and found several small projects which I've been meaning to do. Usually, I procrastinate on these when I have time to work on the "big jobs". So, I've looked at them, and found that several of them can be done in a short time.

One such job I did earlier this week, preparing my live steam engine for the summer running season. One small part broke last year on the last run, and

Next Meeting

Thursday, June 6, 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).

I've been meaning to fix it. It took 45 minutes to fix, and hopefully the engine is ready to go.

There's still a moderately sized list of small tasks awaiting. Hopefully I'll find small blocks of time over the course of the summer to get them done.

Here's hoping everyone has a great summer!

C'ya
Mike



President's Corner

Ron Ginger

June Meeting

Most of you have probably guessed that I like to attend model engineering shows and look at models. I have observed over the years many otherwise fine models that were given poor paint jobs. It seems a lot of guys either don't know how to do a good paint job or are too hurried to do it right. Our speaker for June will be Joe Howard, a professional model builder and painter. Joe worked as a painter in the auto body field, then started building model Radio Controlled helicopters as a hobby. He became well known for his fine finishes and had enough requests for work that he now makes his full time job painting and finishing models for others.

Joe will be bringing a couple models to show, which besides their great paint jobs will give us a peek at the technology of R/C helicopters. It is an amazing field, and should be another great meeting.

July Meeting

Remember, there will be **NO MEETING** on July 4th. See you all in August.

Time For A New President.

Many of you probably know that it has always been my plan to retire early and move to Maine 'someday'. I'm running out of time to make it 'early' and couldn't seem to make the decision to do it, but the recent merger of Hewlett Packard and Compaq has offered me an opportunity to take an early retirement package. I will be retiring on June 14.

I will be going to Maine on June 15th to start a major project to add on the shop space and garage to what has been our summer house. It will likely take me many months to get the house in Maine ready, and my shop and home moved.

So, I think it's time we elected a new president for NEMES. Our annual election is at the June meeting. We need a candidate to run for president.

There are really only two main jobs for the president, since we have such a great bunch of folks that do the rest of the work. The president finds the speakers for the meetings, and then does the loud-mouth routine to run the meeting. The meeting planning could, and maybe ought to be handled by a couple guys as a program committee and that would leave the president's job just to run the meetings.

So, we need a volunteer to be the next president.

I expect I will be able to attend some of the meetings, although my house is in Boothbay Maine, about a 3-hour ride to Waltham. I also suspect we may have a new chapter of NEMES, the Maine Model Engineers, someday.

Ron



The Meeting

Max ben-Aaron

The May meeting was opened by Venerable Founder Ron Ginger. Ron gave notice that we are supposed to have our annual business meeting in June. We will have our annual election of officers. If you are interested in serving the club in any official capacity, please see one of the current officers!

July 4th is on a Thursday this year. That would also be the date of the July meeting. Because it is so difficult to find a date acceptable to all, and the museum uses the room for other functions, it is wiser not to try to reschedule. There will be no July meeting this year.

Alan Bugbee, who does exquisite wood turnings asked for help with a problem. He needs to know how to configure a cutter or setup to allow him to make pieces with symmetric spiral flutes. If you can help him, please get in touch with him.

Dick Boucher brought in a box containing a set of parallels 1x1/8. The MSC flier lists them at \$30. Some members claimed that they could be cheaper when bought from eBay.

To illustrate a question asked at a previous meeting, he brought in some roughing mills. They can remove a lot of metal in a short time. They work by having flutes designed to make very small, non-continuous chips. This way, there is no side pressure built up on the end mill. In Dick's experience on CNC machines, a cut equal to $\frac{3}{4}$ of the diameter could be taken, with depth of cuts varying depending on the type of material being machined. They are not designed for plunging, however. If you must mill out a pocket, drill a starter hole before using the roughing mill. You must also clear away any chips from inside

the pocket, or the end mill will start cutting its own chips, making a real mess.

Don Strang mentioned a PBS documentary explaining why the World Trade Towers collapsed when they were attacked.

Ron Ginger reported on the Trinity College Robotics Competition in Hartford. Ron remarked that the robots seemed to be mechanically crude but they probably had sophisticated software.

