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The NEMES Gazette

The Newsletter of the New England Model Engineering Society

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Next Meeting

Thursday, December 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).

The Editor's Desk

Mike Boucher

As some of you know, I recently got married. The honeymoon was spent at Disney World in Orlando, FL. You might think that in the land of the Mouse, examples of model engineering would be few and far between. But, I was surprised at how much I found, even though I wasn't looking too hard (this was my honeymoon, after all)

The first, and most obvious example is the Walt Disney world railroad. While this isn't really a model, it seemed applicable to me. This 3 foot gauge railroad is a 1½ mile circle around the Magic Kingdom.

On a Thursday morning, my wife and I woke up early to be at a "backstage tour" of the railroad. (Aren't I a lucky man!?) For almost 3 hours, one of the conductors gave us a ride on the trains, a brief tour of the shops, and told us about the origin of the locomotives and Walt's personal live steam layout in his backyard in California.

For me, one of the highlights of the tour was the opportunity to play conductor, I was selected from among several volunteers to ride on the rear platform, throw the switch to bring the train to the shops, and also to send the whistle signals to guide the engineer during the backing move. To

be fair, Karen was the one who suggested I volunteer!

Everyone on the tour got to climb in the cab of a cold locomotive, and many took the opportunity to sit in the engineer's seat. Unfortunately, Disney does not allow any photographs of anything "backstage", so I don't have any photos.

I would recommend this tour to anyone interested in railroads. Advance reservations are required, and the tour cost $30 a person.

Some of the other examples were more subtle. One of the Disney parks is Disney/MGM studios. The theme of this park is 1930's Hollywood. Scattered throughout the park are old fashioned popcorn wagons. Each wagon was complete with a Cretor's steam engine. Note that while all the parks sell popcorn, only the carts at MGM have the Cretor's engines.

One of the most interesting examples was in a display about Mr. Disney's career, celebrating the 100th anniversary of his birth. In the display were many architectural models of the park, and some of the rides. Also was one of his original animation cameras, showing how four cells could be used to give a sense of depth and perspective.

A prototype of an "animatronic" tap dancer was on display. The back was opened (but protected by a glass case) to show how it worked. There were 20-25 wheels, each looking like something from a rose machine that ornamental turners use. Each wheel had a lever riding on it, and each lever controlled some part of the dancer. As the disks rotated, the levers would move up and down, causing the man to "dance". It would have been a very impressive display if it had actually been operating. Interesting note: the man who served as the model was Buddy Epsen.

I'm getting more and more convinced you can almost always find examples of model engineering, no matter where you look for it!

C'ya
Mike

President's Corner

Norm Jones

The Meeting

Our speaker for December will be Andy Demeter. Andy's talk will be about the Chelsea Clock Co. of Chelsea Mass. He is in the process of writing a book about the history of the company. He will be bringing a movement to the meeting for us to view, to illustrate the fine detail that gets incorporated into their products. I believe that Chelsea is one of the last remaining companies in this country that still produces mechanical movements. It should be an interesting talk.

First Time Visitors and New Members

I am thrilled to be able to welcome new people at our meetings each month. We are very fortunate to be able to bring together a group with such a wealth of information to share with one another.

Library

Our collection of books, magazines, and video tapes is growing rapidly. Although we have an informal sign out list for the various items, it is probably time to ask for a volunteer to oversee the collection. Please come forward if you are interested in getting involved with this activity.

Cabin Fever Bus Trip

There are still a few seats available on the bus for our annual trip to the Cabin Fever Exposition. Be sure to make your reservation at the Holiday Inn in York PA at (717) 846-9500 **as soon as possible** if you are planning on joining us on the bus. The Holiday Inn will be the only hotel that we will be going to this year. It is important to note that while the block of 30 rooms reserved for NEMES have been spoken for, there are still rooms available in the hotel. They are going fast. Remember to mention Cabin Fever when calling.

We will be staying over on, Friday Jan.17 and Saturday Jan. 18.

See you on Dec 5th

Norm

The Meeting

Max ben-Aaron

The November meeting, at the Museum, in the usual hall, was opened by Venerable President Norm Jones.

New club fliers have been printed and will be available shortly.

Norm related that he was a "launch junkie", who tried to attend all the ship launches at the Bath Maine Shipyard. These used to be spectacular affairs when ships were launched, in the traditional way, down slips, with teams of men knocking the wedges out to send the ship sliding down into the water. These days it is done differently, using a huge dry-dock built in China. The ship is built in the dry-dock. For the launching, the dock is winched into the middle of the river and then sunk as the ship floats out. There was to be a launching on Veteran's day (November 11th), with fireworks after the inevitable speeches.

