



The PLS GAZETTE

January–February 2011

A newsletter of the Pennsylvania Live Steamers, Inc.

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Along the Main Line

When will winter end??? As I write this to you, the outside weather forecast is for freezing rain on top of the existing huge snow drifts with yet another storm promising more precipitation on the way. And it's only mid February!

While I cannot afford to travel to warmer climates, I stay focused in the basement with improvement projects to my ten wheeler, and think of the

upcoming spring and summer events. So let's talk about the upcoming club related events.

We will have our **first membership meeting on Saturday, March 19th at 12:30 pm**. During this meeting we will hold our annual elections. I am very pleased that this year we have a distinguished slate of candidates running for the board. So everyone please attend this meeting and remember that only regular members may *vote* at these elections.

As a way to accommodate current

and future board of directors commitments at home and at the club, the board has decided to convene board meetings at 9:30 am on the day of the membership meeting which remains the third Saturday of the month. This arrangement will continue throughout the 2011 season.

While the board of directors meeting is in session on the 19th, **clean up work around the club** will be necessary especially considering this

(Continued on page 2)

Starting the New Year Right!

It's been a cold, snowy season so far. December barely had a day over freezing and January has not been

much better. There are no snowbirds at PLS though. Bruce Saylor, Bob Freer and Ron Shupard were out in force on

January 1st clearing the tracks at the club. Looks as though they accomplished what they set out to do.



Along the Main Line

(Continued from page 1)

difficult winter we are all experiencing. Help with the gathering of fallen tree branches and limbs and placing them in the appropriate areas, raking of leaves, cleaning of gutters, listing of necessary repair work from the winter etc, etc will be needed in the morning.

In this issue of your *Gazette*, you will find two typical inserts to review. First is 2011 calendar of events on page 3. Please note the dates of the upcoming Club Run days as well as the spring meet. Your participation is always

encouraged. Once again volunteers will be needed to post the front gate and assist in typical duties necessary to manage this club during run events. Remember that new probationary members can apply hours worked at the front gate towards their work requirement.

The second item in this issue will be the 2011 budget (page 6) which we will review and expect to vote on at the March meeting.

Lastly, I wanted to encourage you to reach out and interact with other members during the winter months especially with what live steam project

might be going on in friend's basement. Our present editor, Allen Underkofler, continues to do an outstanding job in publishing our newsletter. As always, he is in need of articles pertaining to the hobby. Whether it's about your winter live steam projects, your winter travels to warmer southern clubs (especially Bruce Saylor), or technical and related articles about live steam at PLS, we are always happy to receive and share your experiences with the club.

Wishing you *warmest* regards!!

Pat Murphy, President, PLS

Notice of Elections and Annual Meeting

PLS elections will be held during the annual membership meeting on Saturday, March 19, 2011 at 12:30 P.M. To be elected are a president, secretary, treasurer and three board members.

Nominees for the offices are as follows:

President – Patrick Murphy;
Secretary – Bob Blackson;
Treasurer – Walter Mensch

Board of directors:

Buddy Borders John Caldwell
Jim Connelly Sharon Connelly
Paul Rice* Hank Riley*
Bruce Saylor Ron Shupard
Frank Wilus

* Denotes incumbent running for second two-year term.

PLS wishes to thank Bob Blackson and Bruce Saylor for serving as this year's nominating committee.

The proposed 2011 budget, pre-

sented on page 6 of this *Gazette*, will also be presented for approval at the meeting.

Membership Renewals Now Due

As a reminder, membership renewals are now due for 2011. In order to remain a member, we must have your renewal by March 1, 2011. Please take the time to complete the renewal notice that you were sent in January and forward it with your dues. If you have misplaced your renewal notice, you can receive another one by e-mailing secretary@palivesteamers.org or by calling Lee Nonnemacher at 610-275-6070.

Please *do not forward* dues without the renewal form. We must have the renewal form completed for our records.

Your membership cards will be sent to you when your dues are received.

Club Membership News

PLS welcomes new Associate members F. Peirce Eichelberger, Thomas E. Glass, and Bryan Del Monte.

