

AMERICAN ALTA VISTA

Clark Thompson



THE RAILMODELER'S GUIDE
TO
SALUDA
MOUNTAIN

*A highly detailed look at America's Steepest Class-I Grade
and the theory about how you can emulate that famous hill!*



THE GRAND TOUR — SALUDA BY RAIL

ON BECOMING GOOD FRIENDS WITH AN AMERICAN LEGEND

by Bob Loehne

That trains and railroads might imitate life is a given for any red-blooded member of the tracktive culture. My budding friendship with the fabled steep grade was no exception, and that we'd be good friends was obvious.

I had two opportunities to look over the Saluda live layout prior to my first ride with Bill Rice (see inside back cover) and had begun to get a feeling for the logic behind the lay of the rail. There were side tracks at the east and west ends of the hill, to support westbound traffic, and a downtown pass track, which extended west for a mile, so long freights like unit coal trains could pass easily.

Those basics were simple enough. It was the little things that had me confused, especially several medium sized signs (such as these) with information apparently directed towards the engineer.

STOP BOARD
NO. 1

ENDING
TIMING SECTION

They made as little sense as did "turning up the retainers," which the crew did right there next to main street in downtown Saluda with each eastbound, and "tripling the hill" which was performed about three hours later after most eastbounds.

Harriett, my railfan-friendly wife and avid supporter of the all-American caboose, was first to note that every train had its very own caboose. That there is a crummy on the end of each train only adds to the "good old days" feeling one gets being around Saluda. I found later that the cabs were needed operationally to carry all the extra crew required to turn up those retainers, or, in worse case, to crank hand brakes if a westbound stalled on the great grade.

There were any number of Saludians happy to fill me in on just what was a Saluda Triple, when the last train ran away, when the number one safety track was removed, what's the name of the railroad that traverses Saluda, and who's the most famous resident therein.

[Answers: 1) See the video or read on; 2) 1971 — though the safety track was "used" on January 4, 1985; 3) 1955 — though 1959 and "I didn't know it was gone," both were oft heard; 4) The Southern Railway, the A&S Line, and two other terrific replies of which neither sounded like "Norfolk Southern;" and 5) Perry Como, just part time.]

—GETTING TO KNOW SALUDA * PAGE 1—



BOWERS/APS

Saluda made SR's A&S line famous.

I re-read John Gilbert's book, "Crossties Over Saluda" and I borrowed a copy of the Norfolk Southern's in-house video, "Mountain of Challenge," about taking a unit coal train down Saluda. Several local acquaintances shared copies of old news clippings which told first hand, turn-of-the-century stories about building, operating and crashing on the line. Material from the 20's to the 40's, by Harry Thompson, W. B. Heriot, Sadie Patton, and Herbert Monroe, blended well with the memories of some wonderful Saludians.

The TRAINS November 1984 issue featured a lifetime of Frank Clodfelter's Saluda memories. Engineers Leonard Biddix and J. T. Stanberry shared the terror and humor of their runaways — the only diesels lost at Melrose. For current points of fact I turned to Norfolk Southern Division Roadforeman Melvin Warren, dispatcher Glenn Peters, hobby shop proprietor nonpareil Reynolds Calvert and the Southern Railway Historical Association's Bill Schafer and Jim Wrinn.

FOR A HISTORY DEGREE OF STEEP GRADE

Though a few procedures have changed (of course, there's no more steam and road foremen now board most eastbounds at Saluda) the different writings and memories provided valuable grounding for Saluda operations. A 1985 article in RAILFAN & RAILROAD and a variety of other Saluda stories all helped get me familiar with the turf.

And then along came "Professor" Rice with his graduate school of Saluda Railroad Science. This tenured scholar knows the where, when, how and who of A&S railroading. He knows the crew and their railroad relatives, he told me the best spots for video, he got me to the spots on time, and he told about triples, retainers, and Sand Cut jumping.

