



The PLS GAZETTE

March–April 2011

A newsletter of the Pennsylvania Live Steamers, Inc.

MARCH–APRIL TOPICS: Annual Election Results **1** Donations **2** 2011 Spring Meet **2** Associate Renewals Past Due **2** Op-Ed **3** For Sale **3** Membership News **3** Steam Cutoff–2 **4** Snowbirds **6**

Along the Main Line

As you receive this issue of your *Gazette*, you should be eagerly awaiting our first run day on May 1st, followed by the Spring Meet (May 27-29) and then the rest of this summer's scheduled events. Annual elections were held at the membership meeting on March 19, with yours truly settling into another year as President. See the election report elsewhere in this *Gazette* for all of those details.

I want to personally thank Lee Nonnemacher for his performance as PLS Secretary for the previous three years. Lee chose not to run this year and has been replaced by Bob Blackson. I am grateful for the assistance Lee has provided to me during our working relationship. Lee has agreed to continue in the appointed capacity of corresponding secretary — a position that should provide a continuity funnel for e-mail and other written club inquiries and matters.

There are three points I wish to make again in this issue:

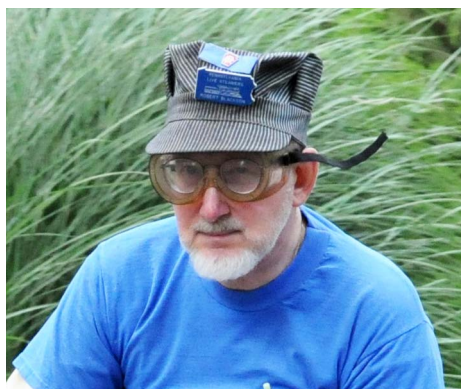
One — Spring is here and so is the need to clean up the property in preparation for the running season. There are also quite a few projects that will be getting underway: gutters for the steaming bay need to be installed; posts for the new front gate need to be installed set in concrete; a whistle post needs to be “planted” near the 7¼” crossing; maintenance to the 4¾” and 7¼” track is an ongoing project; removal of a fallen tree stump will require many hands to accomplish.

(Continued on page 2)

Annual Election Results

Elections were held at the regular membership meeting on March 19, 2011. Pat Murphy, Bob Blackson and Walt Mensch, running unopposed, were confirmed as president, secretary, and treasurer, respectively. The election of three board members, for which there were nine names on the ballot, became a little more interesting. Paul Rice and Sharon Connelly were elected on the first ballot. Ron Shupard was the last man standing after multiple ballots. So, we congratulate Sharon Connelly, Paul Rice and Ron Shupard on their election to the board. Rounding out the board are John Bortz, Jr., Bob Freer and John Geib, all of whom have a year remaining on their two-year terms.

— Lee Nonnemacher



Familiar faces, new roles. Bob Blackson (top, left) is the new club secretary while Sharon Connelly (top, right) is new to the board of directors. Paul Rice (above, left) was reelected and Ron Shupard (above, right) won election on the third ballot.

Along the Main Line

(Continued from page 1)

Two — Please attend membership meetings that are held on the third Saturday of each month, March through November, at 12:30. New projects that center on the five-year plan are being actively considered, discussed, and presented. If you are looking to become involved in a club project, let someone on the BOD know your ability, as the scope of projects can only move forward with the help of knowledgeable and interested members.

Three — We are once again in need of articles for the *Gazette*. Under Allen Underkofler's wonderful artistic hand, our newsletter does us proud, *but* — we are short on articles. If this continues, we will need to reduce the frequency of this publication to reflect material that has been provided. This may inhibit our ability to broadcast regular updates and reminders of club events. Tell us about your train travels, your ongoing projects in the basement (I know of 3 or 4 members that fall under this category.) Perhaps someone might produce an active loco roster.