"In the summertime", Norm said, "I prefer to be out and about. The wintertime is the time to work in the shop. That's when I feel inspired to build something. I once made some remarks about a Ryder Hot Air Engine that Jerry Howell did 50 sets of castings for. A number of NEMES members have the castings. As far as I know, one person has started, but nobody has completed one. I think that it is about time to break mine out. Remember that Jerry said that he would limit the production to 50 sets and would destroy the patterns after five years. The time may almost be up. If you are building one and you make a mistake, you might not be able to get a replacement."

"I saw a few faces I recognized at the American Precision Museum show. This is the first time it was held at the ski lodge at Ascutney Mountain. It was on two levels. I got there a little later than I anticipated. The drive up took longer than I thought it would. I set up on the second level with Dave Stickler on one side and Bill Schoppe on the other. That's where the Club banner flew. Saturday, I thought, was a very good day, but Sunday, in my opinion, was a bit disappointing."

The North Shore Old Car Club presented a plaque to Ed Rogers in appreciation for his organizing NEMES' presence there. Ed thinks that NEMES deserves it more than he does and he would like to see it as part of the Club's memorabilia, perhaps displayed somewhere.

In the distant past, NEMES member Richard Sabol, who designed our club T-shirt logo, used to bring bars of free-machining steel for members to purchase at moderate cost. He is planning to bring a shipment of Ledloy to the club show in February for us to buy. Sizes will range from ½" diameter to 2-½" diameter, in various lengths. Richard will be there bright and early at 8:00 am, and it's first come, first serve. It will provide a great incentive for members to show up, help with the setting up for the show, and buy some workshop stock. Steel can sometimes be nasty to work with but this material is beautiful and a real pleasure to machine. So come and stock up.

Harvey Noel has some unedited tapes, with 45 minutes of the last American Precision Museum show and 15 minutes of last year's Cabin Fever show, for sale at $10, with $5 of that going to the Club. See him at the next meeting if you want one.

Jim Paquette has presented a VCR tape "Railroading in Alaska" to the Club library. Thanks, Jim.

Show and Tell

Leon Schiff's son Jeff, who does fine architectural metalworking, got a contract for some cap and ball fencing in which the balls had to be enclosed in steel tubes. Leon brought in a sample of the tubing and the hollow end-mill that he used to pierce the tubing for the balls. The hollow end-mill cutters were expensive to buy, but a sharpening service was quite reasonable, so Leon kept rotating several tools, with one being sharpened while the others were in use. The large-diameter holes were cleanly bored in this fashion.

Alan Bugbee told about a visit to the Longaberger basket factory, in Newark Ohio, a most impressive operation with large numbers of baskets being produced by hand by piece-work basker-weavers, in a huge factory, every day. (I don't remember the figures Alan quoted but the size of the operation he described is staggering. -- Mb-A) The baskets are sold direct, by an operation similar to the Tupperware parties. More can be found at their website: http://www.longaberger.com

Ed Borgerson's wife needed some urethane-type sponge-mattress material sliced up for a craft project, so he took it down to the bandsaw in his shop. The bandsaw did a beautiful job of cutting the awkward material.

Some time ago, Bob Neidorff, our Gazette publisher, asked for help in designing a folder to make the mailing of the Gazette less of a chore. A little while later, a parcel arrived on his doorstep -- with a complete, working device in it! Works like a charm. It came from Ray HasBrouck who not only designed and engineered it, but actually constructed one. A motion to send him a formal letter of thanks was moved and passed unanimously. [*Editor's Note:* See the article later in this issue]

Jeff de Papa reported on the 2002 Punkin Chunkin Contest. Jeff brought fancy metal arm which was folded over by the power of their rope bundle, to 'show and tell'. Ideas for a new, better design are solicited. [*Editor's Note:* see the article on the chunk later in this issue]

The CAPSAT Program

CAPSAT is an educational Program that involves high school students at the Timberlane Regional High School in Plaistow, NH, in high altitude ballooning, remote control systems, science, math, technology and amateur radio. The program was started by our November speaker, Louis L. Broad (N1RCA), who teaches Physics, in conjunction with Lorainne Mascioli (N1YVQ),who teaches Algebra II. Physics and Algebra II are taught in a coordinated manner to show how math, science and technology work together. The last quarter of the school year is spent on producing a large scale concluding project that provides students with experience in engineering, technology and science.

This year the project involved six teams of students, each launching a high altitude balloon package with amateur radio providing communications, control, and telemetry. The primary objective was to build six reliable 'baseline' communication systems; these comprise of a VHF or UHF portable transceiver, a Garmin 12 GPS with interface cable and a Kantronics KPC-3 Plus packet TNC.

Such a baseline system have been flown twice in the past two years and protocols and systems have been developed for the students to use. Six flights were scheduled to be launched on the Friday and Saturday of the May 2002 Hosstraders Swap Meet at Hopkinton Fair Grounds last May, and five launches actually took place. For each launch, instruments telemeter data to the ground station and parachutes to earth when the balloon bursts at altitude. The size of the balloon determines the altitude that will be reached before the balloon bursts. The GPS package helps to track the parachuted hardware for recovery. There are strict Civil Aviation rules for the size and weight of balloons that can be launched.

