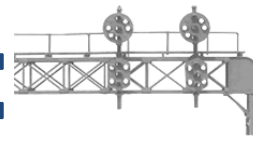


# THE SIGNAL BRIDGE



Volume 18

NEWSLETTER OF THE MOUNTAIN EMPIRE MODEL RAILROADERS CLUB  
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## CSX, ex-CLINCHFIELD DEPOT KINGSPORT, TN



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**LOCATION**  
ETSU Campus,  
George L. Carter  
Railroad Museum

**HOURS**  
Business Meetings are held the  
3<sup>rd</sup> Tuesday of each month.  
Meetings start at 7:00 PM at  
ETSU Campus, Johnson City, TN.  
Brown Hall Science Bldg, Room 312,

Open House for viewing every Saturday from 10:00 am until 3:00 pm. Work Nights each Thursday from 5:00 pm until ??



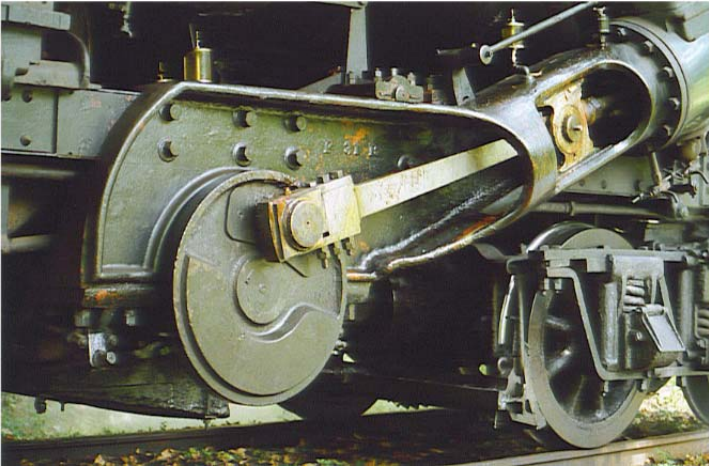
# CASS SCENIC RAILWAY SIDE TRIPS

## THE DURBIN ROCKET

From the  
camera of

Paul  
Haynes





## CLIMAX LOCOMOTIVE

From Wikipedia, the free encyclopedia

A **Climax locomotive** is a type of geared steam locomotive in which the two steam cylinders were attached to a transmission located under the center of the boiler. This transmits power to drive shafts running to the front and rear trucks.

Rush S. Battles patented the basic design in 1891.<sup>[1]</sup> Battles' design had horizontal cylinders connected to the drive shaft through a 2-speed transmission. The drive shaft passed just above the axle centers, requiring the use of hypoid bevel gears to transfer power to each axle. Unlike the later and somewhat similar [Heisler](#) design, there were no side rods on the trucks and all gearing was open, exposed to the elements. Battles' patent describes the core design that became the Class B Climax, and a his patent illustrations show the name Climax emblazoned on the locomotive cab.



Fruit Growers Number 3 on display at Fairplex in [Pomona, California](#).

Charles D. Scott, an inventor who had previously proposed a less successful geared steam locomotive,<sup>[2]</sup> patented improved versions of Battles' trucks in 1892 and 1893.<sup>[3][4]</sup> Scott's 1892 patent was the basis of the Class A Climax. His 1892 patent included gear-case enclosures.

All Climax locomotives were built by the *Climax Manufacturing Company* (later renamed to the *Climax Locomotive Works*), of Corry, Pennsylvania. In addition, an agency and service facility was established in Seattle, Washington to sell and maintain locomotives for west coast buyers. Production began in 1888 and the last Climax locomotive was produced in 1928. Between 1000 and 1100 were built.

Many loggers considered the Climax superior to the Shay in hauling capability and stability, particularly in a smaller locomotive, although the ride was characteristically rough for the crew.