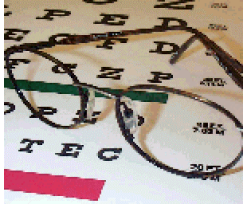
A good time was had by all at this year's NAMES show. It is in a new venue - a brand new arena which is bigger. The exhibit by the winner of the Joe Martin Foundation's "Outstanding Metal Craftsman" Award, Dr. Young C Park was particularly impressive. Dr. Park, a retired dentist, created a spectacular model of World War II Navy Vought F4U Corsair with a 30" wingspan. It is a very accurate model, executed in aluminum, which is Dr. Park's favorite material. All parts are functional, except that the engine does not work. Wooden bucks were carved out and the aluminum was hammered over them. Dr. Park was a lifelong fan of the Corsair and he had amassed a lot of information, photos and even a complete maintenance manual for the plane.

There was also an impressive model of a 1937 John Deere tractor to 1/5 scale. The builder used to take it "out for a walk" during the show.

Ron mentioned a change of venue for next years Cabin Fever show. Next year, the show will be in York, PA, which means a slightly longer bus ride. Ron also mentioned that Gary Schoenly, the man who runs the show, is looking at getting a large pool for operating model boats.

The speaker for this months meeting was Alan Wiswell. Mr. Wiswell's slide collection includes around 20,000 photos. He brought along a large number of very interesting slides of steam engines, side-wheeler and stern-wheeler paddle steamers and locomotives of all types from many countries. I was particularly impressed by his pictures of Garratt locomotives. His commentary was most interesting. It is not reported in the usual detail because it would lose in translation without the pictures.

Max



Climbing the Glass Mountain

R. Razous Khur

I have been saving this article for many years for just such an occasion - when there would be space available in the Gazette for whatever reason. It was reprinted in a model engineering magazine in the early 1980s, by permission of REVEILLE, official organ of the Retired Soldiers League of Australia. I contemplated the possibility of paraphrasing it, but finally I decided that it is easier to ask for forgiveness than to ask for permission. I cannot imagine that the editors of REVEILLE would object to this article being reprinted as is, since its provenance is acknowledged, and it redounds to the gallantry of the Anzac troops. It is a story that cries out to be kept alive, so here goes.

Max ben-Aaron

Editors Note: Max assures me he has made several attempts at contacting Reveille, but has not yet made direct contact. Since the NEMES Gazette is not a commercial publication, and we are crediting it appropriately, I decided it was a good enough story to print in this issue.

The Saga of a Remarkable Wartime Enterprise
R. Razous Khur (Holland).

THE 'Model Engineer' has done a lot of things for a number of people and all have benefited by it, no doubt. This story will go a shade further and show that it was instrumental in saving at least one life during the last war (WW II), while at the same time others have profited from the practical information gathered from its pages.

Not long after the island of Java had capitulated to the Japanese, the writer was taken ill, and spent nearly two years in POW camp hospital, in which period it became clear that apart from physical suffering, many inmates would have been happier if they could read. Due to malnutrition, failing eyesight was a common complaint, while others had lost their spectacles

during some "manual instruction" at some time or another by the wardens.

The idea ripened to grind some lenses. The writer remembered a series of articles that appeared in 1918 or 1919 in 'Model Engineer' describing the hand grinding of a telescope mirror. Time was immaterial, and lenses could be hand ground, that was the main thing. Before actual steps to this end could be taken, the writer was transferred to a camp called the 10th Battalion, and, oh wonders! Here they had a workshop. And in the workshop, a lathe. The lathe was camp made, using an Austin motor cylinder block for the head stock and the crankshaft as a mandrel. This was bolted down to a bed of steel rail. It was equipped for screw-cutting too; gearboxes of different cars supplied the gears. The rack was hand-filed tooth by tooth, but I do not recall how the leadscrew was machined. This machine was a marvel of design and patience, apart from the circumstances under which it was built.

Not two days in the camp and the writer was on parade for a draft to Burma. You will have heard of the Burma Railroad that cost a POW's life for every sleeper laid. With the co-operation of the camp's eye specialist and the camp commandant, replacement for the draft was found [approximate translation: some unknown brave man volunteered to take his place -- Mb-A] and details of a small lens-grinding machine were worked out and taken in hand. The builder of the lathe, a South African by the name of Onink, took care of the machining. Between us we cooked up a grinder any amateur would be proud to own, and a splendid job was made of machining it too.