Mr. Broad described, with illustrative slides, how the program started and the vicissitudes and triumphs of the program so far. It has turned out to be a valuable and enriching experience for the students involved. They have shown a great deal of ingenuity and skill in their approach to solving problems and actually building the equipment required. The amount of money available for the

project is limited, which imposes a real-life constraint. CAPSAT appears to be successful in large part due to the enthusiasm and the particular skills of Messrs. Broad and Mascioli, and so it might be difficult to duplicate.

For future programs, volunteer hams radio operators will be needed to participate in communications through the various flights and on recovery crews. They are asked to contact the CAPSAT project team:

Louis L. Broad (N1RCA)
Lorainne Mascioli (N1YVQ)
Timberlane Regional High School
Plaistow NH 03865
(603) 382-6541 ex 244

Max

Show Reports

Compiled by Mike Boucher

3rd Annual American Precision Museum Show

By Norm Jones

This year's show moved to a new location. It was held at the base lodge at the Ascutney Mountain Ski Resort, just outside of Windsor, Vermont. I managed to underestimate the travel time to get there, and along with the inclement weather, arrived much later on Saturday morning than I had planned. The lodge is a multistory building with the show occupying levels two and three. I was happy to find a good turnout of both exhibitors and spectators. There were carts available to bring display material from the front entrance (ground level) to the selected area. I selected some space on the second level between Dave Stickler and Bill Schoppe and his wife Cindy. I brought the club banner and I guess you could say that we were in the “official club area”, not to slight those of you who were set up on the 3rd floor.

Other NEMES members in attendance were Russ Steeves and Rich Hubbard, with Russ' Fitchburg Northern Locomotive. They brought the engine up to the second level as well. Rich Puleo had a very nice display of his Hot Air Fans on the third floor. Bill Brackett brought along a supply of the new club brochures to pass around. Thanks Bill!

Compressed air was available on both levels to run steam engine models. There were also a number of the vendors that we all look forward to seeing each year. The food concession was close at hand. We had a very pleasant inside temperature and large windows with which to view a snowy landscape outside. What more could you ask for!

Each show that I attend seems to have a common thread. Exhibitors arrive early for setup and end up leaving on Saturday afternoon or early on Sunday morning. I realize that everyone has their own unique situation to consider in this matter, however it doesn't seem fair that the show organizers go through a lot of effort only to see a poor turnout on Sunday.

I had a great time and hope that APM will sponsor another show next year.

Norm

2002 Punkin Chunkin Contest

By Jeff del Papa

The following report was excerpted from http://www.siege-engine.com with permission from Jeff del Papa. You can read a full description at that URL, which also has illustrative pictures to boot.

Team Tormentum worked many late nights trying to finish Mista Ballista for the 2002 Chunk. We eventually packed up the machine, and dragged it to Delaware even though we had never fully assembled it, nor were all the parts built, such as the bowstring. Regardless, we had a great time and impressed lots of people with the nifty parts we've built over the past three years.

The first thing we had to do when we got to the Chunk venue was to unload parts from the trailer. Then Jeff and Dave assembled the rope bundles into the regulae frame. Once they were bolted in, they became the engine for Mista Ballista.

Fortunately, there was a fork lift available which helped us put the massive rope bundle assembly onto our machine. We even had the help of Wolfie, the owner of Old Glory and current record holder with his chunk of over 4100 feet. This particular step of assembly scared us as we had no idea if our pivot point would cause the winch end of our scapus to fly up into the air. The fork-lift operators didn't know this, and just plunked it down.

Eventually the rest of the framework was finished, and it started to look like a ballista. Dave was still building the bowstring at this point when we started tensioning the arms, while Roger added pads where the arms will strike the stanchions on our rope bundle frames.

The next day with our added stop-pads, and our metal throwing pouch with a basketball net strung inside, we borrowed the heavy duty winch, which performed the draw back, from Roger's truck, and even did the modiolus tightening with it. The result of our only competition shot was a white pumpkin which had the bottom ripped off by the machine during the throw. While it flew about 100 feet, it wasn't counted because the pumpkin was injured by the throw.

Eventually disaster struck, and our fancy metal arm was folded over by the power of our rope bundle. Jeff and Roger had tightened the rope bundles up another 6 degrees on all sides, and the arm folded during a pull-back test. It is apparently time to rethink our arm construction strategy.

Unfortunately, we spent so much time working our machine this year, we didn't have much time to hob-nob with the other chunkers, unless they came to visit us.

The 2002 chunk set several new world records this year. We spent a lot of time with the catapult folks this year, and had a good time."