### Classes

Climaxes were built in three distinct classes:

### Class A

These featured a steam engine unit with two vertical cylinders mounted in the center of the locomotive. Class A Climaxes had a frame similar to a flatcar with wooden boxcar-like bodywork built up above it to protect the crew and fuel from the elements – this could be more or less covering between locomotive to locomotive. The front half of the locomotive, in front of the engine unit, contained the boiler. In smaller examples this may have been a vertical boiler, while in larger ones a tee boiler was employed. Class A Climaxes were small locomotives, generally under seventeen tons. Class A Climaxes, unlike [Heisler](#) and Shay locomotives, had two-speed gearboxes.

### Class B

Looking more like a regular locomotive, the Class B Climax had the cylinders either side of the boiler, permitting it to be longer and larger than possible with the Class A arrangement. The two cylinders drove a transverse shaft that was geared to the longitudinal driveshaft in the middle; on early Class B climaxes, the cylinders were horizontal and pointing forwards, while later ones had the cylinders angled upwards at about 30 degrees from horizontal. Class B Climaxes weighed approximately 17 tons at minimum to a maximum of approximately 60 tons.

### Class C

As in the Shay locomotive, a class C was a three-truck design, the additional powered truck being beneath a fuel-carrying tender articulated to the locomotive. All Class C locomotives had inclined cylinders.

### Survivors

Approximately 20 Climax locomotives survive in North America, of which about five are operational. Two survive in Australia 1653 (Hobart - on display), 1694 (Belgrave - under restoration) at the Puffing Billy Railway, and several in New Zealand. The New Zealand Climaxes are No's 522 (Tokomaru - stored), 1203 (Greymouth - stored), 1317 (Te Awamutu - Under static restoration), and 1650 (Pukemiro - stored). Hence 4 of the 7 B class Climax locos delivered to New Zealand have survived. One at the Cass Scenic Railroad State Park in West Virginia is currently being restored by the MSR&LHA. It is expected to be done by July 2012.

### Conversions

A number of Climaxes, especially Class A, were later converted to Diesel or gasoline power, and some still exist in this form, using the original frame and drive mechanism.

### References

1. Rush S. Battles, Locomotive, U.S. Patent 455,154, June 30, 1891.
2. Charles D. Scott, Locomotive for Tramways, U.S. Patent 452,124, May 12, 1891.
3. Charles D. Scott, Locomotive for Tramways, U.S. Patent 488,484, Dec. 20, 1892.
4. Charles D. Scott, Tramway Locomotive, U.S. Patent 504,541, Sept. 5, 1893.

**External links**

- Geared Steam Locomotive Works' Climax pages
- Ed Vasser on Climaxes
- Restoration of Climax No. 1551 by the Mountain State Railroad & Logging Historical Association in Cass, WV

## CLIMAX LOCOMOTIVE S/N 1551 Restoration Project

**Background**

Climax locomotive shop number 1551 was built by the Climax Locomotive Works in Corry, Pennsylvania, in 1919 and delivered new to the Moore-Keppel Company lumber operation in Ellamore (Randolph County) West Virginia. It operated there until the lumber mill closed in 1946. It was then used as standby power on the coal hauling Middle Fork Railroad before being retired in 1960. It was the one of the last Climax locomotives in U.S. commercial operation.



The Climax locomotive sitting on the "dead line" in Cass prior to the start of restoration work in 2002. (Photo by Sonny Burruss)

At retirement it was poorly maintained, badly worn and severely rusting. It was destined for a proposed railroad museum to be built in Ellamore, but that project never got off the ground and the State purchased the locomotive in 1970. It was trucked to Cass for restoration with a projected operational date of May, 1973.

Restoration work had just started when a massive fire destroyed the Cass shop complex in July, 1972. Although there was some damage to the locomotive, it survived the shop fire in relatively good shape. However, the loss of the shop caused an indefinite postponement of its restoration and work was never restarted. The locomotive spent the next 30 years sitting on the Cass "dead line" awaiting its fate and slowly deteriorating in the weather.