The bearing plates were made up from the body of a centrifugal pump, spaced by distance bolts. The spindle was part of a steel car axle. This ran in a bronze bearing on a steel ball in the bottom plate, while a taper bearing in the upper plate took care of end adjustment. A wooden pulley was clamped on the spindle between the plates and a well-made spilling pan stood on top, the spindle end coming through a central hole with a collar. The grinding cups were cut from a machine-room footplate, hammered to approximate curvature, with the diamond design on the inside. To the other side was welded a gas pipe sleeve to fit over the spindle, with a slit for the driving pin.

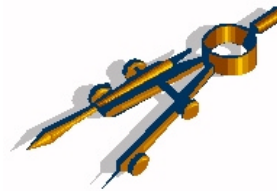
The curvature was turned on the lathe to an average curve for glass of 1.5 refractive index and a certain lens.

Yes, we were able to weld electrically. The welding rods were straightened barbed wire, with a protective coating of whitewash. This worked quite well, the current being supplied by a rotary converter giving about 80 amps and 100V. The first grinding cup having been prepared, a nice bit of glass was picked from a pile of broken car windscreens. A Ford windscreen, I believe it was. The sheets of which this was built up were taken apart and a round cut out. This was fixed with sealing wax to a car motor valve for a handle. Grinding powder was obtained by crushing bits of broken carborundum grinding stones; the finer grades by washing during the grinding operations. As a polishing medium, use was made of rust carefully scraped from some iron bars that had been out in rain and weather for months. Later we were able to use proper rouge.

When the first lens was ready, careful measurement was made of the focal distance by the aid of the sun. Simple calculation then showed what the correct refractive index was for the glass used and the curve of the grinding cup adjusted accordingly. A range of cups was then made, enabling lenses to be ground of plus to minus 10 or 12 diopters with half-diopter increments.

The frames of the spectacles were made from aluminium sheet. When a man was allotted a pair by the eye specialist, a rim about 1" wide was cut from his aluminium mess can. There was never enough food, so if we had cut up to 1" from the bottom, it would not have mattered anyway! I remember some people crying when they were able to read a book. There was one British officer who lost a glass of minus 6 1/2 diopters. He was practically blind without it. This required glass much thicker than was able to be had from the rubbish pile. After some searching, a glass jar was found, of suitable thickness; and indeed, after parallel grinding and polishing, the piece was found to be free from blemishes, so in due time a minus 6 1/2 lens was fitted to the old spectacle frame. Was that man pleased! In the course of some 10 months, about 200 pairs of spectacles were made. I wonder how many of these specs will still be around in other parts of the world?

It was "Model Engineer" that started this, however, and it has given me great pleasure indeed that I have been able to bring out, for the benefit of fellow POW's knowledge gathered from its pages. At the time of reading, I never imagined that this knowledge would come in handy in later years.



CAD for the Home Shop

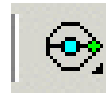
Bob "Mac" MacIvaine

Well, we've explored lines in IntelliCAD (IC), but we all know the world is full of stuff that is curved. So this time we'll take a quick look at creating curved geometry.



The icon for circle is on the tool bar. As usual, typing *circle* or *c* on the command line initiates a circle as well. By default, you are prompted to select the center. Once it is selected, you are prompted for the radius. If you want to type the diameter, type 'd' here and then you'll be prompted for the diameter. Select a point or type the value.

There are several variations on the circle command. If you click and hold on the circle icon, a menu of different circle options will drop down.



This icon will start the circle command and prompt for the center and diameter by default. Take a guess at what this icon will do



. If you guessed prompt for two points on



the diameter, you're right. And, prompts for 3 points on the diameter.

You can get pretty tricky with the circle command.



For instance, this icon will allow you to enter the radius and select two other pieces of

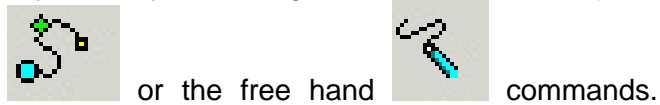
geometry that are tangent to the circumference of a circle of that radius.

Right next to the circle icon are its cousins:

-  Lots of arc options
-  ellipse
-  elliptical arc.

The arc commands are handy and can allow the user to create arcs in all sorts of situations by selecting points on existing geometry. I must admit, though, that I often just draw a circle and trim it to the other geometry.

