

# The NEMES Gazette

NEW ENGLAND MODEL ENGINEERING SOCIETY INC.

No. 150

Oct 2008

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## Editor's Desk

Frank Hills

### Demanding Too Much Credit!

Last month I wrote about three Bell Lab engineers that *didn't* invent the transistor but got all the credit for it. This month it's all about two brothers that *did* do the work, but demanded more credit than they deserved. Everyone has heard of the Wright brothers. They are known for building the first successful powered airplane. With little room for debate, that is true. Many others had built airplanes, powered and unpowered, that succeeded in lifting into the air, but flying is a different thing. Bleriot, Ader, Le Bris, Lilienthal, Phillips, Zerbe and many others managed to get airborne, but not until the Wrights had anyone succeeded in controlling flight in all three axis. What the Wrights did was, surprisingly, unique. Unlike other inventors who simply made assumptions, the Wrights analyzed every aspect of flight, the mechanics of structure, the means of control, the dynamics of air flow, and only then did they start to build. The need for a rudder for directional control was obvious, as was the need for elevators for vertical control.

-Continued on page 2

## Next Meeting

Thursday, Oct 2, 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 31<sup>st</sup> 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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Engines were, of course, a no-brainer. All these things others had used. But why no one but the Wrights foresaw the need to control "lean" is hard to understand. Many planes of the era crashed, not for lack of vertical or directional control, but for lack of a means to control roll, the tendency of a plane to tip side to side. They'd flip over, they'd catch a wing and "ground loop", they'd spin and "auger in". Though shortly replaced by simple flaps, the Wrights wing twist method made them kings of the air in a sky filled with competitors. Rightly, they patented their idea.

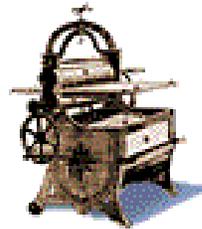
But the Wrights did more than patent their wing warping system. In fact, they did more than patent the concept of "roll" control, which was their right. They patented the entire concept of 3-axis controlled flight. Though true that they were first to fly like eagles, they were far from the first to use the other control surfaces that made the process complete. And though they had researched and thus understood the engineering of such devices better, they obviously had built upon the work of others. What they did was claim the right to build airplanes for themselves, and eventually their selfishness would not only become a serious matter of legal contention, it would prove to be the downfall of the US lead in aeronautics.

The problems began in earnest when Glenn Curtis built and sold a plane without purchasing the appropriate license from the Wrights for their 3 axis control system. Immediately the Wrights took him to court for patent infringement. The legal tug of war lasted years and nearly bankrupted both sides. Eventually the argument was reduced to whether the Wrights had the right to such a "broad and all encompassing patent" (Curtis's lawyer). The issue was finally decided in the Wrights favor, as were many other patent infringement cases, but so much time and energy had been spent defending their patent that the Wright Company, in fact all US aircraft manufacturers, had fallen well behind the rest of the world in aircraft design. By the time World

War I broke out, US built aircraft were so outmoded that US pilots had to use French built planes. After the Wrights conquest of French air during sales demonstrations only six years earlier, this must have been humiliating.

I wonder, if rather than taking credit they didn't deserve, the Wrights had only claimed the technology they were responsible for, would the litigation that stifled US development have occurred? Limiting the patent would certainly have eliminated the biggest legal sticking point. Had there not been years of legal debate and stagnated ambitions, the US might have been the world's greatest air power in 1914 instead of 19<sup>th</sup>. Who knows how much farther aircraft design could have progressed. But certainly, ideas can and do stifle development in technology as much as inspire it.

Next month, "You'll Drown in that Thing!"



## **NEMES Gazette Editorial Schedule**

<u>Issue</u>	<u>closing date for contributions</u>
Nov. '08	Oct. 20, 2008
Dec. '08	Nov. 21, 2008
Jan. '09	Dec 19, 2008



## **President's Corner**

Dick Boucher

### **The Meeting**

This month, past president Norm Jones will relate to us his experiences gold plating parts for the miniature hot air pumping engine he built.

## *Miscellaneous Ramblings*

To put it bluntly it was a rather disappointing turnout of our own members at the Innovations of Yesteryear Festival held here at the museum. Those of us in attendance had a great day. The Governor Stanford, a 1½" scale locomotive Walter Bush built, was put in running order and did a yeoman's job of hauling the public on a one hundred foot track setup along the patio outside the Appleton Room. Howard Groin had his steamroller in operation all day giving rides on the footplate. Norm Jones, Les Russell, Dick Koolish and Bill Brackett kept the public entertained in Norm's tent with their interesting displays, and of course Todd Cahill was in attendance with his steam table and great steam engines running. If I have missed anyone I apologize but I was tending my own steam engine and assisting my friend Larry Ubanski run the Governor Stanford. Jay Monty and Joe Ng lending assistance when Larry's back gave out on him.