In 1998 the Mountain State Railroad and Logging Historical Association proposed that the organization initiate a multi-year project to rebuild the locomotive and restore it to operational service in Cass. The project was approved with the condition that a restoration building be built to reduce the project's impact on the limited Cass shop facilities. The Association solicited donations, completed a 40x100 foot building (which was turned

over to the State), and commenced restoration work in October, 2002.



Artist's rendition of how the Climax locomotive will look after restoration is complete. (Image by Richard Sparks)

**The Restoration Project**

This is a complete mechanical restoration. The locomotive was completely disassembled and each component analyzed to determine what needed to be done to restore it to operational condition. Some parts just need to be cleaned and painted. Others require welding, machining, or other significant repairs. Some parts were beyond repair and are being used as patterns to fabricate replacements. Many foundry patterns have been made to allow accurate reproduction of unusable parts.

In all cases the goal is to maintain the historical integrity of the locomotive while restoring it to better than new condition so it will give years of reliable service without the need for major non-routine maintenance.

There is a core group of about a dozen volunteers with experience in machining and mechanical arts working on the project. In addition, volunteers of varying skill levels are helping with various aspects of the project.

There is no firm date for completion of the project. Work is progressing well, but since most volunteers live far from Cass there are a limited number of work sessions each year. An unofficial goal is that the Climax may see operational service around 2010, but that is far from a firm date.

**Funding and Support**

There are several sources of funding for the Project. As of January, 2007, the Association and individual donors have provided over \$50,000 in funding to purchase materials, tools, and contracted services. The State of West Virginia obtained a \$200,000 Federal grant for the project and that money is being used to purchase several big-ticket items such as axles, new steel tires, gear castings, injectors, and air compressors. The Park already has a serviceable replacement boiler on hand that will be used after some repairs and certifications are completed. Also, a number of companies have provided services and materials free or at significant discounts, and several have donated large machine tools to help equip the restoration facility.

Donations are always welcome and will help speed the restoration project. All donations are tax deductible and can be sent to Bob Hoke, MSR&LHA Treasurer, 6304 Kaybro St., Laurel MD 20707.

### Getting Involved

Volunteers are always welcome to help with the project. There are normally work sessions about every two or three weekends. Dormitory-style housing is supplied in Cass at no cost and meals are provided by the Association. Workers typically arrive on Friday evening, work a long day on Saturday and Sunday morning with an early afternoon departure for home. Due to insurance regulations all volunteers must be current MSR&LHA members and everyone must sign a liability waiver for the Park.

If you are interested in volunteering please contact Grady Smith, the Climax Restoration Project Manager, at [loco@msrlha.org](mailto:loco@msrlha.org) or 740-373-2895 to get the latest work schedule and discuss your interests and skills.



Restoration Project Leader Grady Smith assembling a repaired piston crosshead for the Climax locomotive. (Photo by Gerald Curtis)

## Tips from a Novice Railroader.

### By Jesse Kittle

Since I joined the club in 2007, I have learned a great deal about model railroading. I am often seen working Thursday evenings on either the McKee G scale or the Bankus N scale. I had NO prior experience working with either scale, and although the layouts are on opposite ends of the scale spectrum; there are lessons and tricks that I have learned that would apply to any scale.

Never be afraid to ask questions. I believe that the single greatest resource of this club is the wealth of experience of the membership. If you don't know how to do something, ask around. If you ask someone and they don't know, chances are they know of someone who has experience with a particular task.

Much of what I have done on both the G scale and the N scale is tracking laying. When laying track, it is easy to forget to check the gauge and any possible incline. Many times, what looks level, is not. Check all joints and all possible angles before nailing everything down. Never cut corners when laying track. One may have the most outstanding locomotive, but what good is it if the track-work is of poor quality?

