

# QUINEBAUG VALLEY ENGINEERS



## The Zagray Quarterly

12 December 2012

### PRESIDENT'S NOTES

Many of you know me as EB George (that distinguishes me from George Jarvis and George Judkins). I share field mowing duties with Merle and George, and now I'm the president as well. That's great because I have a very strong interest in the farm and club activities. I'm honored and pleased to be president of a great organization that continues to put the best effort toward developing a farm museum that we can all be proud of. I'm president, but QVEA isn't my club, it's not your club, it's our club.

A lot has gone on at the farm since September. Our October show was very successful and, in fact, almost overcrowded with vendors on Saturday. Since the show, the so-called Drying Shed (some would prefer to call it the Tractor Shed) reconstruction has been completed.....pretty much. The shed has been framed, sheathed and roofed. All that's needed are the doors and wood siding which will be installed in the Spring. We have a lot of lumber ready to go and more cut on Thanksgiving weekend that will be ready by Spring. Special thanks should go to Art and Dave Chester, Ned Tewksbury, Ed, Al and Marc Bezanson, Andy Milardo, Joe Motuzick, Mike Miner and Sean Mason for their effort getting the shed erected and closed up for winter. If you get a chance to stop by the farm and see it, you'll be impressed. It's extremely well built and the ground floor is already almost full. All the tractors at the farm are now under cover.

Storm Sandy did in two apple trees near the house. They are now firewood. Some work remains to remove the stump from one of them. A spruce tree off the road to the Airline Trail had its top knocked off. What was left of the bottom provided two very nice saw logs which were cut for siding for the shed. Also, the tarp used to patch the Fairbanks Morse enclosure was blown over from the south to the north side. Art Chester provided a replacement grommet kit and the tarp was repaired and put back up to re-establish cover. We also cut three trailer loads

of saw logs from trees damaged by Sandy in the Cedar Grove Cemetery in New London.

Things are getting to be pretty fast paced. As I write this, a crew is planning to meet in Willington this coming weekend to start removal of the Atlas Imperial engine.

I hope you all have safe and happy holidays and hope to see you at the farm.

## **FROM THE DESK OF THE TREASURER – Art Chester**

For those of you that have not been out to the farm since the October show, there has been a crew working every weekend on the rebuilding of the drying shed. The original estimate of \$10,000 has been used at this point but we are substantially complete.

It's time once again for the annual call for dues. Membership in QVEA follows the calendar year and thus on January 1, dues are once again due. The \$20.00 per year membership fee basically covers the insurance on the farm and shows, our newsletter costs and perhaps a little left over for other needs. We thank you for your continued support of the Club and all that we are attempting to accomplish. 2013 promises to be our best year ever!

If you have an email address, please email Dianne Tewksbury at [dtewks@sbcglobal.net](mailto:dtewks@sbcglobal.net) to change from snail mail! That will save our printing-sorting-folding-mailing crew some labor, and save your club a **lot** of money, as well as being environmentally 'green'.

For those of you who contribute to the United Way campaign, QVEA is now listed as a charitable organization allowing you to direct your donation to us for the support and expansion of the Zagray Farm Museum. Pfizer Foundation also has a volunteer program that provides QVEA with substantial donations each year, based on the volunteer work of members who work or are retired from Pfizer.

We appreciate all donations in any form or size.

### **Happening at the Farm**

#### **Drying Shed**

Beginning the weekend of October 20<sup>th</sup>, a crew that sometimes numbered nearly a dozen began building. The rough cut lumber we have stacked over the last year or two was of excellent quality, straight, consistent and easy to work with. There was only a small pile of rejects, not much larger than one would expect from dimensional lumber. The 'crew' varied widely in experience with framing but everyone pitched in effectively. I know I was not alone in reaching for the Ibuprofen at the end of the day. Framing is a young-man's game, for sure! Even the guys in their 30's were dragging some by quitting time! It took about 6 weekends (including most Fridays) to frame it and roof it. In the spring we will apply the felt paper to the walls and 1" vertical siding. Doors need to be built and access to the overhead storage area will complete the project. It is already full, though!

## **Atlas Imperial Diesel Engine**

Work began on December 8<sup>th</sup> preparing the engine for the move. A crew is prepared to remove all the "support" parts from the engine and unbolt it from the base. We are excited to have this very old and quite rare piece. It is stuck up from sitting, of course, but hopefully not terrible inside.

## **Portable Sawmill**

The Minneapolis Moline engine, formerly on the Lane sawmill when Harry Zagray was alive, was intended to power the portable mill. It has developed an antifreeze leak internally in the engine, and that coupled with its lack of horsepower has sidelined this engine momentarily. We have moved this engine into the repair shop for diagnosis and repair.

