The NEMES Gazette

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The Newsletter of the New England Model Engineering Society
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Our next meeting is at 7:00 PM on Thursday 3-May-2001 (first Thursday of every month) at
The Charles River Museum of Industry
154 Moody Street
Waltham, Massachusetts

Annual dues of $20 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).

This Months Contents

The Editor's Desk

By Kay R. Fisher

This volume begins our sixth year of Gazettes and my second year as editor. Wow, it seems like I've been doing this forever. It's even more incredible to think that Stephen Lovely was editor for four years and is still writing the single largest and most popular column in the Gazette.

I still live in fear that one month I just won't have anything to print. I believe there is an interesting article or column inside nearly every member. Please consider writing something up and becoming a Gazette contributor. Just about anything you might consider bringing in for show and tell is probably worth taking a picture of and writing up a little article for the Gazette.

This is the last issue before the Open House and Swap Meet at Jim Paquette's house (May 19th). I enjoyed it last year and my only regrets are the items that I didn't buy. Bring something you don't want and see what you can't resist! I overheard a fellow talking to his wife at a flea market once (it must have been his first time) and he said, "I never knew there were so many things I didn't need"! If you have something too big to carry – bring a picture or a description with a "for sale" sign. The hours and directions are on page 12.

Kay

The President's Corner

By Ron Ginger

May Meeting

Our May speaker is Mr. Stan Gentry from Hibbing, Minnesota. Stan is doing what many of us would like to do. He is building a full-scale 19th century steam locomotive. It's based on an 1860s prototype (called the Lyon) and will be standard gauge and weigh about 22 tons when it is finished. The Union Iron Works in San Francisco built the original in 1869. This replica is being built at The Stasburg Railroad Museum in Pennsylvania.

He has business in Washington DC and is flying to Boston specifically to talk to us. Also, Max has a couple of other topics lined up for the coming months so things are looking good on the speaker front. If you have a suggestion for a topic or speaker at a future meeting let Max ben-Aaron know.

Ron

Random Ramblings

By Max ben-Aaron

Do-It-Yourself Patent Searches

NPTO, the National Patent and Trademark Office has a searchable database of patents issued since 1790. The search engine is a bit more detailed than others, so you will need to spend a couple of minutes climbing up the learning curve. The search reveals more than abstracts; it includes, for instance, references and details of the invention. Although figures are listed they are not included.

On-Line Patents

Do you have a novel idea that you want to patent? Check out the Delphion Intellectual Property Network website (www.delphion.com) to see if it has already been invented. It is claimed that the site has one of the most comprehensive patent collections in the world and searching is fast, easy and free. Available search criteria include simple keyword by subject and inventor or via existing patent numbers. The cross-referenced collections are forward and backward linked to all referencing documents, giving immediate access to related information.

Assistance For Inventors

The Patent Cafe (www.patentcafe.com) holds dozens of links for those needing assistance with design work, manufacturing tasks, legal information and business guidance. The Inventor's Cafe, for example, leads to several curious sites, such as that for the Amargosa group. They say that they will partner with inventors, entrepreneurs and innovators to market good ideas at no expense to the originator, and the split the profits 50-50. But don't fax them your great idea just yet - first read the procedures at www.amargosa.net.

Handbook For Inventors

http://web.mit.edu/invent/www/handbook

This on-line handbook was created by the Lemelson-MIT Prize Program to address the most frequently asked questions posed by inventors and aspiring entrepreneurs. The handbook covers such topics as "How to conduct a patent search" and "How do I prove the idea is mine" to licensing, commercialization and business planning.

Mb-A

The Meeting

By Stephen C. Lovely

The Meeting, 5 April, 2001

The meeting got under way about 7:20 PM, without the sound system again, although the cabinet to store the sound system in has been found, so when we find the sound system we'll be able to lock it safely away.

We heard a while back that Ron Ginger and Jim Paquette were going to visit a shop that a woman had recently inherited from her father. Jim bought the entire shop and we'll be able to see some of it May 19th when Jim has his annual combined open house, sale, and swap meet. He put 35,000 pounds of scrap steel into a dumpster and saved another 5,000 pounds of usable metal and the machinery.