I listened, I took notes, and to the best of my ability, this is a fair rendition of what Doctor Rice and the other mountain pundits had to say about the live Saluda layout. To assist, check the centerfold for a map and information that will help with both this tour and while watching the video. Since most train chasings start with an eastbound, let us follow one's path as it departs Summit Lake.

DOWN IN THE VALLEY OF 1.4% GRADES

Typical Asheville to Spartanburg freights ramble along winding ribbon rails covering the 29 miles to the east side of Summit Lake in an hour and a quarter. The Norfolk Southern still carries this area on its books as Green River, but the hydro-electric dam and a multi-million dollar concrete railroad bridge tell the modern truth.

If you'd like a lake scene for your railroad, this is it — a beautiful mountain lake with eastbound tracks descending along the north side at 1.4%. Crossing the lake bridge at the east end, with the Green River past the dam in the northeast corner, our freight soon begins a right turn and crosses over highway 176. Near this point, both the road and the tracks begin a two-and-a-half-mile, 1.4% climb towards Saluda. With the southside roadway not often more than a hundred feet from the tracks, railfans have an easy chase.

Just past the highway bridge, the tracks begin to veer left around Sawmill Curve, aptly named for the large log cutter on the north side in the curve and the smaller sawmill on the right. Both are rather dilapidated and neither have a siding. [Though I suppose a modeler could work in a log business on a siding from the past.]

Breezing along with heavy tonnage still pushing downhill from behind, the engines briskly pass through a traditional southern pastoral scene, toot for a dirt road crossing, and begin a right bend to the west switch. Local residents find refuge in a variety of mobile homes which are mixed in with several modern houses.

The west switch is the beginning of "Saluda" as both railfans and real railroaders know it. Generally not significant to an eastbound, this turnout will see plenty of action three hours later when the same engines return with a triple headed for Asheville. For now, our eastbound chugs by on the north track.

Up to this point, all trains follow the same procedures; however, a unit coal train (UCT) begins slowing at the west switch. It will need to stop at Pace's Crossing where it will pick up a road foreman for the trip down the steep east side of Saluda. We will leave the UCT here for a while as we continue eastbound on a general freight.

NEARING SALUDA AND A REFURBED DEPOT

Regular freights continue uphill traversing a series of lazy S-turns at 25 MPH. Soon the tracks straighten for the last half mile to the Saluda highway bridge. Just before reaching the bridge, our freight passes the point on the left where the Saluda Depot used to rest — for years, the busiest depot on the Southern system.



FRANK CLODFELTER.

A steam excursion waits at the old depot long before the move downtown.

In the early 80's, Roy Eargle purchased the Saluda depot and moved it downtown — just across from and slightly west of the grade's crest. The building has been refurbished and houses a gift shop. Except for the demise of a Gulf gas station next door, since 1940 visible changes on Saluda's Main Street have been very limited.

Still double tracked, the rails bend easily to the right as they crest the hill and cross Greenville Street. In the summer of 1989, after 111 years with no fatal crossing accidents, a triumvirate of feds, state officials and NS pick-up-truck drivers, brainstormed,

designed and installed the first set of crossing gates, lights and bells Saluda had ever seen. Operating on a basis totally unrelated to train activity, these spastic electronic marvels are the hit of Saluda, drawing crowds almost as big as annual Coon Dog Day celebrations.

THE BALANCING ACT TO DEFY THE HILL

Now down to 15 MPH or less, the freight slows and soon stops near "Stop Board No. 1." The purpose of the stop is to set or turn up retainers and check brake air line pressure before beginning the descent down America's Steepest Class-1 Grade.

When stopping your train on Saluda, the idea is to balance your load over the hill. That means, you have some of your cars pulling back down the 1.4% westside incline, while your engines and the head-end cars are yanking you down the 4.5% beginning of the east grade.

Ideally, when balanced, if you took off all brakes, the train would stay still. If you have a train of more than 30 cars, the railroad will allow you to go as much as 2,200 feet further to "Stop Board No. 2" (at east switch) to balance. However, even though most trains are longer than 30 cars, most engineers stop near "Stop Board No. 1."