Pumpkin Slayer was back again this year, this time as our neighbor in the human powered division. The were flinging pumpkins over 1300 feet this year and keeping the crowds well entertained.

One family team with a rubber-band cannon. wore shirts with the same flame pattern around the waist as on the paint job of their machine.

Pumpkin Upchunkin was small, but effective at flinging its pumpkins. The owner of this machine was quite friendly, and was interested in Mista Ballista, and commiserated with us on our plight this year.

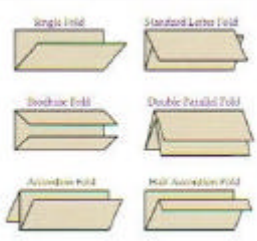
Splat Cat, a spring powered trebuchet lived up to it's name, and one of its pumpkins went flying backwards, and whacked into it's sign, much to the amusement of the crowd and the announcer.

Onager and Bob Carbo were back again, taking 3rd place with his human powered chunk of over 1100 feet. Bob brought a small version of his onager with him which had the same hardware and design as his big onager. Isn't the model supposed to come first?

One trebuchet had some funky air-cylinders hooked to some white pipes. I'm still not sure what all that stuff was for.

The centripetal machines Bad to the Bone, Determinator, and a third air-powered centripetal device duked it out in their own division. Bad to the Bone set a new record for centripetal of over 2300 feet this year.

Old Glory, a stupendously large machine, was back, but didn't get a single successful chunk out this year.



Paper Folder Contest

Bob Neidorff

At the beginning of the summer, I put an article in the Gazette announcing the “Great NEMES Gazette Paper Folder Contest". I was looking for a design for a paper folding machine.

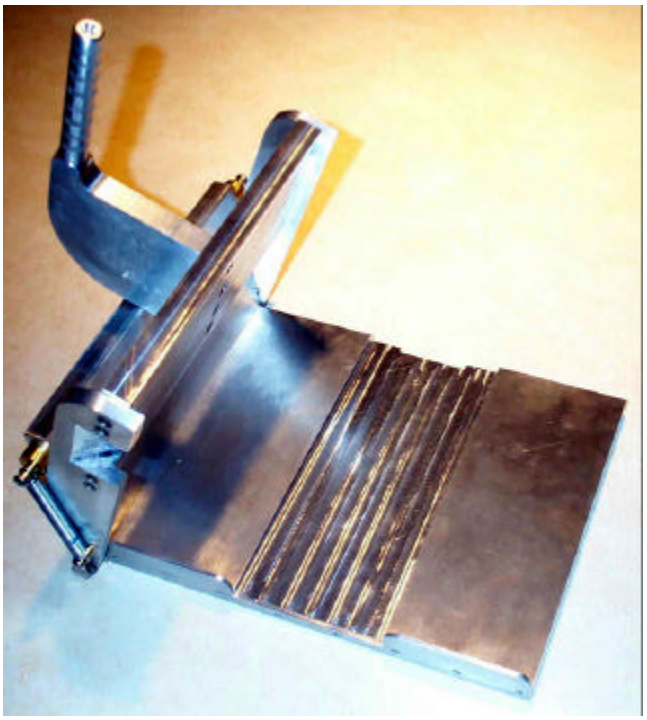
Ray HasBrouck not only designed one, but sent the completed, working machine. I was shocked, amazed, awed, and delighted when this arrived.

Coincidentally, it arrived one day before I was to fold the Gazette, so it came in right on time!

Some members know Ray well, but to me, he was just a "name on the membership list", until now.

For those who don't know him, Ray is a long-distance NEMES member. He lives in New Platz, NY, and is frequently seen at the Greenwich Steam-up among other places. He sells plans for steam engines which require no castings, from small oscillators to twin cylinder steamboat engines.

At the last meeting, I brought in the HasBrouck Paper Folder. Here is a photo of the machine:

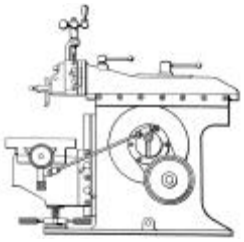


HasBrouck paper folder

I've used this paper folder for the past three issues of the NEMES Gazette and have grown very attached to it.

Many thanks to Ray HasBrouck for helping our club and making my life a little easier!!!

Bob

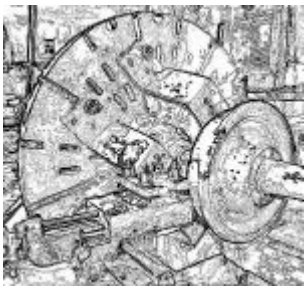


Shaper Column

Kay Fisher

As many of you may have heard, Kay and Pat have moved from the wilds of Orange, MA, to Arizona. Hopefully all of Kay's shapers arrived intact!