If you really want to get curvy, try out the spline

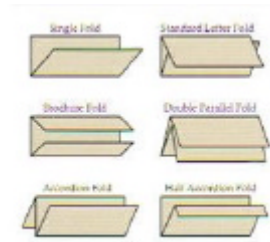


or the free hand commands.

Free hand draws points as you move the cursor, hence the name. Spline is a little more complicated. With spline, you choose points that the curve will be fitted between, based on the tangent points selected in response to the two prompts after you stop selecting points. (You tell it you're done selecting points by just hitting the *Enter* key having entered no coordinates, or by clicking the right mouse button.)

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

Mac



Contest - Design a paper folder

Bob Neidorff

Enter The First NEMES Design Contest!!!

Every month, I get 180 copies of the Gazette printed. Then, I print address labels, paste them onto envelopes, stamp the envelopes, rubber stamp my return address onto the envelopes, fold the Gazettes, stuff them into the envelopes, seal the envelopes, and put them into the mailbox. That's a lot of work, but thanks to the great design work of Stephen Lovely, Kay Fisher, and our newest editor, Mike Boucher, the Gazettes are really worth the effort.

I'm looking for your help finding a way to make folding the Gazette easier.

This contest is to come up with the best design for a paper folder that can be made in a shop. The folder must accept a stack of between 4 and 10 sheets of paper that are stapled in the corner, and fold them twice so that they will easily fit into a standard business-sized envelope.

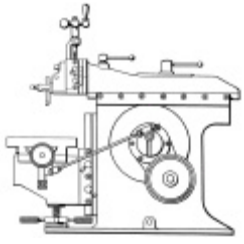
The winner need not submit a finished working prototype, although that would be great and may assure you first place. The design can be manual, electric, pneumatic, electronic, or even computer controlled.

The design will be judged based on the following categories:

- 8 points Ease of use
- 6 points Speed of operation
- 4 points Safety
- 3 points Cost of materials
- 2 points Quality of folds

First prize is many questions from me as I try to build your design! The top three designs will be published in the Gazette for the benefit of all members.

Bob



Shaper Column

Kay Fisher

Pete Verbree's Alba 1A – Part 3

This is part 3 of the story of the acquisition and reconditioning of an Alba 1A shaper by Pete Verbree with his kind permission to publish.

The Repairs

The weekend came and I ventured into my shop and cast a despairing glance over a once proud machine that was stripped to her knickers on my shop floor. “Well, feeling sorry about it won't fix it” I said to myself, “Let the repairs begin!”

The first job I tackled was the Bull Gear. This part was originally made from a casting, about 10” diameter and 2” thick with a t-slot cast into a sort of lump near the center. A large part of the top of this t-slot had been broken out. I set this up on my milling machine table and machined off the top of the t-slot to provide a place to bolt on a piece of 3/8” mild steel with ten, 5/16” countersunk cap screws. I installed the plate and screws using Loctite to help hold it all together.

I carefully lined up the gear on the mill table and machined the top surface of the repair piece, flat and level with the rim of the gear, and I then cut a slot into it with a 1/2” end mill. “Not bad for an amateur!” I said to myself, and so encouraged I closed up shop to contemplate the next repair item.

The clutch housing casting was an interesting shape, basically a plate with two protrusions, one on each side. The inner side held a bushing for a shaft in the reduction drive, a fairly simple piece. The outside, on the other hand, was more complex. The clutch shaft operates on a cam shaped groove that is adjustable. The adjustment utilizes some of those particular English threads. The outer protrusion also housed a shift rod and

detent for the high-low gear-shift. More English threads.

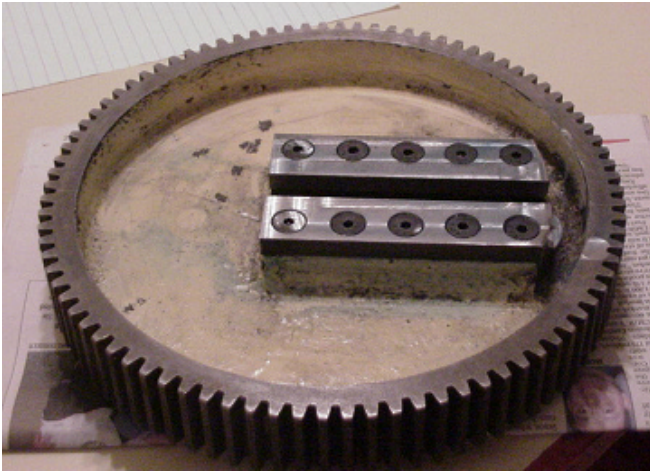
I took the casting to a local welding shop for an estimate. “Pretty tough” they said, “Lots of cracks and we can't guarantee good results.” Price about \$100.00. Back to the drawing board and more head scratching.