Walter Winship is missing the album he put together showing the restoration of his 1925 SV Steam Car. If you've seen it or know where it is, please let him know.

Jeff DelPapa knows a student in the Concord/Carlisle area who can't get the vocational training in metal working that he wants in the schools and would like an apprenticeship to get some experience with real machines. If you know of an opportunity for him please let Jeff know.

Mike Boucher asked if anyone would be interested in a club T-shirt. Lots of people raised their hand to say yes, so he's going to see if Richard Sabol will find us an image that would be appropriate and get some done up.

Henry Szostec has a piece of computer equipment about 2 by 2 by 2 ½ feet that was in storage for a customer. When he told them it had been around his shop too long and he was going to have to start charging storage they told him to get rid of it. If you want it and he still has it, it's available.

We've got a couple of members of the Amateur Telescope Society of New England in NEMES, and in the past we've heard mention that one of the members had built a big telescope. The main speaker for the night is the man who built that big telescope, Mario Motta. Dick Koolish, who's been in the Amateur Telescope Society and known him since 1972, introduced him.

Guest Speaker Mario Motta **Photo by Earle Rich**

Mario Motta is a Cardiologist and is a past president of the Amateur Telescope Society of New England. He has built a 16-inch and a 32-inch telescope. He thanked us for inviting him to talk to us and said that he's a physician who loves astronomy. He wasn't sure originally if he wanted to be a physician

or an astronomer and had applied to graduate school for both. He got an early acceptance to Medical School and his family was so pleased he decided that he had to go. It has worked out well for him though, because you can be a physician and have astronomy as a hobby, but if he was an astronomer he couldn't have medicine as a hobby.

He got a 16-inch glass blank and ground the mirror during his fellowship and residency.

Eventually he got a 32-inch blank and used it to build his 32-inch telescope. The telescope is all handmade using metal from junkyards.

When he'd finished the 16-inch scope he let out the word that he was looking for a 24 inch blank to build his next scope. He had a friend that worked for a company that made spy in the sky telescopes to go into satellites. One day the friend showed up on his front porch with a 32-inch Pyrex blank and said that he'd been told to get rid of it in a landfill somewhere and figured a front porch in Lynnfield was as good a place as any. And don't tell anyone where you got it. Five years later it got declassified, so now he can tell where it came from. Using a 32-inch mirror to look down is how they can read license plates from a satellite 100 or so miles up.

For a 32" telescope you need a pretty solid place to put it. His observatory is in New Hampshire where it's dark at night. The scope sits on a concrete pier that goes up 6 feet to get a line of sight over the trees and down 4 feet into the ground for support. To fit the finished scope, the dome over it has to be 18 feet in diameter. A commercial dome 18 feet in diameter is available for $32,000. That wasn't compatible with his budget so he built his own.

The two central arches of the dome are laminated. He cut the parts to laminate from plywood. The final curves were made using a router mounted on an arm that pivoted on the central lally column in his garage. The rest of the arches were bent from the wood normally used for deck flooring. The base of the dome is 10 feet off the ground. It is supported by large upside-down casters he bought at Young Engineering in Salem, Mass. so that it can rotate and allow the telescope to view the entire sky. Twenty-eight members spent a weekend in September drizzle putting up the dome.

He didn't want to use aluminum sheet to cover the dome because it tends to expand and contract with the temperature and then to leak. He ended up using a 0.050-inch thick structural fiberglass material designed for commercial greenhouses that costs $20/square foot. It is sold in 8 foot long sections. He got a pile of seconds (only 7 feet long) for $50. The dome has been up since May of 1994 and hasn't leaked yet. The panels are held on with nails. Each nail has a rubber gasket under its head to keep water out of the nail hole. Since the fiberglass was designed for greenhouses he needed to paint it to keep the light and heat outside of his dome. It has 3 layers of white on the outside and the inside is black/gray.

When making a telescope, why do you need to grind your own mirror? Because 90% of the cost of a good telescope is the optics. If you want to save any money on the project you have to do the optics yourself.