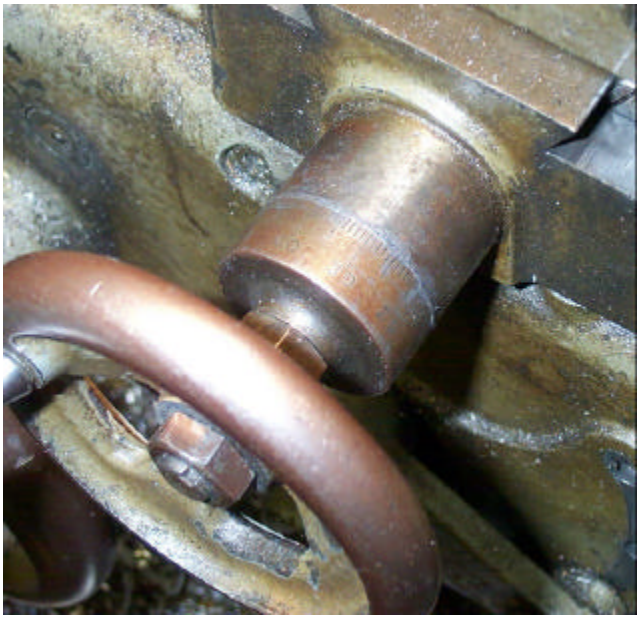
I'm sure he's been too busy doing things like getting settled in the new house, but Kay has told me that he will continue the shaper column. Stay tuned for more shaper stuff!



A Logan Lathe Cross-Slide Dial Modification

Bob Neidorff

Perhaps it's because I'm getting older, or maybe I just need to get my eyeglass prescription changed, but it's getting harder and harder for me to see the tiny lines on my Logan Lathe dials. I've been living with it for all these years, and don't see the need to change, but every time I would do something on the lathe, I squinted, adjusted the light, and grumbled about those tiny lines.



Original Logan cross-feed dial **Bob Neidorff photo**

Recently, I was working on a project and dug through one of my many junk boxes looking for a suitable scrap. Instead, I found a 100-graduation dial from another machine. I don't know what machine it was, but this machine had **big** dials! To give you an idea, the dials on my Logan Lathe are 1.22" OD. This dial is 2.9" OD, which means that the graduations and numbers are 2.4 times larger. That's a lot. So I pulled it out of the box and put it aside, for just the right time.

When I needed a break from my other project, I decided to put this dial on my lathe. The ID was too large in the main section and too small in the narrow section. But it had potential.

I adapted the dial by making a stepped bushing. The OD of the large part of the bushing fits barely inside the new dial. The ID of the large part of the bushing barely slides over the old dial. I selected the ID of the small part of the bushing to clear over the shaft for the cross-feed crank handle. I selected the OD of the small part of the bushing to be larger than the ID by enough to give me some thickness for set screws, so I used 1". When the bushing was done, I mounted the dial in my 3-jaw chuck and bored and reamed the small ID of the dial to 1", so the bushing snugly slipped inside the big dial.

Next, I drilled and tapped the bushing for two set-screws. I couldn't find soft-headed set screws that were short enough, so I sliced off a few pieces from 10-32 brass screws and slotted them for a screwdriver.

To complete the project, I found a scrap of metal of the right OD, bored it to fit over the small lathe dial, added set screws and scored a line in it to indicate dial position. I debated scoring the dial with an engraving bit on the mill, but decided that it would be easiest to scratch a fine line on the lathe, using a specially sharpened lathe bit.

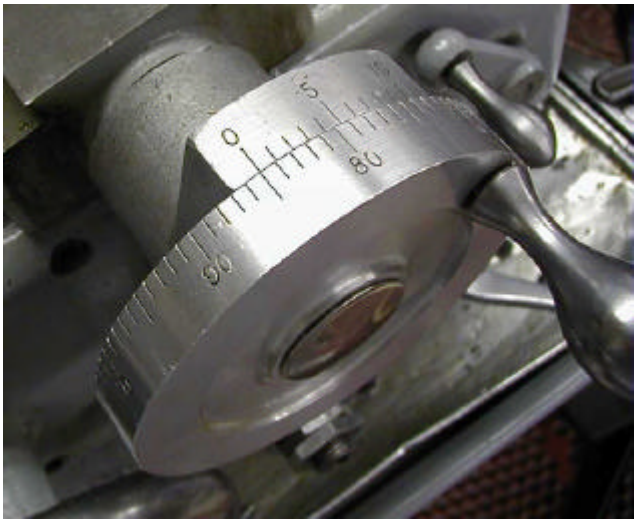
The new parts **Bob Neidorff photo**

These photos show the lathe before and after modification. It's a joy to use now. I can see the graduations clearly and due to the sharpness of the scribes, I can even estimate tenths of a mil. An unexpected benefit of this modification is that the cross-feed now turns more smoothly from the flywheel effect of the new dial.