Lastly — Our first run day with boiler inspection will be on Sunday May 1st. While April 24th would have been our normal first run day, Easter Sunday falling on that date compelled us to move the date to May 1. For those needing to test their boilers, please be sure to use the sign up sheet to avoid a boiler inspection "log jam" on that day.

Wishing you warmest regards!!

Pat Murphy, President, PLS

Donation Acknowledgements

PLS wishes to thank the following members for donations received during February and March: Mary Spear, Michael J. McDevitt, Alan Redeker, Kathleen F. Parris, Harry E. Quirk, F. Thomas McInerney, Stephen Roadcap, Eugene P. Heiler, Buddy Borders, Susan Borders, John H. Bortz Jr, David E. Laird, James Stapleton, Robert Small, Ernest Wortmann, Virginia A. Kulak, David Yingling, C. Robert Morris, William L. Mentzer, Rich Falzone, Mark Collins, James T. Doherty, Rowland Dudley, Antonio Kulak, Albert J. Rieger Jr, and Ed Wagner. Thanks also to the William Penn Foundation.

We thank Martha Cushwa for her donation of part of the collection of her late husband, and PLS club member, Dave Cushwa. This includes books, train parts, O gauge trolley

parts, and rolling stock, all given for the use and benefit of our club. Some items will be offered at the PLS sales table during the Spring Meet.

2011 Spring Meet Information

The Spring Meet will be held on May 28th and 29th this year. As usual, running may start on Friday afternoon, May 27th. Volunteers are needed for gate duty, station duty, and kitchen duty. Please sign up for a time slot when you arrive at the meet. Your donation of baked goods is always appreciated.

Please note: during the meet, the clubhouse refrigerators are used for food and drinks sold by PLS throughout the weekend. Should you need refrigeration for either personal use or items brought for the pot luck dinner,

please use your own cooler if at all possible. Thank you.

2011 Associate Membership Renewals

Associate membership renewals for 2011 are now past due. If you have not renewed, please take the time to do so now. Cost is \$30.00 per year. Renewals must be accompanied by the renewal form sent in early January. If you have misplaced the form and would like to renew, please e-mail secretary@palivesteamers.org to request the form. Associate members who have not renewed will have their names dropped from our active roster. Remember, only members and their guests will be able to attend events at PLS this season.

Pennsylvania Live Steamers, Inc.

President	Patrick J. Murphy	2439 Overlook Drive, Gilbertsville, PA 19525	PMurphy129@aol.com
Secretary	Robert Blackson	303 North Tulpehocken Road, Reading, PA 19601	rmblackson@comcast.net
Treasurer	Walter Mensch	1348 Sheep Hill Rd., Pottstown, PA 19465	
Gazette Editor	Allen Underkofler	Box 609, Kimberton, PA 19442-0609	pls@apunderkofler.com

Board of Directors: John Bortz Jr., jonyx@netzero.net; Sharon Connelly, connellywood@verizon.net; Bob Freer, W3YLT@Juno.com; John Geib, steamer38@comcast.net; Paul Rice, ricepaul@verizon.net; Ron Shupard, shusmoke@aol.com.

Safety Committee Members: John Geib, chairman; Buddy Borders; Pete Brown; Pat Murphy; Bruce Saylor.

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Look Before You Leap

It was announced at the March 19th Membership Meeting that the PLS Board of Directors proposed changing the *Gazette* publication schedule from bimonthly to quarterly, and, “there was broad agreement” with that philosophy. As founder of the *Gazette* and its Editor, typist, printer, folder, stapler, and stamp-licker for most of its first four years with a circulation of about 100, I think I have a say in the matter.

First and foremost, the *Gazette* was conceived, and originally functioned as, a newsletter! In fact, it was named after the historic *Railroad Gazette*, the weekly newsletter of the railroad industry in its formative years begin-

ning in 1870. Since it was — and should continue to be — a means (often the *only* means) for conveying ever-unfolding club news, a quarterly publication schedule is a non-starter. Considering a three month length of time from the previous issue, a quarterly cycle will result in a *Gazette* that “reports” what happened in the distant past — big whoop for that! In short, the *Gazette* will be subverted to an irrelevant entertainment magazine.