The 32" blank that he had to start from to make his mirror weighed 160 pounds. This was far too heavy for him and his wife to deal with in the grinding and polishing process, because they would have to be able to pick it up and position it. So he went to a friend of his, George East, who is a structural engineer at MIT for guidance on the best way to lighten the mirror blank. After two months of calculations on a computer analyzing various patterns for lightening the back surface of the mirror they arrived as a pattern with 18 points of support. After that it was a matter of how to machine the glass blank down from 2" thick to 1 cm thick. The answer was to visit a granite monument facility in Lynn, where Mario talked the proprietor into letting him use the grit blaster to carve the back of the blank into the 18 support-point pattern that had been carefully calculated. It took 6 hours to do all the carving, and two refills of a pretty substantial hopper with the silicon carbide grit. After grit blasting, the weight of the blank had been reduced to a much more manageable 79 pounds.

Glass is strong, but it is also very sensitive to stress risers. So, in order to keep the nicely

lightened mirror blank from turning itself into a collection of marble sized glass chips in the next few months as all the cracks from the grit blasting propagated through the blank, the blank had to be etched down below the cracks to leave a stress free surface. For this task Mario went to another club member who had lighted similar blanks down to 6 pounds. Hydrofluoric acid is the traditional etchant for glass, but it's also pretty easy to kill yourself dealing with enough to dip a 32" mirror into, so Ammonium Fluoride was used instead. A plastic sheet lined container was prepared, and hot (50° C) Ammonium Fluoride was placed in it. The mirror blank was placed in the hot bath for 30 minutes. This removed another three pounds of glass from the blank and left it with a smooth pebbly surface similar to that of cast iron.

This left Mario with a 32-inch diameter 76-pound mirror blank, ready to grind. For the tool to grind the mirror he made a hydrocal (it's a good grade of plaster) disk and then glued glass onto the hydrocal tool for the actual surface of the tool since when grinding a lens it is always glass to glass with an abrasive slurry between the two pieces of glass.

The tool had an area of 800 square inches, so the grinding couldn't be done by hand and a machine was needed, so Mario built a lens grinder. The tool is mounted on a vertical spindle and rotates. The blank sits face down on the tool and is connected to two arms that each move in a reciprocating pattern to simulate the optician walking around the tool and grinding by hand. The idea is to grind things randomly, which gives a better result than a pattern in the grinding motions. It took approximately 100 hours to do the grinding. Cesium oxide is used for the final polishing.

Grinding to a spherical surface is relatively easy; the hard part is creating a parabola. This mirror is an F4, so for a 32-inch diameter, the focal length is 128 inches. In general, if you are above F8 you can get a good image with a spherical mirror, although for a 32-inch mirror the limit is closer to F12. Since this one was both a 32-inch and F4, it was necessary to parabolize the mirror.

To form the parabola he divided the mirror into 8 radial zones and used a computer program to analyze the test results and tell him where he should polish next to reach his goal. Ideally, you want to get the mirror perfect to within 1/20 of a wavelength of yellow-green light. Using pitch laps of 16", 14" and down to 4" mounted on the rotating spindle he was able to get the mirror to within 1/5 or 1/6 of a wavelength. The flexibility of the blank under the influence of gravity kept him from getting it better than that. The final mirror is accurate to something less than one millionth of an inch over its 32" diameter face. One piece of dust on it during the polishing process could ruin it and require that the polishing be started over. In order to minimize the dust hazard Mario set up a plastic clean room in his cellar for the work.

After a lot of work the mirror was polished and in spec. At that point it needed to be aluminized. Getting a 32" mirror aluminized is normally a several thousand-dollar job, which was more than Mario wanted to pay. He did a lot of looking and eventually found United Lens in Southbridge Mass. who had just installed a new facility capable of aluminizing up to a 40" mirror. He was able to talk them into doing his mirror for only $700 as a test of the new equipment. The $700 was pretty much the cost of operating the equipment to do the work. A 2 or 3 atom thick layer of Silicon Dioxide is coated over the aluminum layer to protect it.

The $700 was one of the major expenses of the project. Another major expense was the $1200 spent on ready-mix concrete for the foundation of the building and the pedestal that mounts the scope. Overall, the entire project was completed for a cost of $4500. As a comparison there is a company in Colorado that will supply a 30" scope for $150,000.

The thrust bearing for the scope is a 5 ½" ID Timken brand double-race roller bearing. It was about $800 new and designed for thousands of RPMs. His application only needs one rev per night and he only paid $10 for it when he found it at a flea market.