For Sale

Pennsylvania class A5 0-4-0 (7¼ inch gauge) complete and ready to run. Locomotive built by Dan Culp and re-tubed by Marty Knox. Finished by John Lukasavage and son John. It has been run once. I have too many projects going on and wish to sell it. \$10,500.

I also have an Allen Mogul finished by us that is 7½ inch gauge. Asking \$12,995.

Both were completed in 2010. Call John, day: (570)-283-3366, night (570) 690-0273.

Pennsylvania Live Steamers, Inc.

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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 Geib, steamer38@comcast.net; Ron Henderson, ronjhenderson@verizon.net; Paul Rice, ricepaul@verizon.net; John Bortz Jr., jonyx@netzero.net; Bob Freer, W3YLT@Juno.com; Hank Riley.

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

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2011 Complete Calendar of Events

Saturday, Jan. 8	Board of Directors Meeting - 9:30 AM	Sunday, July 17	Club Picnic Rain Date
Saturday, Feb. 12	Board of Directors Meeting - 9:30 AM	Sunday, July 24	Run Day - Members & Guests
Saturday, Mar. 19	Board of Directors Meeting - 9:30 AM Membership Meeting - 12:30 PM - Elections	Sunday, July 31	Run Day Rain Date
Saturday, April 16	Board of Directors Meeting - 9:30 AM Membership Meeting - 12:30 PM Spring Clean Up	Saturday, August 20	Board of Directors Meeting - 9:30 AM Membership Meeting - 12:30 PM Afternoon/Evening Run Run Day - Members & Guests
Sunday, May 1	Run Day - Members & Guests Boiler Testing	Sunday, August 28	
Sunday, May 8	Run Day Rain Date	Friday, Sept. 2	Fall Meet - Members & Guests
Saturday, May 21	Board of Directors Meeting - 9:30 AM Membership Meeting - 12:30 PM	Saturday, Sept. 3	Fall Meet - Members & Guests
Sunday, May 22	Run Day - Members & Guests	Sunday, Sept. 4	Fall Meet - Members & Guests
Friday, May 27	Spring Meet - Members & Guests	Saturday, Sept. 17	Board of Directors Meeting - 9:30 AM Membership Meeting - 12:30 PM Afternoon/Evening Run Run Day - Members & Guests
Saturday, May 28	Spring Meet - Members & Guests	Sunday, Sept. 25	
Sunday, May 29	Spring Meet - Members & Guests	Sunday, Oct. 2	Run Day Rain Date
Saturday, June 18	Board of Directors Meeting - 9:30 AM Membership Meeting - 12:30 PM Afternoon/Evening Run	Saturday, Oct. 15	Board of Directors Meeting - 9:30 AM Membership Meeting - 12:30 PM
Sunday, June 26	Run Day - Members & Guests	Saturday, Oct. 22	Fall Clean Up
Sunday, July 3	Run Day Rain Date	Sunday, Oct. 23	Run Day - Members & Guests
Saturday, July 16	Board of Directors Meeting - 9:30 AM Membership Meeting - 12:30 PM Afternoon/Evening Run - Club Picnic	Sunday, Oct. 30	Run Day Rain Date
		Saturday, Nov. 19	Board of Directors Meeting - 9:30 AM Membership Meeting - 12:30 PM
		Friday, Nov. 25	Turkey Trot Run – Gauge 1 only – (<i>rides not available</i>)
		Saturday, Dec. 10	Board of Directors Meeting - 9:30 AM



Winter Warrior —
Bruce Saylor's Virginia & Pennsylvania diesel shows the effects of a snowfall.

— Ron Shupard

Steam Cutoff

By Bob Thomas

Part 1 – Fun with Efficiency

Memories of minor incidents sometimes stay with us indelibly for many years — even decades. One day in the 'forties, my father and I were in the B&O 24th Street Station admiring a simmering P7 Pacific on the point of westbound *Royal Blue*. He said, "Watch what the engineer does after the train gets rolling." In a few minutes we heard the familiar two tweets from the conductor's cab signal, the engineer pushed the power reverse lever from neutral to full forward, released the brakes, and cracked open the throttle. When his train had moved no more than fifty feet, he pulled the reverser back somewhat in a scene I can still picture today. What that engineer was doing is called linking-up; it is the process of reducing the length of stroke that steam is admitted to the cylinders. Exactly what linking-up does and why it is important in operating steam engines will be the topic of this article and hopefully, introduce a new interest and the enjoyment offered by efficient operation of miniature steam locomotives.