Bob's lathe, new dial in place **Bob Neidorff photo**

One drawback to this modification is that the cross-slide travel is reduced because the cross-slide can't travel over the large dial. For most of my work, I don't care, because I rarely work on parts larger than 3" OD. But for cases when I want that extra cross-slide travel, I can easily remove this large dial, and the old dial is underneath, ready to use.

This modification was inspired, in part, by the dial on Robert McIlvaine's lathe. Mac didn't know who made this dial, but it is another great solution to the problem. In addition, the dial on Mac's lathe includes a vernier. If I ever build enough confidence in my ability to divide a drum into 91 segments, I might scribe vernier marks in mine.



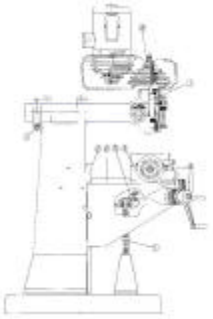
The dial on Bob McIlvaine's lathe **Bob McIlvaine photo**

Another similar modification was available on the market for years from a company called Stelling of Burbank, California. The Stelling dial has 200 graduations, and is larger than the original dial, so it allows you to make cuts in units of diameter rather than units of radius. Alas, Stelling is no longer in business, but one person on the internet mentioned that he was able to find a Stelling dial for his lathe at a yard sale for $3.00.

The Stelling lathe dial **photo courtesy of Eric Claussen**

I could have mounted a dial indicator on the cross-slide, or adapted the cross-slide with DRO. These would have been more accurate because they would have no backlash and they would have been equally easy to read. But for now, I'm very happy with this modification, especially considering the convenience, the low cost, and how little time was required to install it.

Bob



Civilizing a Taiwanese Knee Mill

Fred Jaggi

It all started when my friend Harry offered me a really nice Bridgeport mill with DRO at a reasonable price. I have a 20 year old Taiwanese knee mill that I bought second hand and have muddled through with over the years. But after considering the Bridgeport for a long time, I finally decided it was just too much trouble to get it down the bulkhead steps to the basement. I would have to live with my Taiwan mill. I had better set about fixing it's faults.

My knee mill has a 8" x 30" table and takes R8 collets. It had a 1-½ horsepower single phase

motor with a multispeed drive via a jackshaft pulley. Among it's many faults were:

Motor and its Mount

The motor was mounted on a hinged plate with a spring-loaded pin to maintain belt tension. This never worked. The motor was so huge that there wasn't much swing available to be able to move the belt to change speed.

Lead Screw

The x-axis lead screw nut was badly worn, and had unbalanced handles at each end, located in the same radial orientation. Often, the handles would drop of their own accord, making it difficult to know where you were with travel of the table.

Gibbs

The tapered gibbs wouldn't adjust correctly. They were either too tight or were alternately tight and loose depending on the direction of travel.

Quill

A small diameter knurled knob locked the quill. It was hard to tighten this knob sufficiently to truly lock the quill. A handle or a worm drive can lower the quill. However, there is so much slack that neither method is reliable.

Other

The mill sounded like one of the bearings had disintegrated. The adjustable stops on the X and Y-axis would bind as they were adjusted. There was no protection from chips dropping on the back of the table onto the Y-leadscrew.

All in all, just what you would expect! Here's how most of the problems were fixed:

Motor and its mount

I first considered replacing the motor with a modern 3 phase motor and variable frequency drive, However, I had a old single phase variable speed repulsion run motor from a coil winder. These motors work by shifting the brushes – remember the old manual feed printing press at your high school shop!

The motor is only ½ hp, but Dick Boucher told me his Hardinge miller had ¼ hp so I decided to use the motor. Its speed range is from 800 to 2400 rpm at essentially constant torque, both forward and reverse. With a double pulley on the motor and the 3 step pulleys on the intermediate shaft and the quill, the mill speed range is now 150 to 1900 rpm. In model engineering, we don't do much heavy hogging of metal, so the ½ hp motor is adequate.

To improve belt tensioning, I cut off the boss holding the spring and bolt and simply added a rod and clip from an old screen door. Now, all it takes is a quick flip to release the tension, there is plenty of room to put the belt on a different segment of the pulley, then push the tension rod and flip the clip to secure.

Lead Screw

The X-axis lead screw nut was almost worn through. Based on the June 2000 NEMES lecture, I ordered a 50 cc packet of Moglice resin and hardener and a small plastic syringe from Devitt Machinery Co. They were very helpful and told me that I could make my own release agent by dissolving paraffin wax in mineral spirits (AKA - paint thinner).