The mirror holder has 18 nylon supports to match the 18 points on the bottom of the mirror, along with rubber feet that fit into the pockets to insure that the mirror stays located on its supports.

The metal ring that is used was made out of a discarded gear from a cat scanner at Mario's hospital that cracked at a convenient time. It now has a splice bolted across the split and although the teeth are all still on it they don't do anything in the telescope.

You can't lean over a 32" telescope, so the eyepiece rotates around the barrel. The eyepiece looks in at an optically flat elliptical mirror that is 10 inches on the long axis and 6 inches on the short one. Mike Mati did the flat for Mario to help speed the project along. The scope is 10 ½ feet long and originally had an open truss connecting the two ends together. With a CCD camera to capture the image replacing the original film camera, infrared radiation from the human body is a problem, so the truss was enclosed to improve image quality.

The telescope was a multi year project. The optics took 2 ½ years to complete. The electronics took 4 years. Overall the project took 8 years and it will never be truly complete.

A computer driving stepper motors controls the movement of the scope. Each stepper motor has its own computer controlling it and there is a main computer controlling the overall system. There are 7.5 million steps from one side of the sky to the other, giving precise control of where the scope is pointing. A friend of Mario's spent 4 years developing the guidance system, which he now sells for $2K as Astrometrics.

Thinning his mirror blank not only made it possible for him and his wife to handle the blank during the grinding and polishing phases, but the thin glass is also better for the finished scope. Changes in optics temperature affect the images, so if the temperature changes during an exposure, the image quality suffers. With a mirror that is only 1 cm thick, it reaches equilibrium with the air quickly. As a result, he can go to the observatory, open the dome, and get ready to observe the sky. By the time he has everything ready to go, the mirror is at equilibrium. If he used the 2" thick mirror he would have had without lightening the blank, it would take hours to stop moving with the temperature change.

He now mostly uses a CCD device to capture images. He has an Apogee camera with a Kodak 1300 CCD with 16-micron pixels on a 16.5 by 21 millimeter chip. It is cooled by Peltier Effect chips, which take it to 30 degrees C below ambient. The CCD chip is the way to go now for capturing images. It has an effective speed of 400,000 ASA and, unlike silver film, it has no reciprocity failure during long exposures. He added a slide so he can switch between the eyepiece for focusing and the CCD camera for recording. Focusing is controlled electronically so you don't touch it with your hands and get things vibrating.

There is an 8"scope mounted on the big scope that is used for guidance. The 8" scope locks onto the guide star and the electronics keep it pointed at it as the earth moves. The guide star needs to be within 20 degrees of the position of the object being examined.

As far as he knows, his scope is the largest completely homemade scope in the United States.

That pretty much ends the discussion of the scope and building it, but there was quite a bit of interesting talk left as Mario showed us some of the pictures he'd taken with his telescope.

M51 was the first object he looked at with his 32" scope. With an 8" telescope you can make it out as a small fuzzy object. He showed us a 1-hour exposure on film that he had made. It looked like a galaxy and the spiral arms were clearly visible.

He chases eclipses of the sun. He showed us some spectacular pictures he took of an eclipse in Mexico and plans to go to Zambia this coming June for another one.

He has some comet pictures he had taken, tracking them by hand as his tracking system needs a point source to follow and the comet was too much of a blob. The comet was sharp in the 8-minute exposure and the stars behind it were streaks, showing the movement of the comet against the stars. His pictures of the Hale Bop comet showed 2 tails. One tail is of charged particles and lines up with the magnetic fields and the other is not charged and lines up with the light pressure from the sun. I thought it was an amazing picture.

One of his big interests is in galaxies, and he showed us pictures of quite a few. Ordinary physics

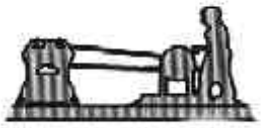
doesn't explain how all the stars in a galaxy managed to spiral around and stay in such even coordination – the ones in close should make it around a lot faster than the ones out at the edge, but they all seem to go around together creating enormous spirals. Some of the pictures he showed were of galaxies that were not nicely symmetrical. One showed a galaxy that had a smaller galaxy go through it at an angle. This resulted in what looked very chaotic on one side of a galaxy that looked normal on the other side, with the smaller galaxy looking unaffected by the chaos. None of the stars in the two galaxies had collided, because a galaxy is mostly empty space. As an example, if our sun was the size of a pea and in the room with us as Mario was speaking, then Alpha Centauri (which is the nearest star to our solar system) would be somewhere in China.