An appreciation of the advantages of linking-up requires an understanding of what goes on inside the cylinders. Figure 1 shows how steam is utilized in a cylinder (on one side of the piston) to convert energy stored in the boiler to a mechanical force at the wheels. The horizontal axis of the diagram depicts the position of the piston along its stroke, while the vertical axis indicates steam pressure inside the cylinder.

We'll begin at Point A, where a valve in the steam chest opens to admit steam into the cylinder. Steam pressure in the cylinder rises rapidly toward boiler pressure at B, and begins acting directly against the piston. Steam continues to flow into the cylinder, applying full force continuously against the

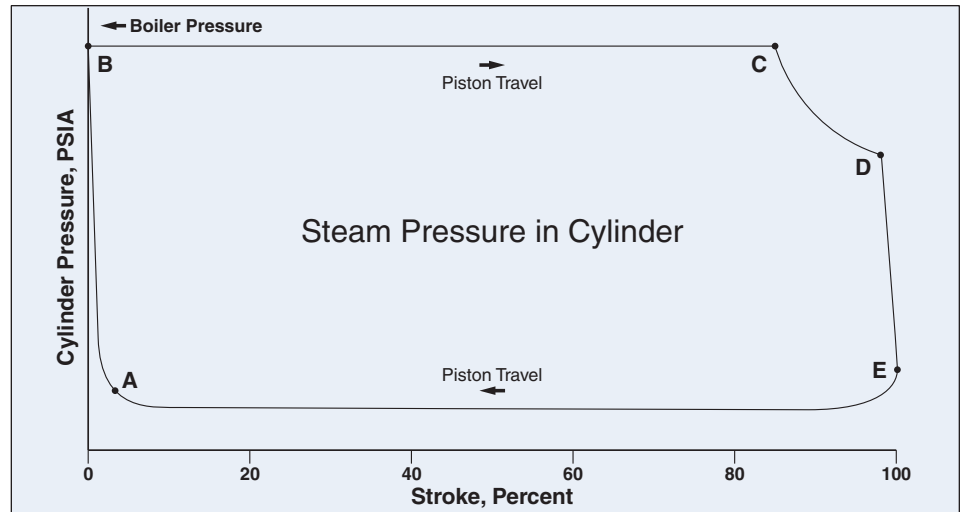


Figure 1. Full gear, 85% cutoff.

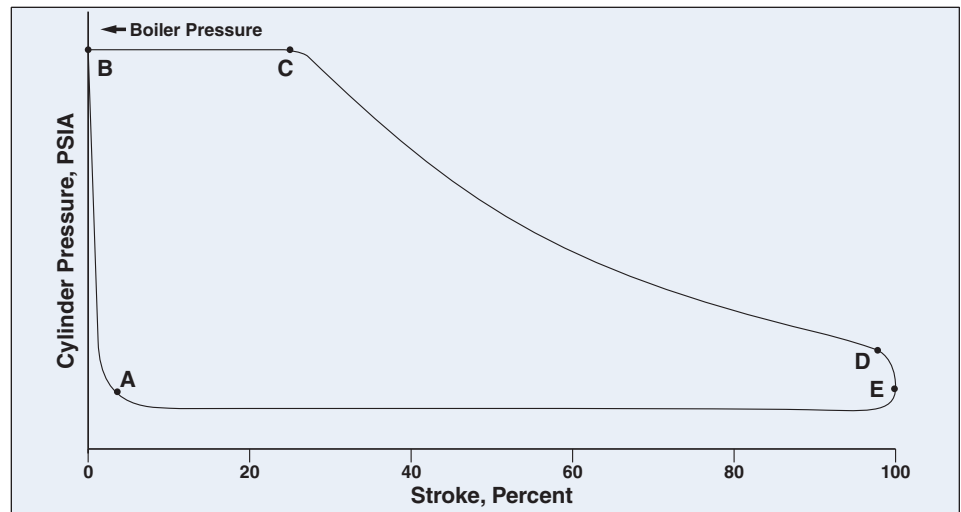


Figure 2. 25% cutoff.

piston until flow is stopped (cut off) as the valve closes at C.

