

The NEMES Gazette

NEW ENGLAND MODEL ENGINEERING SOCIETY INC.

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Editor's Desk

Frank Hills

A Tail of Old Bessy...

Last month I left you with a serious thought, that the operators of steam engines two hundred years ago were risking their lives. It wasn't the exposed whirling gears and linkages so common to the age that were to blame. And the problem wasn't just limited to steam engines, though they were particularly sensitive to it. The greatest danger of the early industrial revolution was catastrophic material failure in ever larger and increasingly loaded iron and steel structures. It wasn't that the engineers of the time didn't understand the problem. In fact, it was well understood. Iron contained high concentrations of carbon and minerals which polluted every batch of raw stock made. These "extras" both changed the metals properties (rarely improving them) and made them inconsistent from batch to batch. For thousands of years these limitations hadn't been an issue. Iron was smelted in small batches and the parts made from it were equally small. You just made things big enough to do the job. But as the demand for iron and steel increased and the size of items made from them became larger, failures

Next Meeting

Thursday, Aug. 6, 2008

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

Membership Info

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

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

Addresses are in the left column.

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Editor's Desk

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began to occur with increasing frequency. Something had to be done. Anyone able to devise a better way of processing iron and steel to improve strength and consistency would change industry and manufacturing forever. That person was Englishman Henry Bessemer.

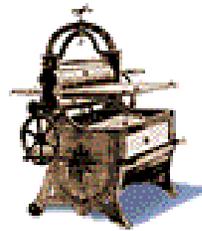
Even before the process which bears his name, Bessemer was one of England's leading industrialists. He was well aware that existing metallurgical technology was limiting what could be made with iron and steel. Structures had to be made oversized to compensate for possible strength variations in the material and to counter corrosion. The process then in use was a definite advance over it's predecessor the copula (simple charcoal or coke fired melting), but possessed the same limitations. Iron ore was melted in a large crucible. The higher the temperature of the melt, the more impurities floated to the top of the crucible and could be scraped off, or sank to the bottom and collected. Either way, impurities were removed. The problem was that no one was sure how much remained. Bessemer created a way, not only to remove a greater percentage of the impurities, but to determine, generally, the remaining quantities. He modified a crucible furnace to allow compressed air to bubble up though the molten metal. The iron was too hot to oxidize, but the carbon and impurities burned off in a shower of sparks. When the sparks ceased most of the impurities were gone and a stronger, more consistent material remained. By doing some sample testing, Bessemer determined how long the process had to continue to reduce impurities to a desired level. In addition to the improved strength "Bessemer" metals were easier to cast, to forge, and to alloy with other metals with consistent results.

Bessemer processed iron and steel changed the industry. Stronger materials allowed for smaller cross sections to be used with a guaranteed level of strength. New alloys of steel were soon created with improved corrosion resistance and even greater strength.

Before Bessemer, steam engines were known to be dangerous because their boilers might fail catastrophically without warning. Now the strength and corrosion resistance of the materials used was better understood and the life expectancy of such devices could be determined with greater accuracy. A hitherto unknown confidence in design prevailed. Bessemer was knighted for his contribution to science, industry, and England's lead on the rest of the world in metal technology.

Of course, not all stories are as glamorous as they at first seem. Bessemer didn't actually come up with the idea of using air to purify iron. That procedure had been known for centuries and had been used to make such things as high quality swords. Its discovery was obvious. Cast metal was poured into a sand mold and allowed to cool before being beaten into shape. At some point the caster became tired of waiting and blew on the metal to hurry the cooling. Sparks shot off the surface. Guess why! Well, Bessemer wasn't the only one who knew this. A man named William Kelly in the US was also working on industrializing the process. When Bessemer tried to obtain a patent in the US Kelly challenged it. In the end Bessemer bought Kelly out to make himself the sole holder of all rights. But ultimately Bessemer and Kelly were fighting over the right to sell a glorified version of an existing process. Granted, both Bessemer and Kelly overcame a tremendous challenge, industrializing it, but it was a known process! This isn't the first time someone has taken advantage of someone else's idea and become famous for it....More on that next month.

Frank Hills



NEMES Gazette ***Editorial Schedule***

<u>Issue</u>	<u>closing date for contributions</u>
Sept. '08	Aug. 20, 2008
Oct. '08	Sept.24, 2008
Nov. '08	Oct. 22, 2008



President's Corner

Dick Boucher

First of All

I wish to thank outgoing Gazette editor Victor Kozakevich for his years of help to the Society in this very important position. Our Gazette is not only our means of communication among ourselves but it, thanks to the web site, is a vehicle whereby the doings of our Society are known throughout the world by those interested in our hobby. Thanks Vic.