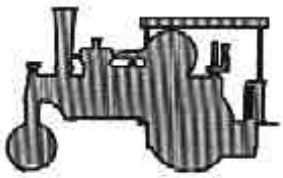
To make the slides that he showed us he puts the image on the computer monitor as a negative and photographs it. Then when he develops the negative he has a positive to put in the slide projector.

His telescope is in West Center Harbor, New Hampshire. He located it there because the night sky is dark. He gets some glow from Concord and Laconia, but not too much. His biggest fear is that someone will put a strip mall within a few miles and put up enough light to ruin his observing.

In July, Bob Cline is going to talk to us about steaming up a 30000 horsepower steam plant on an Allen B Sumner Class destroyer (there were two of them on board) from cold to ready to go. Bob was on one in 1943-44 and that's what he did. They burned bunker C and put out steam at 600 psi and 800 degrees of superheat.

Scl





Dave in Toyland

by Dave Robie

You've been seeing a few toy steam engines around at the shows. Quite a few of us remember them from our childhood. What are these all about anyway?

Over the years there have been many types of educational toys produced according to the era, and the needs of society. Examples of this are the toy stoves and cooking equipment for young girls to "play cooking" in preparation for later, being homemakers. There have always been toy "carpenter tools" out there on the market. And construction sets such as Erector, Structo, and Mecanno. The little "toy trucks" that seem to be everywhere are also educational, familiarizing the young with vehicles and driving. Toys do often have a purpose beyond pure play value. Today's educational toys, among others out there are likely to be computers, as society has come to a point where computers are an integral part of life and programmers and operators are the new trades to attract the young.

But in the heyday of live steam engineering, the king of all toys was a steam engine. The fondest wish of every youngster was to have a steam engine all his own. These steam engines were mainly used to run construction set projects, or toy machinery made to the scale of the engine. This writer's first involvement with steam, in fact, was in 1948 at age 9 with a Weeden steamer from Jordan Marsh in Boston to drive Erector set projects.

Steam toys were produced from approximately 1870 onwards. Over 50 different companies have been recorded as manufacturing this type product, in several different countries. Most were built in either Germany or the United States. Three old-line manufacturers in the world still make them. In the US, the most famous of

these companies was Weeden, from New Bedford MA who from 1892 to 1948 made over 150 different models of steam engine, sold mostly by mail all over the world.

From these toys a child would learn first, fire safety, as an alcohol burner powered all of the early engines. They would learn power applications, pulley ratios, and the limitations imposed by friction. Beyond this, they would learn what all of us in this club know without even thinking of it, that engineering of any type is fun. Many of those youngsters, first having a taste of mechanics through their toys would then go on to be the steam engineers, firemen, and related mechanics, even mechanical engineers that society sorely needed as the industrial revolution grew and prospered.

Beyond that, steam toys were and still are used in grade school science and even in beginning mechanical engineering courses to demonstrate principles of energy conversion. The larger of those available today even have gauges and feedwater pumps and can demonstrate boiler priming, slugs in the piping, loss of pressure due to cold feedwater or too much steam demand, thermal lag, heat storage, and the results of running an engine too cool.

Steam toys since about 1900 have come in a wide variety of shapes and sizes: horizontal boiler, vertical boiler stationary engines, some even having accessories such as electric generators. There are turbines, vintage automobiles, trucks, steam operated farm tractors, steamrollers, and boats - even in the 50's, model nuclear plants were built. Physical size ranges from what you can carry in an overcoat pocket to the giant plants built prewar by Marklin of Germany that will fill an entire kitchen tabletop. Since about 1930, some have had electric heaters instead of burning fuel.