The distance along the stroke that steam is admitted from the boiler, expressed as a percentage of full stroke length, is known as cutoff.

In this example cutoff is about 85 percent, typical for most steam locomotives in full-forward gear. Even though admission stops at C, steam already in the cylinder expands, applying diminishing force against the piston until the valve opens at D to connect the cylinder through exhaust passages and nozzle to the stack. Pressure then drops toward atmosphere as most of the steam remaining in the

cylinder is exhausted with a loud blast until the valve closes at E. Any trace of steam remaining in the cylinder is compressed as the piston moves forward to A, where the cycle is repeated.

Cutoff in full gear is determined entirely by the designer's selection of valve lap and dimensions of the port face. It is a compromise between starting effort and steam consumption and is typically between 80- and 90-percent. Once the train is moving new considerations make it possible to reduce cutoff (reduce amount of steam admitted) for a reduction in steam consumption, resulting in less water evaporation and correspondingly lower fuel consumption.

Figure 2 shows what happens in the cylinders when operating conditions permit reduction of cutoff. As before, steam is admitted at A, but instead of pouring in for most of the stroke as in full gear, it is stopped (cut off) at C, when the piston has reached only about 25% of its full stroke. That small amount of steam expands, continuing to apply force against the piston for the

rest of the stroke. Most of the energy in the expanding steam created a force against the piston for "free" work until the exhaust valve opens at D. Pressure has dropped substantially by then, and the small amount of steam remaining is released through the stack with a soft exhaust.

What can paying attention to cutoff do for performance of our miniature locomotives? It all depends on how well the engine has been designed and built, the load being hauled, and track conditions, e.g., grades, curves and traffic. An impressive example of what can be gained by linking up is demonstrated by my 2.5" gauge Tenwheeler hauling me on the multigauge track for ten non-stop laps (about 1.5 actual miles) at scale 100 mph. When run with 20% cutoff, water consumption drops to one-half of what it is in full gear! And why not? After all, steam is admitted only in brief whiffs when linked up instead of nearly the entire stroke in full gear. That means less steam, less water evaporated, and less fuel! Similar or even better perfor-

mance can be expected from larger locomotives.

A valid question about periodically adjusting cutoff to extract maximum efficiency from small locomotives is this: Who cares, when fuel and water are the cheapest costs in our hobby? The answer lies, not in economics as it did in the old days of steam, but in the heightened inner satisfaction an engineer can derive from an invigorating operating experience. Instead of simply using the throttle alone, like an accelerator pedal in a car with automatic transmission, adjusting cutoff to meet road conditions adds a new dimension and new interest to running a steam locomotive.

Next time we will consider actual operating situations encountered along the PLS main line, how cutoff can be manipulated for optimum performance and, best of all, more fun! We also will briefly look at how advanced railroads evaluated steam locomotive performance in their quest to maximize company profit. 🚂

Bob Thomas runs his 2½" gauge B&O Tenwheeler at the 2006 Spring Meet. He can run for ten non-stop laps on the multigauge track by using the cutoff technique that reduces water consumption to one-half of what he would use in full gear. *Photo by Bruce Saylor*



Proposed PLS Budget For Fiscal Year 2011

INCOME

Donations	
Run Day	\$ 800.00
Special Run Day	300.00
Pot Luck Dinner	200.00
Picnic	200.00
General	4,000.00
Dues	
Associate Member	9,000.00
Regular Member	7,760.00
Sales	
Boiler Treatment	156.00
Coal	48.00
Steam Oil	50.00
Soda Sales	2,000.00
Snacks non-run Day	350.00
Snacks Run Day	600.00
Kitchen Sales	1,450.00
Table Sales Taxable	500.00
Table Sales non-Taxable	1,200.00
Miscellaneous	200.00
Storage Track Fees	
Building # 3	3,636.00
Building # 6	1,910.00
Recycling Alum Cans	40.00
Total Income	\$ 34,400.00