## **Hough HA**

The little Hough loader is in my shop in Middletown with the engine and transmission removed. I would much rather work on tractors where the engine is right out in front of you. This little machine has the engine and transmission stuffed in like a modern automobile. It did run when we got it, but kept sticking exhaust valves. The engine is now on the bench – stuck rings and junk valve seats are evident. Perhaps the bore will hone up ok, but it's not promising. This unit has sat outside its whole life allowing water to pool on top of the flat head Waukesha engine. The head bolts were badly rusted and a challenge to remove. Only one broke, though.

The 1953 GMC Dump truck at my Rocky Hill shop is still waiting for its push rods.

## **Zagray Saw Mill**

We ran the mill several times after the October show, primarily to provide added material for the Drying Shed. Our 1" siding pile looked short of 12' to 14' material, so a stack of 1060 board feet was cut in early December for spring use. We are planning 2 additional open carriage type sheds to replace the shed across from the machine shop and the shed (if you can call it that) behind the barn. The plans should be available to present to the historical society shortly.

Our softwood log pile is quite robust, but we are very short on hardwoods, so keep an eye out for them. We have enough pine and spruce to provide siding and 2X stock for the drying shed, and then some. Most has been cut at this point, stacked and covered.

Remember that the material cut at the mill may be specific to a particular job or member. So if you need something, check with Dave @860-982-5158 or Ned @860-537-2252 so you don't inadvertently use lumber slated for another project.

If you have trees taken down, please keep the sawmill in mind and cut the logs into lengths preferably 8'6", 10'6", 12'6", 14'6" or 16'6", depending on what will yield the best timber. We can arrange to pick them up if necessary. Most all species can be used, but hardwoods in particular are in the shortest supply. **Longer** nice pine or spruce logs welcome as well. If you need something specific cut – see one of us to discuss it.

**We have slab wood that needs to be put to use as firewood**, as well as sawdust and planer shavings (makes great fire starter!) as byproducts of this demonstration area available. See any of us if you want some.

Several members cut spruce logs off the large cemetery on Jefferson Street in New London damaged by hurricane Sandy. 20+ logs have been delivered to the Farm already.

## **EXPANDED BELT DRIVE SYSTEM IN MACHINE SHOP**

### **By Dave McClary**

The small planer in the machine shop is scheduled to be run off a belt driven counter shaft by spring next year. This planer was donated to QVEA by a member about twenty years ago but where he got it was not known. We now know that it came from a farm in nearby Hebron, CT, and was used there to sharpen mower blades. The matter of an unknown maker also may finally be resolved. A visit to the American Precision Museum in Windsor, VT, revealed a somewhat larger planer that has the same features; a single belt drive on the left, stops mounted in a dovetail on the right side of the platen, same gear drive and the same leg casting pattern. Only eight of eighty manufacturer's planers illustrated in the book, *American Planer, Shaper and Slotter Builders* by Kenneth Cope, have the belt drive on the left side and of those eight, most were obviously not of the same design. The museum machine has much more elaborate casting work and the maker was prominently displayed in a casting as E G Lamson Mfg Co. That name was in existence for 1864 only, as various ownership changes occurred at that rifle factory which was built about 1850. A photograph in the above book shows the same planer as the one in the museum and it is stated to have been made by Robbins & Lawrence. That company started the rifle factory and was in business until 1856 when it failed. The picture did not show an improved feature that was on the planer at the museum. The companies that followed Robbins & Lawrence; Lamson & Goodnow Mfg Co., E. G. Lamson & Co. and Windsor Mfg. Co., may have made improvements but continued the same basic design. The QVEA small planer appears to be an earlier, perhaps first, design of a planer that was used or made for the rifle making business about 1850. It is known that they also made their machine tools for sale to others, including foreign countries. One of the men employed at the time was Frederick Howe who along with Richard Lawrence designed other successful types of machine tools, such as a turret lathe, rifling machine, multi-spindle drills, etc. It has therefore been concluded that the unmarked QVEA planer is most probably an early Robbins & Lawrence product.

There are three shafts that make up the gear drive train that hang from the underside of the planer bed. The bearings are cast iron with oil holes in the bed sides and axial grooves along the top of the journal holes. The journals are 1 1/4" in diameter and 3" long. These parts were removed for cleaning and examination. One of the bolts holding a bearing in place was an undersized 1/2" bolt that barely held itself up in the tapped hole. The proper bolt size is 9/16" with ten threads per inch, and the others were obviously made individually on a lathe from one inch square stock, which is also the size and shape of the bolt head. So