The greatest majority are simple and safe, and even the better-built older ones can, after testing, still be operated. However, many engines were built cheaply using steel boilers or even shim brass which hasn't passed well through the ages. In unknowing hands, these can go “boom”, even at the low pressures involved. A couple of years back, a fellow up in Vermont, an excellent mechanic versed in antiques, blew up a 50s Marx atomic plant. He said it jumped 4 feet off the bench and he jumped 3. He claimed he had only 10 lbs of air pressure in it. All steam hobbyists; even those into the simple steam toys think safety first, last and always. This fellow didn't know that. He was fortunate and only lost a collectable artifact. Could have been an eye or something, so please, if you get involved in live steam of any type, even a little steam toy, think safety first.

Steam operated toys are collectable. A fellow out west seems to have the world's record with over 700 of them. This writer is a comparative babe with over 100, most in running condition. However, don't jump to your computer and get to eBay, because in order to collect, you must be familiar, as in any collecting hobby, with prices, condition, relative rarity, availability of parts (if missing any), safety, condition, accessories included, and again, prices. Only the people familiar with these parameters should bid at any auction. Pictures DO lie, and unknowing people can get hurt buying.

Steam toys are also, in many families, tradition. In some families, running “Grandpa's steam engine” every Christmas for the youngsters gathered there is important. Known to this writer are dozens of families who do this all over the country and in Canada.

The next time you see a steam operated toy, give a thought to its history. This simple looking toy is not to be scorned. It may have been a youngster's first faltering step into the world of the physical sciences or the world of the mechanical. This writer knows by experience that the new ones still being made today have done exactly that.

Dave

Bandsaw Surprise

By Gene Martha

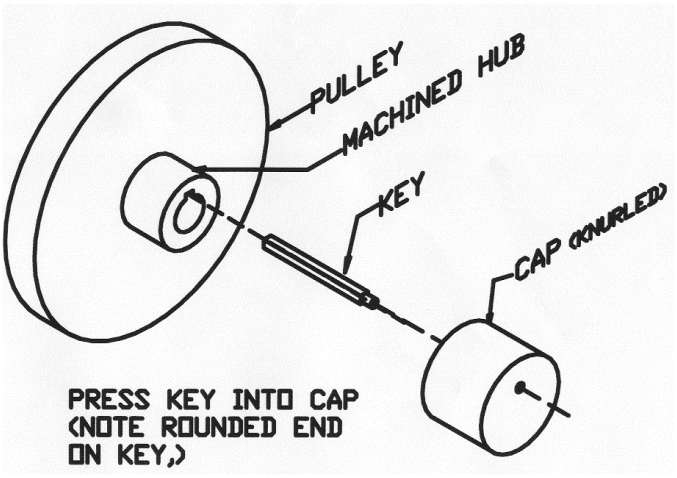
In the model-engineering world, surprises are not uncommon. What is important about them is how and when they occur. Caught soon enough, remedial action may save the day and prevent having to make that part over. You know the part I mean – the one that took the most time or the most material.

Every now and then, however, the planets are in alignment and even after the "surprise" shows up, a correction can save the project or maybe even improve it. Such was the case recently concerning the modification of a 14-inch Rockwell bandsaw. This, like most 14-inch bandsaws, was designed to cut wood and was much too fast for cutting metal. The addition of a speed reducer or gearbox is a common approach, which seemed straight foreword and shouldn't present any problem. A 30:1 reduction with the appropriate change in pulley sizes was just right for the cutting of both steel and aluminum. Woodcutting would bypass the gearbox and revert back to the original setup.

Everything proceeded as anticipated, until the day I had to change my first blade. If you ever changed a blade on a bandsaw, you know you have to rotate the wheel by hand to get the new blade to climb onto the wheels and "track" properly before setting the tension.

"Surprise" – when the drive pulley on the lower wheel is connected by a belt to the output of a 30:1 worm drive gearbox, nothing is going to turn, especially the wheels over which the bandsaw blade rides, which in turn means that you cannot change blades which, obviously, is not a desirable situation.

At this point, several options came to light – all bad! They either took too long or they were too complex.



Quick change pulley key **Drawing by Gene Martha**

The easiest and quickest solution was accomplished by removing the key from the drive pulley on the gearbox and letting the pulley slip on the shaft until the blade change was completed. That was easier said than done, as the key can be somewhat difficult to grab and remove without a pair of pliers. Extending the key beyond the end of the shaft would solve that problem but would present a safety issue spinning around in space ready to grab anything in its path.