There has been a worsening problem in this club obtaining substantive material in support of a bimonthly publication. That is a sad commentary on an organization of over 100

so-called railroad enthusiasts but, as generally rationalized, it is said by local experts in social affairs to be a “sign of the times.” If it continues to be the case, and there is no sign it will improve, better to simply bury the *Gazette* with an honorable funeral than downgrade it to a feel-good live steam or diesel version of *People Magazine*. As with politicians, we get the newsletter we deserve. We need enlightened leadership from the Directors to maintain a vital means of communication, not a cop-out.

— Bob Thomas

Wanted

Oliver #2 >1” scale Narrow Gauge British style 4¾” gauge live steam coal fired engine with builder instructions sold at the 2011 Cabin Fever Expo auction in York, PA.

Bryan Del Monte
bryandelmonte@comcast.net
(610) 247-2088



Club Membership News

PLS welcomes new Associate members Dolores Branson, Angela Learn, William Harris, and William A. Colorado. Bryan Del Monte has upgraded to probationary Regular member.

Steam Loco for Sale

Mogul steam loco, 1½” scale, 7¼” gauge. Newly painted. Stainless steel grates. Axle pump, hand pump and injector. Tender has water gauge. Comes with stand to hold loco and tender, transfer bridge and wooden rack to hold engine in van or wagon. Asking \$14,500. Located at Township of Washington, NJ, exit 168 on Garden State Parkway.

Reason for selling, had a stroke so no longer able to participate in live steaming. Contact:

Al Frielink, 960 Bridge Street,
Township of Washington, NJ 07676.
allink1@verizon.net. 201-664-4579.



Steam Cutoff

By Bob Thomas

Part 2 – More Fun with Efficiency

The first part of this article explained cutoff as the percentage of piston stroke that steam is admitted to the cylinders. That is, steam is admitted only at the beginning of the stroke while the piston moves away from the cylinder head. Steam remaining in the cylinder then expands during the rest of the stroke to produce work that would otherwise be wasted if a steady flow had continued for the entire stroke. Cutoff is adjusted by moving the reverse lever back (linking up) from full-forward toward neutral. For lowest water and coal consumption, the engine should be operated with the shortest cutoff possible consistent with train resistance, speed requirements, and road conditions. To illustrate that, let's take a coal-fired locomotive on a trip around the PLS track.

After standing in the station while passengers were loaded, your locomotive should have a uniform bed of new coal ready to start burning, and boiler full of water. Start out in full gear, reduce blower, but keep it on slightly for draft while descending the grade toward the tunnel. After rolling fifteen feet or so, pull the reverse lever pretty far back toward neutral for a very short cutoff and set throttle and brakes for appropriate speed down the grade and through the tunnel. When exiting the east portal, the blower comes off, and cutoff increased to around fifty percent (reverse lever half way between neutral and full-forward) while the throttle is opened to make it up the grade, across Mercer Bridge and around the rising curve toward the northbound tangent. If the engine shows signs of bucking, it means cutoff is too short, so move reverser farther forward for smooth running, possibly backing off the throttle at the same time. The grade eases on the tangent