Other points of interest on the park that day were a Steel Drum band and a couple playing a bit quieter music on guitars, mandolins and banjos. I had an opportunity to sit in with them for a couple tunes and that was fun, to say the least.

For the ladies there was a display of quilts and there were games for the youngsters. A nice Packard touring car, I didn't get the year, was on display and there was a 1952 chain drive Sterling dump truck. A real nostalgic sight for me as the road in front of my father's house used to be plowed by such a truck back in the 1950s.

One last thought on the day is that the weather was great all day, making for an enjoyable festival.

Now I am headed to Clark's Trading post and the White Mountain Central Railroad for a weekend of full size steaming with the Climax, Heistler, Porter, and Baldwin locomotives plus a steam roller.

Dick B.

## *A Little More on the Subject!*

From Fred Jaggi

Frank Hills article in the September 2008 issue of the NEMES Gazette mentioned that Dr. Karl Ferdinand Braun invented the semiconductor rectifier in 1874.

Dr. Braun, a founder of Telefunken, had many other inventions including the Cathode Ray Tube. Elsewhere in the world, the CRT is known as the Braun tube. He received the Nobel Prize in Physics in 1909 for his work which resulted in the success of long distance wireless telegraphy. In the 1870s, he was a professor at Strasbourg University and was a pioneer in teaching physics to women.

Visitors to Yankee Steamup this Fall should take a peek in the wireless building at the New England Wireless and Steam Museum. His Nobel diploma, an example of his CRT, and several of his notebooks are on display, donated by his son's widow who lived in Kingston, RI.

Fred Jaggi

### **Editors Note:**

Since becoming Editor of the NEMES Gazette, many people have e-mailed me with addition information on topics I've covered, ideas for new articles, fascinating tid-bits, all kinds of stuff! If you have an idea you'd like to put down on paper, DO IT! Working on something new? Send a picture! You don't have to send a whole story. This is your paper! Contribute to it, comment on it, ENJOY IT!

Now, try this on for size! This is my favorite picture from the last Cabin Fever Show.



## **Warning! Warning!**

Folks, this may be the last installment of *Steam Man*!! If you have any interest in this article continuing, you have to let me know. E-mail me at [hills@aerodyne.com](mailto:hills@aerodyne.com) if you want this gem to continue!!!



# ***The Steam Man of the Prairies***

BY EDWARDS ELLIS,

## **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 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.



## ***CNC For Me***

**From Ron Ginger**

The September meeting was very interesting to me, since I have been tinkering with CNC now for several years. I'm sure there is a complete article about the meeting in the newsletter, but the important points to me were that Jim Abrams converted a Bridgeport knee mill to CNC for about \$12,000. For that, he has a 2D machine with a Z axis DRO, and a conversational programming capability. It all came as a package simply needing to be bolted on the machine and it was ready to run.

For me that amount of money is simply out of the question, I don't think I have that much in my entire shop, spent over many years. So my approach was to build up a machine with common, off-the-shelf parts and some simple brackets and belts. I'm also turned off by the 'black box' approach- to me it's like buying a stereo that comes with one CD locked inside the box - you better really like the tune, because its all you can play.

I have a Jet knee mill with a 34" table, just about the same as the smaller Bridgeports. My conversion has ball screws, and full 3D, 3 axis function. My total cost for the conversion parts and software was about \$1900.

I used the Mach3 software which supports up to 6 axes, has full G-code support, and includes extensive conversational functions. I have every function the Prototrack offers, and dozens more, like gear cutting, splines, thread milling, part nesting, etc. It even offers a screen design and BASIC macro capability that lets users write their own conversational screens. I'm just finishing one now to do thread milling of taper pipe threads.

My machine supports the electronic hand wheels, called MPG- Manual Pulse Generators in Mach. It also has a digitizer probe for things like finding a hole center or indicating the vise edge. It can also probe a 3D part, giving me a 3D point cloud for input into a CAD

program. I can add a 4th axis for a rotary table for under \$200.

Using Mach3 requires learning about interface boards, drivers, power supplies, etc. Certainly that is more difficult than unpacking some boxes and bolting parts together, but I know all the internal details of my machine, so I can trouble shoot and repair any problems. Additionally, the single most expensive board in my system is about \$120, so any repair will be inexpensive. I've read stories on the net of the commercial machines with people paying \$500-1000 for a service call and \$1000 for electronic modules.