A westside imbalance is ok, but an eastside imbalance puts you in an unsafe position — heaviest on the steep side without having set the retainers or checked the brake air line. An eastside imbalance could set up a runaway, as just engine brakes are holding the train.

IN PURSUIT OF BETTER BRAKING

Let's talk brake retainers for a minute. Simply put, they "retain." They "retain brakes." They "retain brake settings regardless of increased pressure in the brake line." And they will, when working properly, retain the strongest brake application the engineer gives. Perhaps most important, the retainers allow the engineer to keep brakes on while recharging the trainline during the trip down grade.

Normally, when brake pressure is decreased, brakes are applied. Pressure is increased, brakes are released. With retainers turned up to the high pressure (HP) position, when pressure is decreased, brakes are applied. When pressure is increased, the retainers maintain the decreased pressure and keep the brakes applied at that level (with the help of a brake cylinder and more). Knowing extra braking is needed for a steep hill (not just Saluda), the engineer gently applies brakes with the retainers turned up and the brakes stay in that position all the way down the hill and until the retainers are turned back down.

With properly working retainers and brakes, braking can be increased, but once applied the brakes can't be released on the hill. Next time you see a still rail car, check the brake end. You will see the retainer lever, most likely in the down position. If it is up, check for worn out brakes and possibly a flat spot on the wheels.

In addition to stopping to set the retainers and check the brakes and brake line, this pause is also when a road foreman boards to take charge of the train for the steep side descent. Because of the regularity of their appearances in town, the three or four foremen are well known and are often seen in street side gatherings. Once a haven for hometown railroad personalities, the presence of the road foremen is Saluda's remaining touch with the people who run the railroad.

After the runaway of 1971, a new railroad rule called for the use of empties for extra brakes on down grade trains. With loaded coal cars being especially troublesome, it was decided that at least 25% of the cars must be empties. There are almost always empty wood chip cars headed back east for loading, but occasionally you will see an odd empty — like an coal hopper — heading east for the requirement.

FINALLY ROLLING DOWN THAT HILL

Once retainers are ALL turned up, brake line pressure is checked (on average 20 to 30 minutes), and the Asheville XO has cleared the train down the mountain, engine brakes are released, the throttle is nudged forward and the train begins its descent. Forward power is needed only briefly and, within seconds, railfans notice the whining dynamic brakes. That sweet sound soon becomes louder and continues all the way down the hill, resounding off the facing mountains. Speed is soon established at 8 MPH and that's where the railroad wants it ALL the way to Melrose (taking at least 22 minutes).

Saluda engines are wired so that a key (much like a coke machine key), properly turned, will keep dynamic brakes on in case of an emergency air brake application. Another Saluda feature is that if half or more of the eastbound train cars are loaded coal hoppers, the speed limit is 6 MPH, taking at least 29 minutes to descend the hill.

The first right curve begins two S-curves. Half a mile further the train passes "Stop Board No. 2" and the east switch. Here the crew radios to confirm that Asheville XO has coded the safety track (activated the timing system). To Melrose the line is single track.

The grade is now near 5% and gently swings left and right. The site of the old Number 1 Safety Track comes into view, but 35 years after its removal it is difficult to make out its old course.

PUTTING A DAMPER ON RUNAWAY TRAINS

Herbert Monroe's story, "Taming Saluda," tells about engineer Pitt Bellew's 1903 bad news, good news adventure. Shouting, "We have no brakes!" just as his train rounded the first curve down the hill, Bellew took flight of his runaway as it hit 60 MPH nearing the big fill and Sand Cut. The train was totaled and Pitt wasn't much better.

Bellew spent most of the summer of 1903 in a hospital where he came up with the "good news" — runaway tracks. These safety routes are switched, ten percent inclines which are the unavoidable routes out-of-control trains are forced to travel. Two more runaways occurred while Bellew was in the hospital, and the two safety tracks were installed before the end of that October. The safety track just before Sand Cut was 1,080 feet long and the Melrose track was 1,580 feet. While runaways continued, death and loss were greatly reduced.