Enter friend and retired machinist George Mckee. I showed the bracket to George. He rolled it over in his hands a couple of times and said “Why don't you make one out of steel plate, cut the fancy lumps off this one and press them onto a new piece?” Now here was a fix I hadn't considered! “Why don't you get a piece of plate cut out to shape, and we'll lay out the holes on my jig-bore, it's got a digital readout on it.” Now here was an offer I couldn't pass up!”

So in due course I had a piece of 7/8” plate cut to shape on a CNC machine and I arrived at George's shop to watch him do magic. George's Jig-bore machine is a huge Fostick of undetermined age with hand wheels as big as my Atlas shaper.

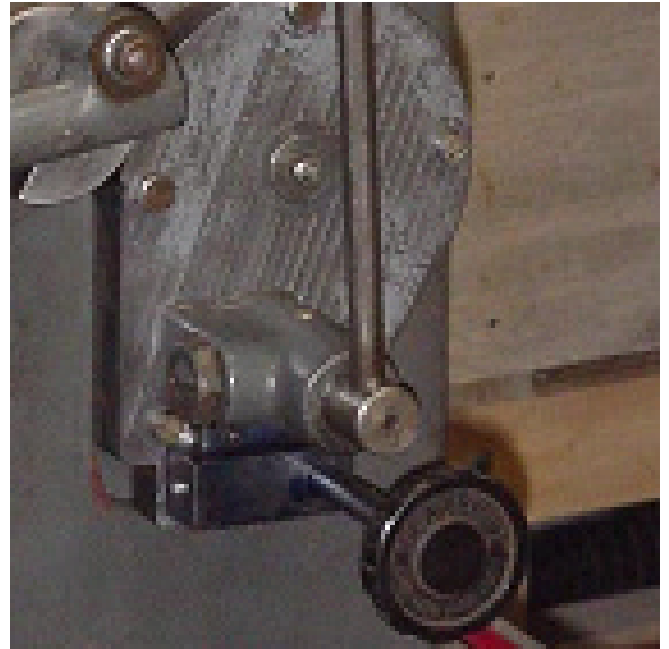
He first took the broken piece (which I had held together with epoxy) and clamped it in the vise. Then he used a dial indicator and zeroed one hole. We used these as coordinates 0,0. We then used the dial indicator and the digital readout to locate each hole on the plate by its coordinates relative to this hole.

The new plate was then swapped for the casting and the holes drilled in accordance with the measurements we had made. I carried the piece home and tried it on the shaper. It bolted right on with ease.



Bull Gear After Repair photo by Pete Verbree

Next step was to cut the parts I wanted off of the original casting. I removed the bulk of the excess material with my "Arm-strong" hacksaw, and I chucked these carefully in the four-jaw chuck. I turned the plate side of each piece into a dowel-like stub that I pressed into the holes bored in the new plate. The outer part was fairly complex and I was not able to utilize the gear-shift detent housing, so I fabricated one from a small piece of steel and attached it with screws.



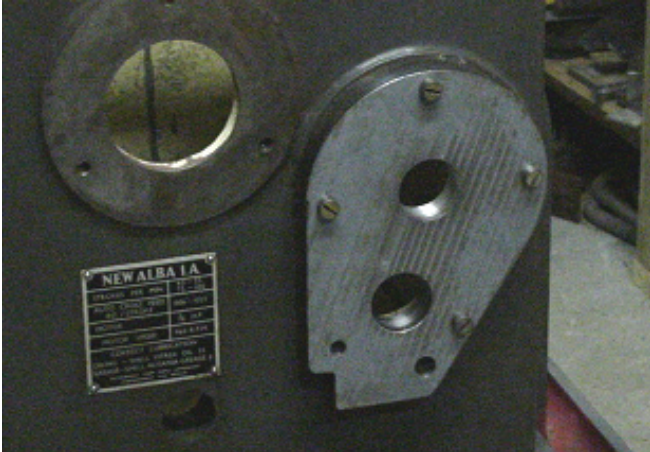
Clutch Housing Press Fits photo by Pete Verbree

Two parts down, two to go! The next patient was the most vexing. The ram lever was not original and it did not fit correctly. How was I going to get this vital part to fit?