The lead screw, $^{7}/_{8}$" OD by 5-TPI was in very good shape. I made a new lead screw block to form the outer casing of the nut, bored a 1" hole with a small recess at each end and made two centering rings to push fit in the recess. I drilled a $^{3}/_{16}$" hole in the base of the block and two vent holes in the top. I also inserted two short tubes in the vent holes to act as risers. I then painted the release agent on an unworn end of the lead screw, mounted the block with its centering rings, sealed up the ends with modeling clay, and cast the nut.

The next day I tried to unscrew the nut and it wouldn't turn! Fortunately, the NEMES meeting was that night and Larry Twaits told me that he had a little trouble with release but it would shift with a little heat…and so it did.

Then with a little non-embedding lapping compound, I was able to make the nut a smooth running fit on the lead screw. Dick Wagner, the Moglice rep. who gave the NEMES lecture, called me the other day to follow up on my little order. I thanked them for their attention and told him it was a pleasure to use the lead screw now with a smooth feel and minimal backlash.

While everything was apart, the hubs on the handles were redrilled so that projecting handles would be balanced, 180 degrees apart. Now the lead screw doesn't turn of its own accord.

Gibs

The machine has tapered gibs adjusted by a large headed screw at each end of the table, which catches the corner of the gib. But the screws were bent and the ends of the gibs were worn on a sort of taper. The effect of this was that the gib was forced into the bed as it was tightened. This meant the gibs were kept loose and, with end play, would be sloppy in one direction and bind in the other! I straightened the screws, machined the ends of the gibs square, and now they work fine.

Quill

I put a small handle on the quill-locking knob so that the quill could be locked securely.

I still don't know what to do about the excessive backlash on the down feed. This backlash is dangerous since an endmill can catch and pull the quill down. So now, I use the screw, or handle, to bring the quill within striking distance, but then lock it and use the bed elevating screw for Z movements. I'd like to hear suggestions on how to correct this backlash problem.

Other

The bearing noise was easy to fix. The cap on the pulley of the intermediate shaft was rubbing against the stationary shaft. A couple of paper washers provided a cure. Whew!

The adjustable stops were simple round aluminum cylinders held by an Allen screw in a small square plate in a slot. The plate would bind as it was moved in the slot. New rectangular plates with a length about twice the width cured the problem

I made a chip guard on the rear of the table out of discarded pool liner. If anyone would like a piece of the liner, please let me know.

Here is a photo of the Mill.

Fred Jaggi's Mill **Fred Jaggi photo**

Fred

Monarch Madness

By Max ben-Aaron

Knowing several NEMES members own Monarch 10EE lathes, I found some information about these machines. This timeline is copied direct from a preprinted 10EE history sheet

1939

First machine designed as what is now called the "old height lathe".

- ?? 12" swing over the bed and 20" centers, with D-1-3 spindle nose
- ?? 30 feeds from 0.001 to 0.0075 IPR (inches per spindle rev.).
- ?? 50 thread combinations from 3 to 92 threads per inch.
- ?? 25 to 2500 rpm infinitely variable spindle through a Sundstrand hydraulic hydrostatic drive, belted directly to the spindle.

First machines shipped to:

- ?? S/N EE-6156 Precision Scientific Company Chicago, IL
- ?? S/N EE-6207/8 Woodward Governor Company Rockford, IL

1941

Reliance 3 HP DC motor and motor-generator set replaced the hydraulic spindle drive. Speeds available are 30 to 3000 rpm, 35 to 3500 rpm and 40 to 4000 rpm speeds, accomplished by changing sheave diameters and belt lengths. In later years, the standard range was to become 40 to 4000 rpm.

1944

Machine redesigned to today's "new height lathe". Actually the "old" and "new" versions were both shipped for a period of about a year starting in 1944 and continuing into 1945.

?? 12.5" swing over the bed and 20" centers, with D-1-3 spindle nose
?? 50 feeds from 0.0005 to 0.016 IPR (inches per spindle rev.).
?? 60 thread combinations from 3 to 184 threads per inch.
?? 30" centers machine was introduced. Manufactured up to 1970. Sales heavily concentrated in US government installations.

1949

Thyratron vacuum tube rectifier DC electronic drive replaced the Reliance rotating motor-generator set. Became better known as the "works in a drawer" drive. Multiple vacuum tubes were used to control the rectifier tubes.

1950

Electronic drive was redesigned and updated.

1960

Thyratron vacuum tube rectifier DC drive with a solid state control module replaced the "works in a drawer" drive. Was to become known as the "module drive".

?? All solid state except for the thyratron rectifier tubes.
?? 5 HP DC motor first used.
?? Approximately 3000 units shipped with this drive.

1970

Introduced combination English/metric gearbox and English/metric screw dials at the Chicago IMTS exhibition.

?? 50 English feeds from 0.0005 to 0.016 IPR.
?? 50 metric feeds from 0.013 to 0.406 mm/rev.
?? 60 English thread combinations from 3 to 184 threads per inch.
?? 26 metric threads pitches from 0.25 to 11 mm.