By machining the hub of the pulley to be concentric with the ID and making an aluminum cap to fit over the hub, it was an easy job to press the key into the cap and use the assembly as an installation and removal tool requiring only the use of a T-handle hex wrench for locking in place. Changing blades is a snap now and only takes a few minutes.

Treasurer's Report

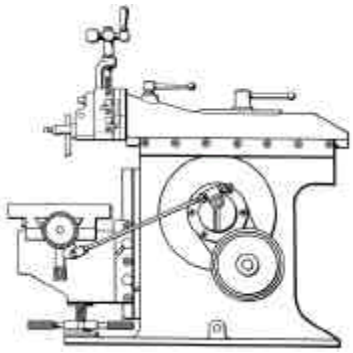
By Rob McDougall

As of 01/31/2001

Balance as of 02/28/01:	**$4,326.57**
Dues Received	360.00
Interest Income	1.95
Less	
Speaker fee	-50.00
Gazette expense	-199.27
Balance as of 03/31/01:	**$4,439.25**

Unfortunately, one club member who was deleted from the membership database last month as having not paid their dues let me know that they had in fact paid in January. I am very sorry when this happens. Please let me know if you think this has happened to you and I will gladly adjust my records. It seems my casual method of recording payments is not working and I will start issuing formal receipts to correct this.

Rob



Metal Shapers

By Kay R. Fisher

Fresh from the Internet we get this great observation from Steve Fleming. "I had a difficult experience cutting external keyways in a steel shaft about 6" long. I used a tool bit the width of the keyway (3/16") and managed the cut, but there was chatter all the way; and the bottom of the keyway shows definite chatter marks. The speeds were also varied in an attempt to reduce the chatter and the gibs adjusted on all moving slides and the ram to no avail. Reversing the tool holder as mentioned in at least one shaper reference book did nothing to help either. I have so far been unable to find any information about a good design for a tool bit or a technique that will solve the problem. It seems that slotting/parting in a shaper is at least as troublesome as in a lathe".

Good point, Steve. I had the same problem. I was less resourceful than you however and gave up. I was on a mission to create a keyway and didn't take the time to troubleshoot the shaper problem until I got it right. Instead I just let the shaper chatter its heart out and cleaned up the slot with a hand file afterwards. I think the bottom line is making a keyway full width requires a machine with more mass to eliminate chatter. I also suspect that instead of using a square tool the size of the width of the keyway we should instead get a really big (in depth) tool like those used for cutoffs on large lathes. But this is an open request to all the Gazette readers who have shapers. Please email or write me and tell me how you accomplish slotting without chatter. I'm hopeful that the collective wisdom of our many shaper owners can shed some additional light on this problem.

Kay

Calendar of Events

By Bill Brackett

May 3, 2001 Thursday 7PM
NEMES Monthly club meeting
Waltham, MA
Charles River Museum of Industry 781-893-5410

May 6
Dunstable Show
Dunstable, MA
Jay Wilkie (207) 748-1092

May 12-13
SSAAC swap meet
Tweeter Center (formerly Great Woods) off rt 495
Mansfield MA

May 19 9-2PM Openhouse
114 High St. Uxbridge, MA
Jim Paquette (508) 278-2203

May 19-20
So Carver MA At Edaville RR
Cranberry Flywheelers
Dave Robie (781) 335-5322

May 20 Sunday 9AM
MIT flea market Albany and Main St.

May 22-24 Tues-Thur
Eastec 2001 W. Springfield MA
See www.sme.org/eastec for free registration before May 4

May 26 to November 1
American Precision Museum opens
196 Main Street, Windsor, VT 05089
Phone (802) 674-5781

May 26-27 Bernardston Engine Show
Rt 10 E off Rt 91 Bernardston,MA
Vickie Ovitt (413) 648-5215

May 27 Fiddlehead Auto Festival
Owls Head Transportation Museum
Route 73 Owls Head, ME (207) 594-4418

June 2-3 Dave Dearborn's Engine Show
Dearborn Homestead, Campton, NH
Dave Dearborn (802) 726-3257