Now I want to thank Frank Hills for stepping up to the plate and volunteering his time and talent to see that the Gazette doesn't miss an issue. I hope your tenure is as long as your predecessors have been. Thanks Frank.

Second of All

I do apologize for not getting my notes to Frank in a timely manner for his first issue of the Gazette. The problem with the missing column last month was mine not Frank's.

The Meeting

This month our speaker will be Richard Baker. Rich is a patent attorney and will be talking to us about patents and patent models of old and the procedures for securing a patent. He will also have some pictures of patent models and a web site of a fellow who sells old patent models for anyone who is interested in such things.

Miscellaneous Ramblings

Father's day was a great time at my house. My two sons with their wives and sons and daughters came over for a steamup of Michael's steam tractor. Grandson James, Michael's four year old took right to the action Joshua, Peter's two year old, was a bit leery of the fire breathing device actually trying to climb back up

his father when he tried to place him in the trailer behind the tractor. After we mentioned that the tractor was "Trevor" from the "Thomas the Tank Engine" series and his father got in the trailer with him, Joshua decided that the trailer ride wasn't so bad after all and spent the rest of the afternoon in the trailer by himself with his cousin at the controls (with his father right there). Now I mentioned that James had taken right to the tractor so let me go back a weekend when I went over to Michael's house to pick up his ¾" to the foot steam locomotive for a bit of shopping in my facility. We had put the locomotive in the bed of my truck and James climbed up into the bed to get what was we finally realized a first touch of the locomotive. It had always been on the storage stand and above his head height. Well now that it was hands on level he started to totally investigate the machine throwing bits of coal from the footplate into the firebox and twisting all the knobs on the backhead. At one point he even went down to the cellar of the house and got a shovel full of coal and carefully walked back to the truck to put the coal in the firebox of the engine. All this from just observing trains being run at the Waushakum Club. So now we have Father's day, the tractor all steamed up and James gets the coal shovel by himself walks over to the coal bucket gets a scoop and returns to the tractor and opens the firebox door and throws the coal in the firebox. Now I ask you can a Grandfather be any prouder? I have a video for show and tell.

Oh I mentioned granddaughters. Well the 18-year-old looked on for a while and then was in the house talking with the mothers, grandmothers and aunts and the 6-month-old was just content looking extremely cute.

The next Sunday saw the usual members of the Society at the North Shore Old Car Club Auto Show for another great time together displaying our miniature machines to a very interested public. The group included Errol Groff, Norm Jones, Les Russell, Max ben-Aaron, Ed Rogers, Henry Szostek, Herb Cotterly myself and Dave Fletcher and his young son Adam from my Monday night locomotive building sessions that I invited to show off the work the fellows have been doing in that group. We had to break up rather abruptly as a thunderstorm quickly moved in on us. I must say you never saw so many cars leave the Topsfield fair grounds so quickly.

All in all it was a great day enjoying the conversation among the group and the spectators and the miniatures operating. Again our thanks to Ed Rogers for arranging this fine venue for us to enjoy.

Dick B.



The Steam Man of the Prairies

BY EDWARDS ELLIS,



Treasurer's Report

Dick Koolish

Sorry folks. This report is old, but at the moment it's the only one I have. Dick Koolish doesn't know how to find me yet. That will be rectified shortly...Frank



Balance as of March 19, 2008	10013.81
7 memberships	+175.00
2 speaker fees	-100.00
CRMI donation	-1250.00
April Gazette	-149.14
May Gazette	-194.30
Balance as of May 20, 2008	8495.37

CHAPTER VIII.

INDIANS.

THE steam man was headed straight toward the emigrant train, and advanced at a speed which rapidly came up with it.

They could see, while yet a considerable distance away, that they had attracted notice, and the emigrants had paused and were surveying them with a wonder which it would be difficult to express.

It is said that when Robert Fulton's first steamboat ascended the Hudson, it created a consternation and terror such as had never before been known—many believing that it was the harbinger of the final destruction of the world.

Of course, at this late day, no such excitement can be created by any human invention— but the sight of a creature speeding over the country, impelled by



The Meeting

Todd Cahill

Again, Sorry. Ain't got any! Todd will also have to be informed how to find me! My bad!..Frank

steam, and bearing such a grotesque resemblance to a gigantic man, could not but startle all who should see it for the first time.

The steam man advanced at a rate which was quite moderate, until within a quarter of a mile of the astonished train, when the boy let on a full head of steam and instantly bounded forward like a meteor. As it came opposite the amazed company, the whistle was pulled, and it gave forth a shriek hideous enough to set a man crazy.

The horses and animals of the emigrant train could be seen rearing and plunging, while the men stood too appalled to do anything except gaze in stupid and speechless amazement.