In 1955, the SR was so confident with its diesels and its refined steep hill procedures, that with the ICC's permission it removed the first safety track. Too bad, because both the 1964 and 1971 runaways were out of control before reaching the old safety site and damage might have been minimal, even zero, had the stopping occurred there instead of almost two miles further down the 5% grade at Melrose.

Continuing past the remains of the No. 1 safety track, the line crosses a filled trestle over Pearson's Falls Road to enter Sand Cut.

On both of the above runaways and on most runaways after the turn of the century, the engine crews — and not caboose crews! — chose to jump from their out-of-control trains at this soft, sandy curve. Just about every place else on the hill is either bound by rocky walls or by sheer drops. Train speeds at Sand Cut on the most recent runaways have been a little over 20 MPH, so, the jump usually is not too bad.

Engineers like this area because the slope decreases to 3% giving them a better chance to recharge the brake line if necessary. Soon, dynamic brakes need to be let off a notch or two, from the number eight notch, to lessen lateral side forces on the outside rail as a result of the hard left eleven degree turn. After the long curve, most of which is in the steep sandy ravine, the line gently rolls left and right and soon nears the first of the timing zone warning signs.

**ONE HALF MILE TO
TIMING SECTION**

**800 FT. TO
TIMING SECTION**

**STARTING
TIMING SECTION**

**ENDING
TIMING SECTION**

Engineers see signs at half a mile before, 800 feet before, and finally right at the start of the 800-foot timing zone. For the next 64 seconds the engineer better keep his train at or below 8 MPH — he's got to stay in that zone for 64 seconds or more. If he doesn't, the safety switch at Melrose will not open to the main line and will send the too-fast train straight up the 10% Melrose runaway track. And even if he does it right, if the Asheville XO doesn't code the switch properly and the engineer releases brakes thinking everything is ok, it is unlikely the brakes can be reset in time to stop the train before entering the Melrose safety track.

This segment is the real test of the train's brakes. Not only is the timing zone on this leg, but this stretch is also the steepest of the entire grade with short runs estimated at 5.3% and 5.4%. Consider that if you loose brakes on a five percent grade, a loaded 90-ton train will accelerate to 60 MPH in 60 seconds.

HELLO GREENVILLE, WE DID IT AGAIN!

The road foreman normally swings down from the front steps of the lead engine just after crossing the Pacolet River Bridge. He will inspect the train as it passes by and call Greenville dispatch from the phone shack (or bungalow) to report another train safely down.

If everything went well, the emergency switch opened to guide the train down the main line. Crews used to stop trains over the Pacolet River Bridge to release retainers, but with the bridge showing signs of age, trains are pulled forward (that is, dragged with their brakes applied and diesels in notch 8) on a 1+ $\frac{1}{2}$ % down grade past Melrose into Slaughter Pen Cut (a sharp bend named for a wreck with either prisoners or livestock — there's no one left who remembers). [April 1990 repairs may alleviate that problem and the permanency of those repairs may foretell of a tenth Saluda life. Early 1990 rumors closed the hill and had Saluda trains detoured down the Clinchfield. But with that distinguished CSX RR at times already clogged, a new rumor surfaced for one-way routing down Clinchfield and back up Saluda with empties.]

The tracks at Melrose include a long siding used both for passing trains and as a stage track for the triple. Quite often, work train equipment is parked on the short north siding and there is a crossover 600 feet east of the safety switch for runarounds and drops for the night local. The track configuration at Melrose has changed little since the early 1900's, though the safety track, mired in wrecked coal, gains altitude with every crash.

Once stopped at Melrose, crews walk the train resetting retainers and checking the condition of the hot and smoking brakes. Resetting the retainers takes about 20 to 30 minutes, depending on length of train and number in crew. [I look to modelers to create a trail of very light blue brake smoke near the bottom of the hill and set out an occasional overheated, stressed out car on the work train siding.]

