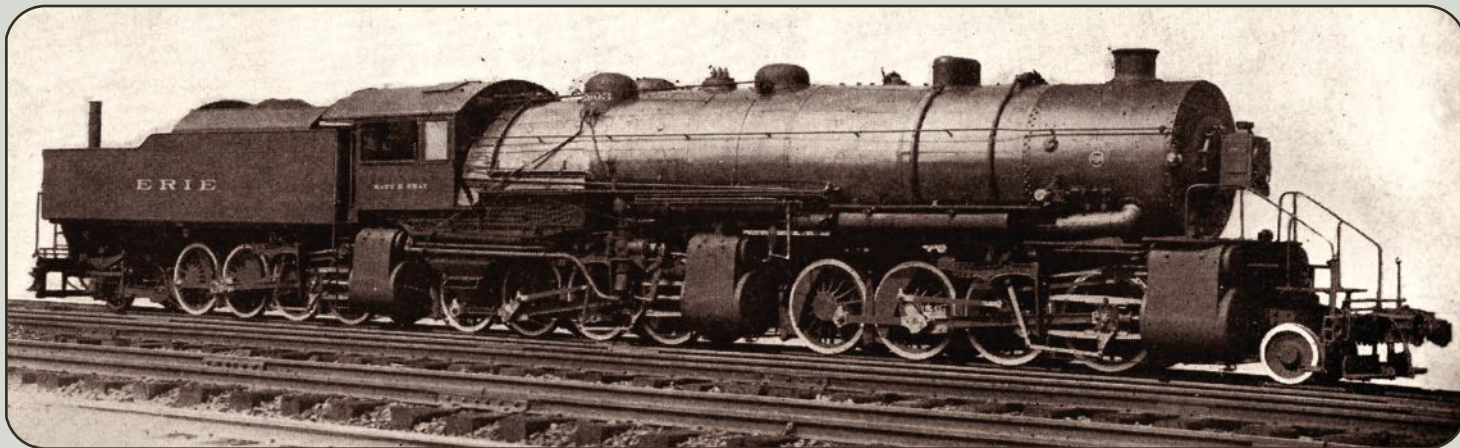


January 2009

HIT & MISS

Journal of the Western Antique Power Associates



THE MOST POWERFUL LOCOMOTIVE

By Rob Skinner

The Baldwin Locomotive Works was at one of America's leading builders of steam locomotives. Their founder, Matthias Baldwin, was a jeweler in Philadelphia.

In 1825, Baldwin joined with a nearby machinist to manufacture binding and printing equipment. To that end, Baldwin built a small stationary engine for use in the shop. Soon, others learned of Baldwin's engine and wanted one for themselves. Baldwin's focus turned from the production of printing equipment to the production of stationary steam engines. That later evolved into the production of locomotives.

In 1914, Baldwin built what was at the time the most powerful locomotive ever constructed - the Matt H. Shay. The locomotive was built for the Erie Railroad for pusher service on heavy grades. It was built according to the

patent of George R. Henderson, a consulting engineer for Baldwin.

The Matt H. Shay was based upon the Mallet design, where the front set of drivers pivots under the front end of the boiler.

Henderson's design was an extension of the Mallet articulated compound principle. A *third* set of cylinders and drivers was placed under the tender, so the weight of the tender became available for traction. In effect, without increasing the wheel load, stress upon bridge structures, or the wheelbase, the new locomotive was able to utilize approximately 90% of its weight for traction purposes. In contrast, a regular Mallet compound locomotive, with its huge tender, was only able to utilize about 65% of its weight for traction. The benefit of Henderson's 2-8-8-8-2 design on heavy grades is apparent.

Cylinders	
High-Pressure (2)	36x32 in.
Low-Pressure (4)	36x32 in.
Boiler	
Diameter	94 in.
Working Pressure	210 psi
Firebox	
Length	162 in.
Width	108 in.
Depth	68-87 in.
Driving Wheels	
Diameter	63 in.
Journals	11x13 in.
Truck Wheels	
Diameter - front	33 in.
Diameter - rear	42 in.
Wheelbase	90 ft.
Water Capacity	10,000 gal.
Coal Capacity	32,000 lbs.
Weight	
On Drivers	752,600 lbs.
On Truck - front	32,050 lbs.
On Truck - rear	59,400 lbs.
Total	845,050 lbs.

Another feature of the Matt H.

LOCOMOTIVE - CONTINUED

Shay is that the high and the low pressure cylinders are the same size. This is possible because the two middle cylinders are high pressure, and the two pair of cylinders at the front and on the tender are low pressure. In effect, the volume of the low pressure cylinders is exactly double the volume of the high pressure cylinders. The benefit of making all the cylinders and valves identical is fewer patterns and fewer parts.

The boiler on the Matt H. Shay has a total water-heating surface 6886 square feet, and a superheater of 1584 square feet. The the time, this was the largest superheater ever used on a locomotive.

Steam was carried from the superheater to the middle

cylinders via external pipes. The exhaust from these high pressure cylinders is carried to the low pressure cylinders at the front and rear through flexible pipes, as were used on other Mallet engines.

Only half the steam exhausted from the low pressure cylinders was used to induce draft in the boiler. The front cylinders are exhausted up the stack in the usual manner. The exhaust from the rear cylinders was used to supply a feed-water heater.

Great care was needed to operate this locomotive, to avoid putting undue stresses on couplers and draft gear. Generally this locomotive would have been used as a pusher, placed in the middle of the train,

toward the rear, so that it would assist the locomotive at the front. In an arrangement such as this, the tractive power is divided between the cars in the front and the cars in the rear, minimizing the stresses on the draft gear.