There were one or two, however, who had sense enough to perceive that there was nothing at all very supernatural about it, and they shouted to them to halt; but our two friends concluded it was not desirable to have any company, and they only slackened their speed, without halting.

But there was one of the emigrants who determined to know something more about it, and, mounting his horse, he started after it on a full run. The trapper did not perceive him until he had approached quite close, when they again put on a full head of steam, and they went bounding forward at a rate which threatened to tear them to pieces.

But the keen perception of the boy had detected what they were able to do without real risk; and, without putting his invention to its very best, he kept up a speed which steadily drew them away from their pursuer, who finally became discouraged, checked his animal, and turned round and rode back to his friends, a not much wiser man.

This performance gave our friends great delight. It showed them that they were really the owners of a prize whose value was incalculable.

"Ef the old thing will only last," said Baldy, when they had sunk down to a moderate trot again.

"What's to hinder?"

"Dunno; yer oughter be able to tell. But these new-fangled things generally go well at

first, and then, afore yer know it, they bu'st all to blazes."

"No fear of this. I made this fellow so Big that there is plenty of room to have everything strong and give it a chance to work."

"Wal, you're the smartest feller I ever seen, big or little. Whoever heard of a man going by steam?"

"I have, often; but I never saw it. I expect when I go back to make steam horses—"

"And birds, I s'pose?"

"Perhaps so; it will take some time to get such things in shape, but I hope to do it after awhile."

"Skulp me! but thar must be some things that you can't do, and I think you've mentioned 'em."

"Perhaps so," was the quiet reply.

"When you git through with this Western trip, what are you goin' to do with this old feller?"

"I don't know. I may sell him, if anybody wants him."

"No fear of that; I'll take him off your hands, and give you a good price for him."

"What good will he do you?"

"Why, you can make more money with him than Barnum ever did with his Woolly Horse."

"How so?" inquired the boy, with great simplicity.

"Take him through the country and show him to the people. I tell yer they'd run after such things. Git out yer pictures of him, and the folks would break thar necks to see him. I tell yer, thar's a fortune thar!"

The trapper spoke emphatically like one who knows.

As it was growing dusk, they deemed it best to look for some camping-place. There was considerable danger in running at night, as there was no moon, and they might run into some gully or ravine and dislocate or wrench some portion of their machinery, which might result in an irreparable catastrophe.

Before it was fairly dark they headed toward a small clump of trees, where everything looked favorable.

"You see we must find a place where there is plenty water and fuel, for we need both," remarked the boy.

"Thar's plenty of wood, as yer see with yer eyes," replied Baldy, "and when trees look as green as that, thar's purty sure sign thar's water not fur off."

“That’s all we want,” was the observation of the engineer as he headed toward the point indicated.

Things were growing quite indistinct, when the steam man gave its last puff, and came to rest in the margin of the grove.

The fires were instantly drawn, and everything was put in as good shape as possible, by the boy, while the trapper made a tour of examination through the grove. He came back with the report that everything was as they wished.

“Thar’s a big stream of water runnin’ right through the middle, and yer can see the wood fur yourself.”

“Any signs of Indians?” asked the boy, in a low voice, as if fearful of being overheard.

“Dunno; it’s too dark to tell.”

“If it’s dangerous here, we had better go on.”

“Yer ain’t much used to this part the world. You may keep powerful easy till mornin’.”

As they could not feel certain whether in danger or not, it was the part of prudence to believe that some peril threatened them. Accordingly they ate their evening meal in silence, and curled up in the bottom of their wagon, first taking the precaution to fill their tank with water, and placing a portion of wood and kindlings in the bowels of the steam man, so that in case of danger, they would be able to leave at a short notice.

Johnny Brainerd was soon sound asleep, and the trapper followed, but it was with that light, restless slumber which is disturbed by the slightest noise.

So it came about that, but a few hours had passed, when he was aroused by some slight disturbance in the grove. Raising his head he endeavored to peer into the darkness, but he could detect nothing.

But he was certain that something was there, and he gently aroused the boy beside him.

“What is it?” queried the latter in a whisper, but fully wide-awake.

“I think thar ar Ingins among the trees.”

“Good heavens! What shall we do?”

“Keep still and don’t git skeart—’sh.”

At this juncture he heard a slight noise, and cautiously raising his head, he caught the

outlines of an Indian, in a crouching position, stealing along in front of the wagon, as though examining the curious contrivance. He undoubtedly was greatly puzzled, but he remained only a few minutes, when he withdrew as silently as he had come.

“Stay yer, while I take a look around!” whispered Baldy, as he slid softly out the wagon, while the boy did the same, waiting until sure that the trapper would not see him.