Ballasting is time consuming but critical in making any layout prototypical, as well as ensuring that the track does not shift over

time. Always sift the ballast. This ensures that only the proper size material will be put down. Although it can be tempting not to sift ballast, trust me when I say that will save you time and effort. After carefully spreading the ballast, make sure to moisten it. This will keep it from clumping when you add the glue and will help the glue to move and settle evenly. If you are using a white glue, alcohol and water mixture, it does have a shelf life. The glue will clump inside the container, so mix only an amount that you will use at one time, and throw out the rest.

I personally find weathering a daunting task. The prospect of ruining a car or locomotive was unappealing. Weathering is most often overdone. Be conservative when weathering. Practice on an old car, and see what it looks like. Think about the ballast and scenery that the item will be on. It will not look right if you slap mud or too much rust on a boxcar when it will be running a mainline ballasted in gray gravel. Be patient, and take your time. Real weathering doesn't happen overnight, thus take your time weathering. I have made my biggest mistakes when I started rushing myself.

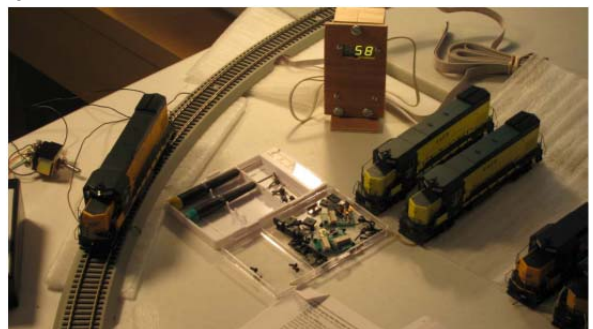
These little tips should help you in whatever you are modeling, and remember that this is a hobby we all love. If it starts to feel like a job, take a break, and remember never to settle for ok or second best. We are in the public eye at the Carter Museum; let's keep the standards set high.

## Bob's Race Track...er...Test Track

### By Bob Jones

This is my new race track that is setting speeds for all my Diesel locomotives. Since the weather is cold today (67°F) I thought I would take the attached photo's and send them to y'all. I am trying to set four(4) GP15-1 to the same speed at V Start, Max, & Mid (CV 02, 05, & 06) using Digitrax SDH164D sound decoder and using the same address (4400). Out of eight(8) SDH164D only four(4) are working, two steam and two diesels. I went thru five(5) decoders to get two(2) to work in my GP15-1's. I am using an oval speaker in the GP15-1's, and so far the sound is great. I had to set the Master Volume CV58 down to 02 because the oval speakers are only 8 ohms vs. 32 ohms. Does anyone have any

ideas on what I should be doing? It is very frustrating, since it has taken one whole month to get this far. See y'all in mid April when it's warm.



**LABOR DAY WEEKEND RAILFAN TRIP**  
**September 2-5, 2011**  
 Sponsored by the Mountain Empire Model  
 Railroaders



**Purpose:** To have a great railroading experience in the mountains of scenic West Virginia. We will lodge in the restored company houses of the Cass Scenic Railroad State Park in Cass, West Virginia. There we can explore the company town, ride behind the shays of the CSRR to the top of Bald Knob the third highest mountain in the state, and have the opportunity to ride the train at Elkins, WV as well. How you choose to spend your Saturday and Sunday will be up to you, but here are the options listed below.

**Destination:** Cass Scenic Railroad State Park, Cass, West Virginia. Optional destinations for additional train rides at nearby Durbin and Elkins, West Virginia.

**Whose going?** Members of the Mountain Empire Model Railroaders club are going and they are inviting the members of the George L. Carter Chapter NRHS to participate.

**Lodging:** Fred Alsop, president of both clubs, has made reservations in the Cass Scenic Railroad State Park in 2 of the restored company houses. One house sleeps 8 and the other sleeps 6 in double-occupancy bedrooms. Currently, there is reserved housing for 14 people on a first-come/first-served basis. Additional housing may be available through the state park, but any additional reservations will be the responsibility of those who want to join us after the above spaces have been filled. If we fill all 14 spaces in the 2 houses the approximate cost will be \$55/person total for the 3 nights. **If you plan to go and you have not already notified Fred please do so quickly. Phone: 423/929-3733 or cell: 615/604-8759 or at [fredjalsop3@earthlink.net](mailto:fredjalsop3@earthlink.net).** Several members have already secured their spaces on the trip, so don't delay if you want to join us for this outstanding railroading venture.