a ten tpi thread was cut in the shank of a 9/16" bolt and this was pressed into a square head made from 1/2" plate. A straight Nordberg type key was used to ensure the press fit did not slip during tightening. The shaft with three belt pulleys and first gears was disassembled and it was noted that there was no key for the return stroke drive pulley. Also, a zinc plated cotter pin was used to secure an idler gear on it's shaft, leading one to believe that this had been disassembled before the planer was donated. The return stroke pulley has a section of replacement rim brazed in between two of the five spokes. Otherwise, there appeared to be no excessive wear on the shaft, gears or bearings. The gears especially were in excellent condition being 8 pitch and 1 1/4" wide, more than adequate for the power that can be transmitted by a 1 1/2" flat belt. It is noted that there are also oil holes in the gear and pulley hubs for all rotating items. These items were cleaned of oily dirt and dried lubricant and re-assembled. A replacement key for the return pulley was made by filing a larger one to size, an odd dimension of 0.210 inches square. The second shaft containing the pinion that drives the bull gear was also found to have an undersized key for the gear that turns that shaft. The pinion showed excessive tooth wear. It is noted that from its configuration, this gear was used as-cast, having integral ends of the same outside diameter as the teeth. These are relatively heavy teeth having an approximate 5 pitch and there should be no problem continuing use for demonstration purposes. The shaft, gears and bearings were cleaned of oily dirt and a new key made to fit the gear and shaft keyways. The third shaft carries the bull gear that engages the rack on the bottom of the platen. That gear also was used as cast but showed less wear on the teeth than the pinion, having many more teeth. It appears that the gear was simply a push fit on the shaft with one end of the shaft machined for the fit. The gear is now somewhat free to turn on the shaft but that is of no consequence if the two end journals are kept clean and lubricated. When replacing the shafts on the planer it was found that the bearings, although the same in appearance, are not interchangeable and detailed measurements of bolt hole locations along with several trials were required to position them for best fit and freely turning shafts. The platen was lifted off the bed, lowered to the floor and the rack gear was cleaned. The V grooves were found to be in good condition, were cleaned and lubricated before returning the platen in position. One remaining concern is the shifting mechanism which has been examined and adjusted, but the automatic feature is in question. When operating at slower speeds than normal, the momentum of the platen and gear train may not be enough to carry the belt over the center idler pulley to engage the reverse motion pulley. The improvement feature mentioned above was a heavy pendulum type weight on the shift linkage that was intended to carry that shifting motion through the idle pulley position when the lever went over top center of its rotation arc, even though the platen had stopped. However, the hand operating lever can be used if it becomes a problem and the planer is now ready for use.

Next in the process is selection of counter shaft(s), pulleys and shifting devices to handle the belt drives required. It was decided to also include the small bench hand miller made by Burke Machine Tool Co. in the expanded belt drive system to be run off the existing line shaft. This presented a problem for the first idea to use a single counter shaft. It was not practical to operate both

machines individually and to accommodate the different speed requirements of the two machines. Fortunately, a donation last year of three countershafts with pulleys and clutches included a pair of dual shaft hangers for one inch shafts. These shafts are parallel and eighteen inches apart. Additionally, each hanger includes a mechanism for shifting a belt or a clutch operating cam, although a few parts were missing. Use of this type of arrangement permits independent operation of the machines. As resolved, one shaft would be controlled by a drum type clutch for a belt from the line shaft and a wide flat pulley for the belt to the planer that has to move side to side as the machine direction is reversed. The other shaft would be controlled by a pair of pulleys, one an idler, for another belt from the line shaft and a single pulley for the belt to the miller cone pulley. Now the task is to refurbish the hardware selected and mount it in place so the belts run true for the May show. There will then be the four basic machine tools operable for demonstration purposes at shows, an 1860 engine lathe, 1893 shaper, the planer and miller.

**Note from the Secretary:** The October meeting had to be cancelled because the Town Hall was closed due to Storm Sandy. Election of officers normally takes place during the Oct. meeting so it had to be postponed to the Nov. meeting. The candidates were voted in during the Nov. meeting:

President	George Lehr
Vice President	Ed Bezanson
Treasurer	Art Chester
Secretary	Dianne Tewksbury

**REMEMBER!** Our December meeting date falls on Christmas day, therefore the club voted during the Nov. meeting to cancel the Dec. meeting. See you on Jan. 29, 2013.

**HAPPY HOLIDAYS!.**



Drying Shed – View from Back Side Prior to Restoration (Aug. 2011)



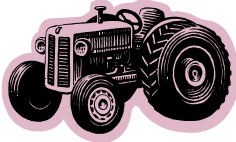
Drying Shed Nearing Completion Nov. 2012



Dianne Tewksbury  
QVEA Editor  
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**APPLICATION FOR MEMBERSHIP**

QUINEBAUG VALLEY ENGINEERS ASSOCIATION, INC.



NAME \_\_\_\_\_  
STREET \_\_\_\_\_  
CITY \_\_\_\_\_  
STATE/ZIP \_\_\_\_\_  
PHONE \_\_\_\_\_  
E-MAIL \_\_\_\_\_

DUES ARE \$20.00/YR PER PERSON. PAYABLE WITH APPLICATION.  
INCLUDES QVEA DUES AND INSURANCE.

**RETURN TO: QVEA, 180 SOUTH PLUMB RD, MIDDLETOWN, CT 06457**