EXPENSE

Utilities		Communications	
Electric	\$3,000.00	Gazette-Postage	\$ 500.00
Oil	750.00	Gazette-Printing	700.00
Septic Tank	1,600.00	Other Printing	200.00
Portable Toilets	1,200.00	Computer	300.00
Telephone	360.00	Internet	725.00
Dumpster	700.00	Community Support	100.00
Miscellaneous	240.00	Waiver Sheets	75.00
Miscellaneous		Web Page	700.00
Contingency Fund	1,000.00	Misc	100.00
Picnic	500.00	Corporate	
Security	200.00	Legal & Professional Fees	1,600.00
Pot Luck Dinner	200.00	Office General	200.00
Maintenance		Property Tax	3,750.00
Backhoe	50.00	Sales Tax	50.00
Building # 1	500.00	Wristbands	
Building # 2-7	500.00	Office Postage	200.00
Gauge 1	200.00	Insurance	3,000.00
Track	1,600.00	Sales	
Mowers	200.00	Kitchen	600.00
Signals	100.00	Snacks	400.00
Gas Mowing	150.00	Soda	900.00
Gas Track	100.00	Table Sales	1,000.00
Club Locomotive	100.00	Boiler Treatment	120.00
Landscaping	200.00	Steam Oil	100.00
Trees	2,000.00	Special Projects	
Fire Extinguishers	300.00	Steam Bay Roof Gutters	500.00
Misc	1,000.00	Signals	1,450.00
Total Expenses		\$ 34,020.00	

Never let a little snow get in the way! This fall PLS had a major flood. This winter has been nothing but snow and cold. Bruce Saylor runs his V&P diesel around the track, clearing the way.
— Ron Shupard



Bashin' It

Harry Quirk Created an Americanized Mogul from an Aster JNR Kit

Murray Wilson's article about the origin and history of gauge 1 "It's a Small World – Gauge 1 — The Second Time Around" in the Sep-Oct 2010 *PLS Gazette* made me recall my own experience.

My first encounter with gauge 1 was in 1975 at a local train show. Nate Polk had a British Schools class 4-4-0 running on air. I was not interested in foreign power so I was intrigued, but passed it up. Off to the side, I noticed a black model that looked somewhat American. Upon further examination it turned out to be a model of Japanese engines which were built by Alco between 1899 and 1907. It had possibilities, so I bought the kit for \$400. Assembly was not too difficult, but it still looked foreign. I removed the buffers and link couplers from the engine and tender. (Japanese railways used European style links and buffers until 1925 when they switched to the American style Janney coupler.) After applying a headlight, bell, new pilot and Kadees plus a second 4 wheel truck on the tender, it was time for a run. As built, it was a single cylinder and did not run very well. So, I ordered and installed a second cylinder. It still did not run very well, and it still looked foreign. The next step was to raise the boiler $\frac{3}{8}$ " to improve its appearance. I didn't

realize it at the time but it fired much better because the burners had more room to breathe. To my surprise, the engine ran very well and has done so for the last 35 years.

I did another kit bash with assistance from my brother, which I will share with you at another time.

— Harry E. Quirk



Harry kit-bashed an Aster Japanese National Railway Mogul design into this.

Donation Acknowledgements

PLS wishes to thank the following members for donations received during December and January: Newell Godshall Jr, Patricia Heller, Patrick Murphy, Salvatore Manzo, James Connelly, Sharon Connelly, Jack Richards, David Taylor, Mayland Crosson, Rob-

ert L. Gray III, Robert Heidenreich, Barrie A. Heilveil, Francis L. Mahoney, Raymond Matus, Chris L. Rood, Darryl J. Smith, Judith Taylor, David Staplin, Debbie Voynar, Win Becker, David Brush, Wayne DeVilbiss, Joseph Rohanna, Douglas S. Clark, Thomas Diedrich, Ronald H. Klinger, Edward H. Leiser, Joseph R. Natale, William C. Shields, Brittany Grimm, George A. Spohrer Esq, Wayne Baldwin, Robert Goepel, Jim Salmons, Carl A.

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The PLS GAZETTE

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FIRST CLASS