Remember the manual that friend Frank Dorion sent? It held a valuable clue! In a phantom view of the machine was a profile view of the ram lever. I enlarged this drawing to full size on a photocopier and scaled some dimensions off of it. I compared these to the machine and the existing lever. Pretty close - now I had a plan!

The ram lever is a fairly complex shape: 1½" thick at the ram attachment end and 1¼" thick in the body. There are two 1¼" slots in the body. One for the pivot and one for the siding block that transfers motion from the bull gear. In the head (ram attachment) there is a ¾" slot to accommodate the upper hinge.

I had our friendly neighborhood welding shop cut the shape from 1¼" plate, and weld two ¼" cheeks on the head.



Clutch Housing First Fit photo by Pete Verbree



Ram Lever Weldment photo by Pete VerBree

When I got it home, I clamped it to the mill table and cleaned up 1 edge and 1 face. I then blued it up and laid out the slots and holes. It took many hours of hand feeding in the little mill/drill to whittle out the slots and clean up the rest of the part. It wasn't especially difficult, just time consuming.



Ram Lever After Machining photo by Pete Verbree

I took it off the mill, deburred and tried it. Close but not quite. A little more head scratching and I saw what was wrong. Back to the mill, make the lower slot longer, and trim the head shorter. "Hope it fits this time! Sure enough – success!" Buoyed by these recent successes, I moved on to the next part.

The sliding block, which transfers motion from the bull gear to the ram lever, originally was made from steel, and designed to slide in the cast iron ram lever. As I had made the replacement ram lever from steel, I felt that I should make a new block from cast iron.

There are two reasons that I made this decision. First, steel shouldn't slide on steel, as it tends to gall and wear the sliding surfaces unevenly. Second, the slot in the ram lever turned out a little over 1¼" and the original block had too much clearance. I had e-mailed Frank about this and he checked his machine and said that the clearance was about .007".

I also had some experience with the sliding block on my first Atlas shaper. When I first got it, it clanked badly when I used it under heavy load, so I had made a new block for it, and it improved the performance substantially. I reasoned that since I was making a new block for "Alba" I should try for a close fit.

This turned out to be a pleasant evening's work with the mill and the lathe. The new block is not as tight as I had hoped, but still well within the

.005"-.010" range that I figured was reasonable. (I was aiming for .003")



Sliding Block photo by Pete Verbree

Some re-assembly was the order of the day on the next outing to the shop. This process required a little patience, because of the inevitable re-doing of the step you just thought was completed. All in all it was a fairly straightforward job, making sure that all the parts moved smoothly and the gibs were properly adjusted as I went.

The only area of concern was replacement of some missing fasteners. You'll recall that they are British Standard Whitworth. I checked with our local fastener supplier, who seems to be able to get just about anything.

"Can you get Whitworth hardware?" I asked. The young guy behind the counter just gave me the "deer in the headlights" look. "Huh?" "British Hardware" I tried again. "Yeah we can order that" comes a voice from the back; one of the senior clerks came to the front and threw a big catalog on the counter.

"Do you know what you need?" he asks. "Yes, ten 5/16 BSW cap screws, 1½" long." I said. "Just a second" he said, and started typing on the computer. "\$4.00 each, 1 week delivery" came the reply.

Well I just about fell off the stool I had perched on, almost half the purchase price of the machine for a few bolts! There had to be another way! The guy behind the counter said, "Why don't you use

standard hardware?" "They're the same pitch, just different thread pattern."

I looked at the listing in the catalog and sure enough they were 16tpi, just the same as NC bolts. I left the shop with the 5/16"NC SHCS in hand, having spent a lot less than the cost of two of the other bolts. When I tried the NC hardware, they turned right in, so I added a little Loctite for good measure and things were looking up!

I will describe some final repairs and the first operation next month.