June 7, 2001 Thursday 7PM
NEMES Monthly club meeting
Waltham, MA
Charles River Museum of Industry (781) 893-5410

June 9-10 Hinsdale Engine Show
Rt 119, Hinsdale, NH
Douglas Wood (802) 254-6758

June 9-10 Skowhegan Engine Show
State Fairgrounds, Skowhegan, ME
Joe Kelly (207) 862-2074

June 9-10 Granby Engine Show
Dufresne Park RT 202, Gramby, MA
George Randall (413) 467-2524

June 10 Rod & Custom Auto Show
Owls Head Transportation Museum
Route 73 Owls Head, ME (207) 594-4418

June 14-16 Coolsprings engine show
Coolsprings, PA
Joyce Bashline (412) 487-1464

June 16-17 Old Stone House Museum Show
Brownington, VT
Pat Warren (802) 723-5472

June 17 Sunday 9AM
MIT flea market Albany and Main St.

June 23, 2001 MASON Launch
Bath Iron Works, Bath ME
Subject to change
http://www.biw.com/

June 23-24 Orange Airport Engine Show
Orange Airport, Orange, MA
Grover Ballou jr. (413) 253-9574

June 24th, 2001 Sunday
Bill Van Brocklin Memorial Run Day
Waushakum Live Steamers Holliston, MA
Mike Boucher (781) 893-3892

June 24 Antique Ford Meet
Owls Head Transportation Museum
Route 73 Owls Head, ME (207) 594-4418

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

Bill Van Brocklin Memorial Run

By Mike Boucher

In memory of Bill Van Brocklin, the Waushakum Live Steamers will be holding the first annual Bill Van Brocklin Memorial Run Day this June. The date will be Sunday, June 24th, 2001 at our track in Holliston, MA. We hope that people who own one of the many engines Billy built will bring their engines to run, and of course, other live steamers and friends of Billy are invited as well. We also hope that this will become an annual event.

Several years ago, at the last annual meet at the Norfolk Street track, we had 5 of Billy's engines under steam at once, but that only accounts for about 1/8th of his lifetime’s work.

Watch for more info on the WLS homepage:

http://www.steamingpriest.com/wls/

Additionally, there are some in Waushakum, including myself, who would like to track where these engines went. If you own a Van Brocklin engine, or know someone who does, please contact me.

BTW - this meet is inspiring me to work on the Van Brocklin designed engine I started a while back. Hopefully it'll be on her wheels by then...

Mike Boucher
Waltham MA
bandm3714@mediaone.net

For Sale

Logan Shaper

8" variable speed. This is a quite modern machine in very good condition. May be seen in operation. $450

Leo Klos (978) 465-1960 home
(978) 282-2628 work
email Leo.Klos@vsea.com

Web Sites of Interest

NEMES home page

http://www.naisp.net/users/fisher/nemes.html

Delphion Intellectual Property Network

http://www.delphion.com

The Patent Café

http://www.patentcafe.com

The Amargosa group

http://www.amargosa.net

Handbook For Inventors

http://web.mit.edu/invent/www/handbook

Errol Groff's home page

http://pages.cthome.net/errol.groff

Waushakum Live Steamers

http://www.steamingpriest.com/wls/

Eastec vendor show

http://www.sme.org/eastec

Bath Iron Works
http://www.biw.com

Jim Paquette's Open House & Swap Meet

19-May-2001 9:00AM to 2:00PM

Directions From Boston Area

Mass Pike West to 495
495 South to exit 20 (rte 85)
Right at bottom of ramp
1.1 miles to rte 16
Right (west) on rte 16
About 8 miles on 16 to Uxbridge center
Left on South Main (rte 122)
High street is 0.2 miles on right
Jim's house is 114 High Street – ½ mile on left

From Western Mass

Mass pike to the new rte 146 exit
South on rte 146 to rte 16 exit
Left at bottom of ramp
About 2 miles to Uxbridge center
Right on South Main Street (rte 122)
High street is 0.2 miles on right
Jim's house is 114 High Street – ½ mile on left

From Connecticut

Rte 395 to the rte 16 exit in Webster
East on 16 to Uxbridge center
Right on South Main Street (rte 122)
High street is 0.2 miles on right
Jim's house is 114 High Street – ½ mile on left