**Getting there:** Travel will be by personal vehicle, but we will attempt to carpool for those who would like to share a ride. We will work out these details after the group is established.

**National Holiday:** Lots of folks will be traveling over this long holiday weekend. It is very important that you make your reservations early in order to get the lodging and the train tickets you desire. Spaces will fill up quickly and fast action on your part will go a long way in staving off the disappointment of not getting to do all the things you want to do.



**Train Rides:**  
**Cass Scenic Railroad**

Check out their web site at: <http://www.cassrailroad.com> for all their information including schedules, location, fares, events, etc. For tickets call **800CALLWVA** and then ask for 'Cass Scenic Railroad'. You can get additional ticket discounts if you book more than one train ride in a 7 day period. Here's what available on Saturday and Sunday, 3-4 Sept.:

**Whittaker Station**-4 miles, 2 hrs with stop at the outdoor Whittaker Station logging museum. Cost \$21 for adult ticket. Departures at 11 a.m., 1 p.m., and 3 p.m.

**Bald Knob**- 11 miles, 4.5 hrs with stops atop Bald Knob and at Whittaker Station. Cost \$27 for adult ticket. Departure and Noon.



**Bluegrass Buffet-** Saturday evening only with departure at 5:15 p.m. Check web site for prices and reservation information.



**Durbin and Greenbrier Valley Railroad**

website <http://www.mountainrailwv.com> and ticket information at [ticketinfo@mountainrail.com](mailto:ticketinfo@mountainrail.com) ; phone: 877/686-7245

**Durbin Rocket:** powered by rare Climax, old #3, built in 1910. Ride is 10.5 miles; 2.5 hrs. Departures from #3 E. Main Street, Durbin, WV at 10 a.m. and 2 p.m. Tickets \$22 adult (\$20 senior–65 and

+) . Reservations: <http://rezweb.com/durbin/> or toll-free: 877MTNRAIL or 877-686-7245.

**Cheat Mountain Salamander:** Trip is 88 miles roundtrip and takes 6.5 hrs, through one of the largest wilderness areas in the eastern U.S. Ticket prices: adult \$58 (senior \$56--65 and +). Check their website for schedules at <http://www.mountainrailwv.com>

**New Tygart Flyer:** Trip is 4 hrs and covers 46 miles round trip and departs from Elkins, WV at 11:00 a.m. Ticket prices: adult \$45 (senior \$43--65 and +), includes buffet service. Parlor car with meal (limited seating) \$56 (\$54 for seniors). Departure 315 Railroad Ave, Elkins, WV. Reservations <http://www.mountainrailwv.com> or by phone: 877MTNRAIL.

**Mountain Explorer Dinner Train:** 4 hour ride, gourmet dinner meal. Price \$70 (upgrade to parlor car \$80). Departs Elkins Depot, 315 Railroad Ave. Elkins, WV at 5:00 p.m. Make reservations at above web sites or toll-free phone number.

**Fred's Personal Plan:** Arrive at houses in Cass, WV, on Friday evening, Sept 2<sup>nd</sup>. Ride the New Tygart Flyer in Elkins (approximate 1.5 hr drive from Cass) on Saturday, Sept 3<sup>rd</sup>. Ride the Cass Scenic Railroad train to Bald Knob on Sunday, Sept 4<sup>th</sup> ; and perhaps take the Dinner train at 5:30 that evening. Depart for Tri-cities on Monday, Sept. 5<sup>th</sup>. Have a great time with some outstanding railroading buddies. **Are you getting on board?**

**SUN KINKS**