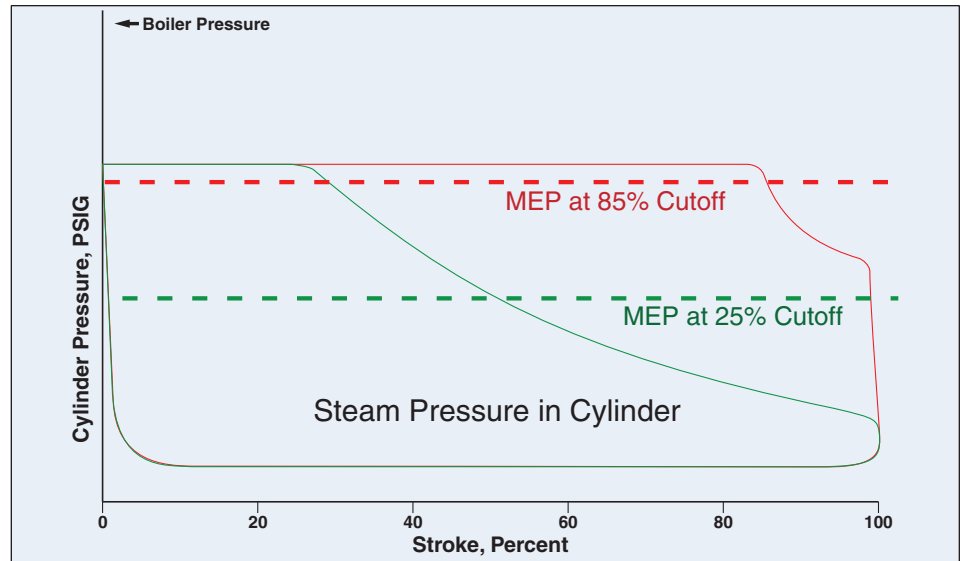


Figure 3. Linking up without opening throttle lowers MEP at 25% cutoff, reducing power developed and causing locomotive to slow down.

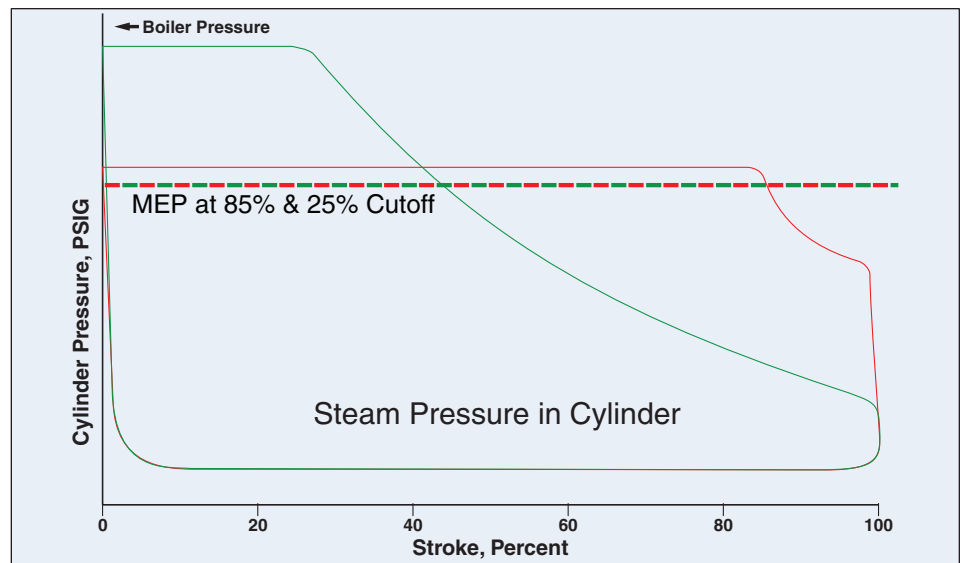


Figure 4. Opening the throttle while linking-up increases the MEP at 25% cutoff to increase developed power and keep speed constant.

and flange friction drops, reducing the load on the locomotive, so cutoff can again be shortened and throttle opened until the curve into westbound grade is approached. There is an urge to blast up the outside loop grade in full gear, but unless your engine is loaded

to the hilt, this might be a good time to continue with shortened cutoff and opening the throttle all the way. The result will be less spectacular sound effects but an engine that is putting out maximum power with minimum steam. It doesn't get any better!

Cutoff is adjusted by moving the reverse lever back (linking up) from full-forward toward neutral.