I noticed in the brochure Prototrack also offers a lathe model, but that's a whole new system, likely about the same price. Mach supports both mill and lathe, and a large part of the electronics can be shared, so for a little more money, you can have both a CNC lathe and Mill.

If you are willing to invest some time instead of money you can build a CNC system with much greater capability for a LOT less money.

I am happy to talk about my system to anyone that wants more info by e-mail or phone.

Ron Ginger

*Thanks Ron! You just gave me the article for this month! And, by the way, I have a 3D CNC as well. Mine came from TMG and cost under \$1000. It has 4 axis capability. A little harder to use, but you get used to it.*

Frank Hills



***For Sale***

### ***Shaper Work CD***

Put out in 1944 by the NY State Dept of Education, 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. 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](mailto:errol.groff@snet.net)

**Miter Box and Back Saw**

Free to a good home: fine quality 26" backsaw and miter box. This is a Miller Falls model 74A. I believe that the saw was made by Disston for Miller Falls, who made the miter box and sold the combination. The saw is quite sharp and ready to cut. The saw has little or no rust, but quite a bit of tarnish. You can come and get it or pay shipping.



You can learn about the history and products of Miller Falls and Disston at: <http://oldtoolheaven.com/> and <http://www.disstonianinstitute.com/>

Bob Neidorff, Bedford, NH  
Email [neidorff@ti.com](mailto:neidorff@ti.com) or call 603-472-2237

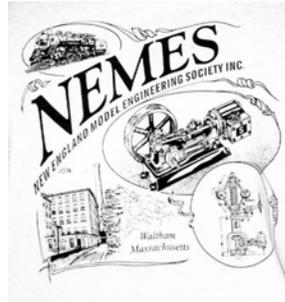
**NEMES Shop Apron**



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

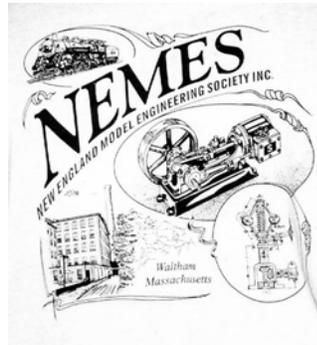


**NEMES clothing**

**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](mailto: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](mailto:thebracketts@verizon.net) or (508) 393-6290.

*Bill*

Hi Everyone:  
Just a reminder. Yankee Steam-up is Saturday, Oct 4th.  
Here's a link for all the details:

<http://www.newsm.org/Museum/dates.html>

Fred Jaggi

## Calendar of Events

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](mailto:thebracketts@verizon.net) or 508-393-6290.

Oct 2<sup>nd</sup> Thursday 7PM  
NEMES Monthly club meeting  
Charles River Museum of Industry  
Waltham, MA 781-893-5410  
<http://www.neme-s.org>

Oct 4<sup>th</sup> 9AM-4PM Original Yankee Steam-Up  
The New England Wireless and Steam Museum  
1300 Frenchtown Road East Greenwich, RI  
<http://users.ids.net/~newsm/>

Oct 5th 12AM-5PM Roland's Shop visit  
90 S. Spencer Rd. Spencer MA  
508-887-2277  
<http://tinyurl.com/4dwvoy>

Oct 12<sup>th</sup> Foreign Auto Festival & Antique Aeroplane Show  
Owls Head Transportation Museum Owls ME  
<http://www.ohtm.org/>

Oct 18<sup>th</sup> 10AM-4PM Steam Muster  
Essex Historical Society and Shipbuilding Museum  
66 Main St. Essex MA  
<http://www.essexshipbuildingmuseum.org>

Oct 19<sup>th</sup> 9AM The Flea at MIT  
Albany Street Garage at the corner of Albany and Main Streets in Cambridge MA  
<http://web.mit.edu/w1mx/www/swapfest.shtml>

October 25 9AM-5PM American Precision Museum  
9<sup>th</sup> Annual Model Engineering Show  
Windsor Community Center  
Windsor VT  
802-674-5781  
<http://www.americanprecision.org>

Oct 31<sup>st</sup> – Nov 2<sup>nd</sup> World Championship Punkin Chunkin  
East of Bridgeville, Delaware  
<http://www.worldchampionshippunkinchunkin.com/>

Nov 2nd The Great Fall Auction  
Owls Head Transportation Museum  
Owls Head ME  
<http://www.ohtm.org/>

Nov 6<sup>th</sup> Thursday 7PM  
NEMES Monthly club meeting  
Charles River Museum of Industry  
Waltham, MA 781-893-5410  
<http://www.neme-s.org>