Baldy spent a half-hour in making his reconnaissance. The result of it was that he found there were fully twenty Indians, thoroughly wide-awake, who were moving stealthily through the grove.

When he came back, it was with the conviction that their only safety lay in getting away, without delay.

“There is a full head on now. I fired up the minute you left the wagon.”

“Good!” exclaimed Baldy, who in his excitement did not observe that the steam man was seething, and apparently ready to explode with the tremendous power pent up in its vitals.



Technical Information

General Carbide has created an excellent 53 page manual called “The Designer’s Guide to Tungsten Carbide”. Surprisingly, there is no sales information in this manual, just explanation, tables, charts, and a few equations. The table of contents lists:

It’s available free as a web download, in sections or as one large document, at:

<http://www.generalcarbide.com/articles/designbook>

Bob



For Sale

Shaper Work CD

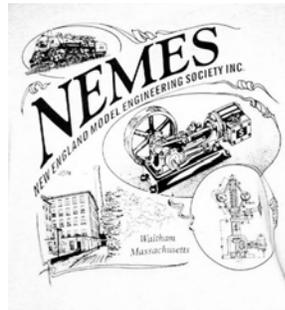
Put out in 1944 by the New York State education Department this 326 page manual is chock full of valuable tips and information on using the King of Machine tools....The Shaper. Covered is everything you need to know about the care and feeding of the shaper, use of the shaper, even how to sharpen tools for the shaper. Scanned and saved in Adobe Acrobat format. The CD now has a lot more info on it, and the price has increased accordingly. \$10.00, shipping included.

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

NEMES Shop Apron



Look your best in the shop! The NEMES shop apron keeps clothes clean while holding essential measuring tools in the front pockets. The custom strap design keeps weight off your neck and easily ties at the side. The apron is washable blue denim with an embroidered NEMES logo on top pocket. Contact Rollie Gaucher 508-885-2277

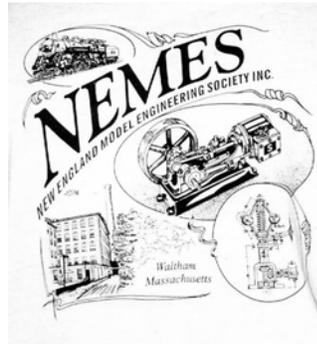


NEMES clothing

NEMES Tee Shirts

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

Artwork by Richard Sabol, printed on front and back:



Rear



Front

Prices:

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

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

Profits go to the club treasury.

Mike Boucher
10 May's Field Rd
Lunenburg, MA 01462-1263
mdbouch@hotmail.com



**MARK
THIS
DATE**

Upcoming Events

Bill Brackett

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

Aug 2-3 Scribner's Mill Show
Sebago Lake Region near Harrison ME
207-583-6455

Aug 9-10th Straw Hollow Engine Show
Boylston, MA
J. A. Resseguie 508-869-2089

Aug 17th 9:00am The Flea at MIT
Albany Street Garage at the corner of Albany
and Main Streets in Cambridge

Aug 23rd Annual New England Auto Auction
Owls Head Transportation Museum Owls ME

Aug 23rd & 24th Annual Meet
Wauhakum Live Steamers
Holliston MA
<http://www.steamingpriest.com/wls/>

Aug 31st Vintage Motorcycle Meet & Antique
Aeroplane Show
Owls Head Transportation Museum Owls ME
<http://www.ohtm.org/>

Sept 4th Thursday 7PM
NEMES Monthly club meeting
Charles River Museum of Industry
781-893-5410
Waltham, MA

Sept 6-7 Dublin Show
RT 101, Dublin, NH 603-863-4696

Sept 13th Innovations of Yesteryear
Charles River Museum of Industry
781-893-5410
Waltham, MA

Sept 5-14 36 Annual Lee's Mills Steamboat meet
Lake Winnepesaukee Moultonboro NH
David Thompson, 603-476-2224

Sept 21st Sports Car & NE Corvette & Antique
Aeroplane Show
Owls Head Transportation Museum Owls ME
<http://www.ohtm.org/>

Sept 21st 9:00am The Flea at MIT
Albany Street Garage at the corner of Albany and
Main Streets in Cambridge

Starting September 20 and every weekend through
Oct 1:00-5:00
'Yankee Siege' trebuchet
Greenfield, New Hampshire
<http://www.yankeesiege.com/>

Sept 28th Earth Movers & Shakers & Antique
Aeroplane Show
Owls Head Transportation Museum Owls ME
<http://www.ohtm.org/>

Sept 26-28th Connecticut Antique Machinery
Museum
Fall Festival \$8.00 entry
<http://www.ctamachinery.com/2004FallFestival.html>

Bill