Immediately after clearing the grade crossing the blower valve is opened slightly in anticipation of drifting on the long downgrade ahead, where soft exhaust might be insufficient to keep the fire up. This is a great opportunity to get the most from shortest possible cutoff, since the engine will have to supply little or no power down the grade behind the clubhouse and across the trestle. So pull back on the reverse lever for 20% cutoff, open throttle if required, and relax in the breeze. At the trestle exit the blower should be killed once again as reverser is moved forward for longer cutoff along the tangent, around the curve beyond the signal bridge, and onto the westbound tangent. One more sprint with short cutoff and opened throttle to the road underpass, where cutoff might as well be restored to full gear as your train is slowed for the yard where there will be plenty to watch out for as the station siding is entered.

That's what you might do to optimize your locomotive's performance. Or not. If you don't want to bother with cutoff adjustment or your engine doesn't benefit from it, then don't do it! There is no right or wrong way to run your own engine. But if you already are acquainted with riding the Johnson bar and throttle together, or are new to the game and intrigued by the possibilities of this invigorating dimension in running a live steamer, give it a try, modifying the above scenario to suite the needs of your locomotive and busy track conditions.

Let's take time out to look at a simple explanation that explains why the throttle usually has to be opened somewhat to maintain constant speed after linking up, and closed somewhat when the reverse lever is returned toward full gear. Power developed by a steam engine – even our miniatures –

can be calculated from this simple formula:

$$\text{Horse Power} = (P L A N)/33,000$$

Power developed by a piston in a cylinder can be found by multiplying steam Pressure, times Length of stroke, times Area of piston, times Number of strokes per minute, all divided by 33,000. An engine with two double-acting cylinders will develop four times that power. Everything needed to calculate power can be found by physical measurements in inches except the pressure, which we know varies during the stroke, especially at short cutoff. So what do we do? To get around the variability of pressure, a fictitious constant pressure is used, called *Mean Effective Pressure* (MEP). The MEP is a constant pressure that acts over the *entire* stroke to produce the same power as the actual variable pressure does.

Figure 3 is a composite graph of two different cylinder conditions: 1) Full gear 85% cutoff (Red). 2) Linked up for 25% cutoff (Green). In full gear the constant MEP (dashed Red) is almost the same as maximum cylinder pressure because there is no pressure drop until the very end of stroke. However, at 25% cutoff the steep decline in cylinder pressure after cutoff results in a much lower MEP (dashed Green) so, with less developed power, the locomotive slows down. In order to maintain constant speed when cutoff is reduced, the throttle has to be opened (Figure 4) to increase the initial pressure during admission in order to raise the constant MEP (dashed Green), and restore power output. Even though that initial pressure is higher, much less steam is supplied for the same power output, so there is a considerable increase in efficiency.

In the interest of full disclosure it has to be pointed out that when running with short cutoff, the higher initial pressure required to maintain speed puts additional stress on the crosshead, crosshead guide, connecting and coupling rods, and wheel bearings. On engines with slide valves the higher pressure also places additional loading on valves and valve gear, so adequate lubrication is especially impor-

tant when running with short cutoff.

How do we know what the cutoff is for a particular engine? Cutoff at full gear and various intermediate positions of the reverse lever can be determined very easily. Charge the boiler with low pressure air, say 10 psi, so the locomotive can't run away but still can be moved slowly forward in full gear with the throttle cracked and cylinder drain cocks open. Air should begin to escape from the front cylinder cock as the piston approaches front dead center. Continue slow forward motion until the crosshead guide stops moving, indicating exact front dead center. Mark that position of the crosshead on the crosshead guide with a light scratch or marker pen and call it Point A. Continue moving the locomotive forward. Air will issue from the drain cock as the crosshead moves backward until it is cut off by the valve. Make another mark on the crosshead corresponding to the new position of the crosshead at cutoff (Point B). Put a third mark where the crosshead stops moving at the rear of the stroke (Point C). Full gear cutoff of the locomotive can then be calculated as follows:

$$\text{Cutoff (percent)} = (AB / AC) \times 100$$

Some reverse lever quadrants have one or more notches between full forward and neutral where a dog on the Johnson bar can be latched in place for linking up. The cutoff at each notch can be determined as described above. If your quadrant has a series of ratchet teeth instead of notches, find out what the cutoff is at a few intermediate positions, e.g., 20%, 40% and 60%, and mark the quadrant or adjacent cab side for reference when you are running. It doesn't really matter exactly what the cutoff is at each point, but it is nice to know, and having a few reference points will assist setting the reverse lever to suit various track conditions.