1983

Entirely solid-state DC drive replaced thyratron tube drive. Known as the "armature regenerative spindle drive". 5 HP DC motor remained as standard.

1995

Introduced AC inverter-type spindle drive in place of DC drive. 7.5 HP AC TEFC motor standard on new machines. Made available for field retrofit and factory rebuilding.

1998

Optional 10HP AC inverter drive, without 5:1 back gear reduction unit, first made available for field retrofit and factory rebuilding.

Important Note: The Monarch 10"EE has always used a flat feed belt coupling from the headstock spindle to the gearbox, whenever the machine is in the feed mode. Thus any gear impulses that might affect the outstanding finishing capability of this precision lathe are eliminated. In the threading mode, the headstock spindle is gear coupled to the gearbox.

(end of Monarch 10ee history sheet)

I inquired about prices on 10ee's and the number manufactured and found out the following-

In 1946, the base price was $4,194. In 1955, it was $7,400. In 1965, it was $9,775. Today's price is $79,950, and they have them in stock!

To see how the current price compares to past prices, I checked the consumer price index for 1965, and come up with a figure of $9,775 in 1965= $54,373 in 2002, so today's prices are not quite as high as they might seem, especially considering the low production compared to past years.

Approximately 8000 EE's have been shipped since 1955, but they are not sure how many before that. Between the beginning of 1940 and

the end of 1945, 28,689 lathes were shipped from the facility; a portion but not all were EE's. They have the lathe records on every machine, they just do not have them listed for easy counting.

Kudos and many thanks to Darcy Dill, Sales Manager at Monarch Lathes, for digging up this info

Max

Treasurer's Report

Rob McDougall

Balance as of: 9/30/02	**$4,999.27**
Dues Received	75.00
Sales of Dave Bono Plans	40.00
T Shirt Sales	24.00
Interest Income	.61
Less	
Gazette expense	-253.37
Web Home Page Fees	-149.33
Balance as of: 10/30/02	**$4,736.18**

This month, due to the Thanksgiving holiday, I needed to produce this report before receiving our NEMES bank statement. I like to reconcile to the paper statement before publication, so I have called this report "preliminary". If there is any change from actual, I will report accordingly next month.

Cabin Fever Note: As of Monday 11/25/02, we have 32 people signed up to go on the bus. A few people are driving down this year so more than 32 members are planning on attending. There is plenty of room still on the bus if your plans change and you want to sign up.

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.

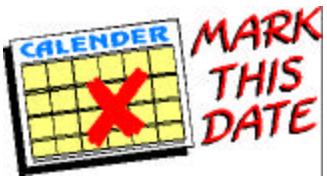
Errol Groff
180 Middle Road
Preston, CT 06365 8206
errol.groff@snet.net

1922 Locomotive Cyclopedia CD

Dave Stickler recently purchased a CD containing the complete 1922 Locomotive Cyclopedia, for $29.95. Dave is highly impressed with the content and value, so others might like it as well.

Source is Raildriver Cyclopedias:
www.raildriver.com/rdcyclopedias/22locomotive.html

Dave got his in about a week after ordering by phone. The hardbound book version can be found for sale at antique/specialty booksellers. About 1000 pages, and a few hundred $$.



Upcoming Events

Bill Brackett

Dec 5 - NEMES Monthly club meeting

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

Dec 8 - Straw Hollow Frostbite Show

Boylston,MA. Roger (508) 869-2838

Jan 1 – Waushakum Live Steamers New Years Run

5 Arthur St, off Karen Circle, Holliston, MA. Not an "official meet", but has become an annual tradition, and is usually a good crowd with several engines in operation. Heated clubhouse open, porta-john available, BYO lunch!

Jan 2 - NEMES Monthly club meeting

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

Jan 18-19 - Cabin Fever Expo

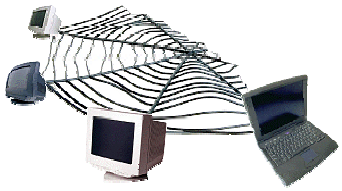
York PA. Gary Schoenly (800) 789-5068

Feb 15 - NEMES Model Show

10:00 AM – 4:00 PM. Set up at 8:00 AM Charles River Museum of Industry, Waltham, MA. (781) 893-5410 or Norm Jones (978) 256-9268

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 or (508) 393-6290.

Bill



Web Sites of Interest

Escala DRO

A DRO system which my friend Harry Holland has used with great success on his two milling machines is the Escala. I haven't seen this system mentioned in the model engineering press, but it deserves attention. Its advantage is relatively low cost, about $600 for two axis and their use of a imprinted stainless steel rod which the sensor reads. This makes the sysem quite immune to dirt, chips etc.

Fred Jaggi

http://www.cncmasters.com/Products-escala.htm