Pete

Keep sending letters and email with questions and interesting shaper stories.

My mailing address is:

Kay R. Fisher
80 Fryeville Road
Orange, MA 01364

My email address is:

Kay.Fisher@Compaq.com

Kay



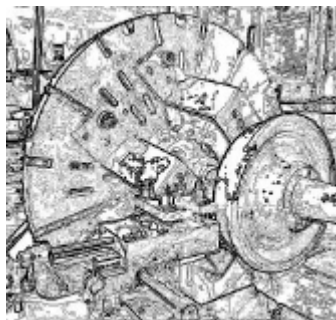
Treasurer's Report

Rob McDougall

As of 4/30/02

Balance as of: 3/31/02	\$5,369.00
Dues received	180.00
T-Shirt Sales	292.00
Interest Income	.68
<i>Less</i>	
Gazette expense	-203.40
Front door security (Feb.)	-50.00
Balance as of: 4/30/02	\$5,588.28

Rob



Shop Hints

Compiled by
Mike Boucher

Ripping on the 4x6 Bandsaw

By Bob Neidorff

You can do amazing things with an imported 4x6 horizontal/vertical bandsaw. I recently needed to mill the end of a piece of steel 1"x3"x15" to remove 9/16"x1"x3" from one end. Rather than hog the waste out with an end mill (a long task with my light duty mill), I sawed out most of the material with my bandsaw and then finished it with the mill.

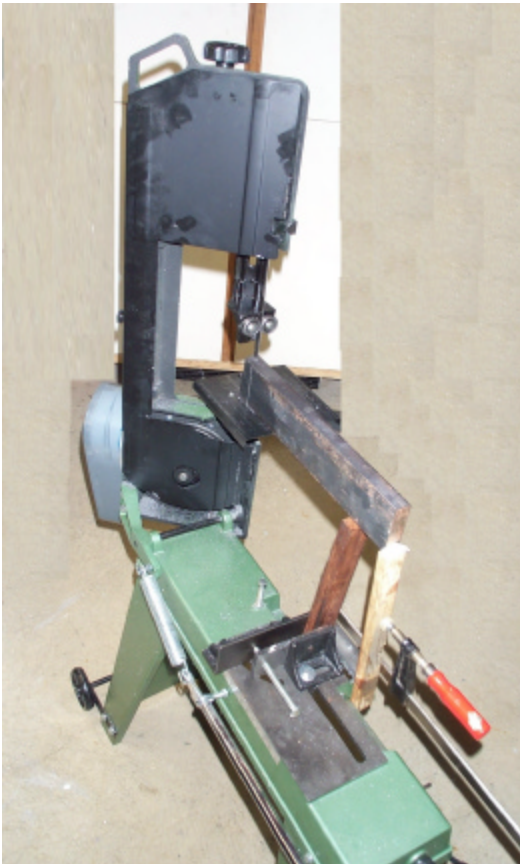
I first cut into the work 0.95" from the end, 1/2" deep with the bandsaw horizontal, using a conventional setup. Then, I stood up the bandsaw, replaced the little table with the large table, and started to cut into the piece the long way. It wasn't long before my arm got tired supporting the work, so I grabbed a board (the darker board in the photos), clamped it in the bandsaw vice, and used that board to support the free end of the work.

Still not satisfied (I'm lazy, after all), I got another board (the lighter board in the photos) and a clamp and positioned the board and clamp as a spring to push the work into the blade while the weight of the work held the work down to the table and the guide board. I then turned on the saw, stood back, and let it finish. This allowed me to brush away chips and pump oil every now and then, without having to worry about pushing with constant pressure or slipping into the blade and hurting myself.

When it looked right, I turned off the saw and removed the work. The waste fell out effortlessly and left a beautiful surface. It didn't take long to clean up and dimension the cutout with the mill.



Here's a picture of the work held up by the darker board in the vice and pressed into the saw by the lighter colored board and a clamp. Notice the jaw extension bolted to the moving jaw and the counter-pressure screw threaded into the jaw extension.



Here's a picture of the whole setup, with the saw 75% of the way through the 1" deep cut. Both boards are so called "1x2" lumber (3/4" x 1 1/2"). The support board is 10" long, which seems the right length for my bandsaw. The bandsaw base has a lip near the vice, which provides a convenient support for the spring-board.