Experimenting with cutoff might be too demanding for some enginemen who will be kept occupied just maintaining water level, tending the fire and keeping an eye out for signals. When circumstances permit, however, adding cutoff adjustment to the mix will be icing on the cake. Have fun! 🚂

Snowbirds in Florida

By Bruce Saylor

The PLS Gang Visit the Florida Tracks



Bidirectional running on the Ridge Live Steam Railroad. Note new railroad construction on the left top.

Dave Johnson and I went on our annual FLS meet that took place the last two weeks of February. I believe it was year 13. It was a great trip with 14 days of sun, no rain and temps from 69 on the first day and 72 to 84 degrees for the balance of the time there. It was shorts and T-shirt weather. There were at least eight railroads open for live steamers during February and early March. We only did four.

The first track is a fairly new track, Pasco County live steamers, with about 1.5 miles of 7½ inch gauge in the first three years of operation. This track is in a county park about two hours north of Tampa. The mainline is single track that runs to three reverse loops and is signaled for bidirectional running. They have plans for 5,000 more feet around a dry lake and back.

The second track was the private Manatee Railroad on two properties owned by Larry Smith and Pete Newcomb with five acres each. Most of the track is on Larry's property. This track has been in operation for 20 plus years and is located near Bradenton, below Tampa. There is about 1½ miles of 7½ gauge track. There is also 1,200 feet of 4¾ inch gauge plus two circles of Gauge 1 for the guys that like the small stuff.

The third track is a private track, Buckingham Valley Railroad owned by Pete Bielecki outside Fort Myers. This track has a very interesting track layout on five acres of land. They have a monster trestle about 800-1,000 feet long over the mainline and a stream. Main line is about 1.5 miles long. He has a handful of dedicated helpers that build and run the railroad. Food for

lunch and dinner was supplied by the crew for visiting railroaders, about 30 of us.

The last track, Ridge Live Steamers, is a club track in Dundee. They have 20 acres and are building a lot of track. The new addition is about ¾ mile with a large bridge and a long trestle. This track has a lot of passing tracks and many sidings with industries on these sidings. They have a signal system that can allow for bidirectional running. They operate it at times as a real railroad. Sure is nice to have a lot of land to work with. This track is surrounded by orange groves. Our John Bortz Jr. is staying at this track this winter and is helping them build the extension.

At the two club tracks we had to sign waivers and received name badges. At the two private tracks it was for live steamers only and no public is

invited at these tracks. Pasco County and Ridge haul the public once a month. All visitors sign waivers.

Getting away during winter for a couple weeks really breaks up the dullness of cold temperatures and shoveling snow. 🌨️

Clockwise from upper right: Dave Johnson with his 10-wheeler, Joe Scales Mikado with friend running it. Bruce Saylor on his Mikado, and John on his electric on the Manatee RR.; Steaming bay at Buckingham Valley RR; Main yard and storage yard at Ridge Track; Junction on the Pasco Co RR while Chuck Hackett (signal designer) and Jerry Smithson help get the system working during their meet.

—All photos by Bruce Saylor





The PLS GAZETTE

P.O. Box 26202
Collegeville, PA 19426-0202

FIRST CLASS

Don't Miss the

SPRING POT LUCK DINNER

May 28th, 5:30 pm

**We supply the
Hotdogs & Burgers ...
You bring a Favorite Dish
& Beverages.**

Donations Accepted.