Despite the colossal boiler, it was difficult to supply sufficient steam to power the large cylinders. This was probably due , as least in part, to having only half the steam available to create boiler draft. The engine was not a great success, and only two more 2-8-8-2 locomotives were built by Baldwin.

FROM THE EDITOR

As I sit here frantically pounding out prose in order to meet the deadline, Christmas is rapidly approaching. There's still some shopping left to do, a LOT of wrapping left to do. Before we know it, a new year will be upon us and 2008 will be history.

For Kelley and me, in the past year we were blessed with some new family and friends--but other family and friends are no longer with us. In the past year there were some new challenges, a few triumphs, and a lot of good times. There's a lot for which we are grateful.

Under Wayne's leadership, WAPA has evolved and offered a variety of new opportunities to her members.

Bob Smith has brought us a lot of fun shows. None of us envy the hard work he has to do making contacts, negotiating for prime location, arranging good parking, and then having to make sure everything goes off smoothly—but we all enjoy the fruits of Bob's efforts.

Tom Millett arranged a rare opportunity at the Rubel Castle. How often does one get the opportunity to play with huge old iron—without having to buy it, move it and house it? Not often enough, that's for sure! But not only did our members benefit from that project, future collectors and historians will benefit through our efforts to help preserve the past.

Craig Maxwell is now serving as our new Museum Director. With Craig's expertise, perhaps 2009 will be the year that WAPA is able to obtain land on which we can establish a museum.

Thanks to all the members of WAPA. Without your interest and dedication to our hobby, we could not exist. And special thanks to our Board of Directors, who selflessly dedicate much of their personal time to ensure that our organization ticks over nicely, like a well oiled... stationary engine.

As always, if you have anything for the Hit & Miss, contact me at editor@wapa.us.

-Rob

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REMEMBERING MY FRIEND JACK BY JIM KNOX

I am very sorry to report we've lost our dear old friend, Jack Hargreaves. Another stroke had weakened him, and then pneumonia took him from us on October 16, 2008, just a day after his 82nd birthday. Six or eight years ago, when Jack's health began to fail, he had moved in with his friends Richard and Dena Harris in Amity, Oregon. They gave him a loving home as his health continued to decline. Now, I don't know what it takes to be a saint, but I think Richard and Dena would certainly qualify. May God bless them.

For years before that, when he still had his health, Jack and I spent so many days and so many miles together chasing engines and the shows all over the country. Our adventures took us from Martha's Vineyard in the east to Puget Sound in the west and from the head waters of the Mississippi in the north down into the bayous of Louisiana. He was such a great traveling companion, always interesting and entertaining. He was a gifted storyteller and he had tons of tales to tell.

Sometimes he would tell me about growing up in wartime England with the blitz, the buzz bombs, the V2 rockets, the unexploded bombs that caused so much disruption and of course the shortages of almost everything. He was one of the many thousands of kids that were evacuated from the cities and put to work on the farms. Later as a young apprentice pattern maker, when there would be an air raid, he and the other apprentices had to be up on the roof tops to watch for fires. And if being bombed wasn't bad enough some of those bombers trying to kill him were powered by Rolls-Royce engines made in Spain. This he felt was adding insult to injury!

Then there was the one where he and two friends, instead of attending the Boy Scouts meeting as they should have, had gone to the tobacco shop where they were able to buy just one cigarette. Gas street lamps were still in use so his friends hoisted him up on their shoulders so he could light the cigarette in the lamp. As he climbed back down, there stood the local constable who marched them off to the Scout meeting. Their punishment for ditching the meeting and smoking was to be drummed out of the Scouts. And so ended his career in uniform for just as he reached draft age and expected to go into the army, Germany decided it was better to surrender than to have to face Jack as a soldier. That last part he may have made up.

I'm sure going to miss that good ol' boy and the times we had together. Seems like every trip we took turned into an adventure, sometimes with real danger.

There was the time on Martha's Vineyard when we thought we were going to jail.

And the time driving through the woods in east Texas, where we were just one jump ahead of the lightning crashing around us. We thought for sure our time had come.

And then the really scary time in a Kansas bar where the people turned out to be way too friendly. We thought we'd have to fight our way out of that one.

Or when Jack's water pump came apart in the desert leaving us stranded at a garage that

looked like it came straight out of the Chevy Chase movie "Vacation."

Or the time we were trying to clear Raton pass loaded with so much iron that we were down to walking speed and expecting to stall out at any moment with miles of traffic behind us.

One evening we were dinner guests of some nice people in the New Orleans area who wanted to treat us to some Deep South home cooking. Now, Jack was strictly a meat and potatoes man and

didn't consider seafood to be fit for man nor beast. So of course dinner was a crayfish dish which I thought was great, but Jack found revolting. Crayfish seems to be something between a shrimp and a lobster. Fresh water I think? Poor Jack, he could face the German bombers, but these crayfish were almost too much. Though visibly distressed he was valiantly trying to put at least some down while complementing the cook. Then just as he had made a polite showing the lady of the house said, "Oh Jack, you must have some more," and plopped another serving on his plate. The look on his face was priceless and for the rest of the trip he had a strange green tint.

I ramble on, and could go on and on, for Jack left enough great memories of our times together to fill a book. And I know all of you friends of his have volumes of your own filled with the memory of his friendship. I'll always miss him, but I'll always count myself blessed to have been his friend.

Thanks ol' friend, it was grand!



WAPA FUN DAY

GAS UP, SWAP, LUNCH

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8 A.M.

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TO

10



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