Bob



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

2 1/2" gauge Hudson

I have a 4-6-4 Hudson Loco for Sale, 1/2" scale (2 1/2" gauge). The Boiler and Chassis are complete, w/ wheels, axles, journals, spring rigging, etc. It needs to be finished with someone who has a milling shop. Pictures available via e-mail.

Ray Spence
Northern VA
(703) 729-00308
MARYJANE.ROLAND@HQ.DOE.GOV

[*Editors note:* I have published the ad exactly as it came in via our web site. I've noticed that the phone number cannot possibly be correct. I sent an email to the address given asking for a correction, but have not received a response after a week. I include the incorrect phone number so anyone really interested can try various permutations of the number.]

Empty Oxygen and Acetylene Tanks

For Sale or Trade

Empty Oxygen and Acetylene Tanks. Full Sized. Out of date, so they will need to be tested before filling or exchanged for current tanks. Make offer.

Bob Neidorff
neidorff@ti.com



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



Upcoming Events

Bill Brackett

June 1-2 Dave Dearborn's engine show
Campton NH Dave Dearborn (603) 726 3257

June 6 Thursday 7PM

NEMES Monthly club meeting

Waltham, MA

Charles River Museum of Industry (781) 893-5410

June 8-9 Hinsdale show

RT 119 Hinsdale NH

Douglas Wood (802) 254 6758

June 8-9 Skowhegan Show

Skowhegan State Fairgrounds

Skowhegan ME. Joe Kelly (207) 862 2074

June 8-9 Granby Show

Dufresne Park, RT 202 Granby, MA

(413) 648 5215

June 9 Rod & Custom Auto Show

Owls Head Transportation Museum.

Jun 16 MIT Flea Market

9AM to 2PM Vassar St Cambridge MA

(617) 253-3776 9-5 m-f.

June 15-16 Pioneer Valley Live Steamers

Fathers Day Meet

Southwick, MA

www.pioneervalleylivesteamers.org

June 23 Big Three Showdown—Ford,

Chevy, Mopar Meet

Owls Head Transportation Museum

June 23 "Bill Van Brocklin meet".
Waushakum Live Steamers Holliston, MA
Mike Boucher (781) 893-3892

June 29-30 CMSGMA Show
Orange Airport Orange MA
Dave Songer (978) 544 5295

**July 6-7 The Fabulous '50s & '60s
Weekend Meet**
Owl's Head Transportation Museum

July 14 Pepperell Engine Show
Town Field on RT 111 Pepperell Ma
Kim Spalding 978 433 5540

July 21 MIT Flea Market
9AM to 2PM Vassar St Cambridge MA
(617) 253-3776 9-5 m-f.

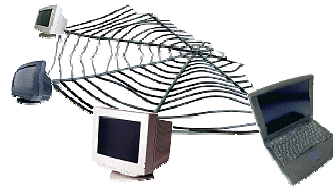
**July 27-28 2002 11th Annual
International Submarine Regatta**
Johnston, Rhode Island. For more information,
maps, and times see the SubRegatta page
<http://www.subcommittee.com/Events/SR02/index.html>

July 27-28 Eliot ME Engine show
Eliot ME David Raitt 207 748 1046

**July 27-28 Trucks, Tractors &
Commercial Vehicles**
Owls Head Transportation Museum

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

Bill



Web Sites of Interest

Garratt Locomotives

One of the more interesting type of locomotives ever built, we saw several photos of these at the May meeting. This site features many more pictures of these fascinating locomotives

<http://users.powernet.co.uk/hamilton/>

Manuals on CD

Errol Groff purchased a CD (US Army Complete electrician Manual) off Ebay. The seller has a very large collection of similar CDs that he sells.

<http://www.millwright.org/CD-Sales1.html>

There's a frightening number of manuals of all sorts of esoteric subjects available here.

Broken Crosshead

See pictures of what happens when parts break on full size steam locomotives!

<http://www.railpage.org.au/steam4me/R711/incident.html>

Guild of Metalsmiths

Lots of blacksmithing info, photos of cool work, even a forum for discussion.

<http://www.metalsmith.org/>

Old Woodworking Machines

Here's a web site about manufacturers of wood-working machinery. Some of these companies built metal working machinery as well.

<http://www.oldwwmachines.com>