A RACE TO THE SPARTANBURG TURN

Once ready, the freight is off towards Tryon and on to Hayne Yard in Spartanburg. With Highway 176 near the tracks most of the way train chasing is excellent. A hot foot helps (don't speed!) because this line has few curves and, with ribbon rail, trains make excellent time.

At Hayne, the engines uncouple and double over to a westbound line where they pick up a freight all set for Asheville. Not three hours after departing Melrose eastbound, the new train with the same engines is back at Melrose ready to triple the famous hill.

Years ago, especially in the steam era, Saluda used pushers and pullers to help trains over the hill, but even they had to double or triple the grade. From the time the line opened to the top in 1878 and until 1952, there was at least one permanent helper and helper engineer stationed at Melrose. For most trains, the helper pulled, though often, even with passengers, there was a puller and a pusher.

With diesels, however, Southern found it less costly to do away with the helper and let the regular train apportion the load over the hill. It appears one more engine could cut the number of runs up hill, but that would exceed drawbar limits. [Note: With 1200 more horses, three SD-40's make the round trip 40 minutes faster than two SD-60's.]

Depending on train length and weight, number and types of engines, and occasionally the weather, dragging a train over Saluda could be a double or even a quadruple. I've heard it happens, but I've never seen a single except the local or a work train. By far, most runs are triples, so, here's how a triple runs from Melrose.

A RAILFAN'S DELIGHT — THE TRIPLE

After a brief stop near the safety switch to make his first cut (about one-third of the way back into the train), the engineer is ready to begin the first of three runs up Saluda. Easing up to full power, the train is off and smoking up the hill. Rather than waiting two thousand feet or so from the caboose for the engines to make their half hour trip back and forth over the mountain, the crewmember who cuts the cars usually hops on the last car for a ride to Saluda. [The video caused a stir with this.] Typically, he jumps off at mid-town and makes a grub run for the crew to The Grill in Thompson's Store.

Accurately divided cuts begrudgingly zip up hill at about 18 MPH (20 MPH limit). This first cut takes the south line at east switch.

If a train stalls on the hill (probably at Sand Cut), hand brakes must be applied to the aft half of the train so the hill can be doubled from that spot. If the direction must be reversed, all standard,

eastbound, downhill speeds and procedures apply. [As noted in the video, at least one stalled train ran away backward, brakes on, engine wheels spinning forward or locked, sliding all the way down the hill and safely into the Melrose safety track. The third runaway of 1903 was like this, too, only it proceeded east past Slaughter Pen Cut, highballing through Tryon and narrowly missing a quickly side tracked passenger train, screaming its whistle all the way before seesawing to a stop in a Landrum valley - an 8-mile backward runaway!]

LISTENING FOR GROANING ENGINES

Railfans in Saluda are often caught by surprise when a westbound comes into range because the mountain trees dampen the roar of the engines and there are no hill crossings for which to blow. A well tuned railroad ear in Saluda can recognize a groaning diesel somewhere between the east switch and the last incline before downtown. Not to worry, because train chasing is a breeze from Melrose to west switch.

Westbounds do not stop in Saluda (though they go slow enough for the last car crewmember to jump off) as they head for Pace's Crossing and the south track at the west switch area. Leaving enough room for the engines to clear, the cars are cut loose, the engines pull out over the west switch, and the crew waits for the Asheville XO to order the switch back to the main line. [Railfans: Turn your cars around!]

As soon as the switch is aligned, the engines are off and running back to the top of the hill. Like every eastbound (except the UCT) the light engines stop for a quick brake check at the crest, and, of course, to pick up their man with his bag of crew chow. In no time, the engines are whining their way back down the hill at 15 MPH, the light engine speed - in no case faster than 12 minutes down the hill.

At Melrose, the engineer connects to and pulls the remaining train forward and then stops to cut off the last third of the train. The second leg then proceeds just like the first leg except at east switch this train stays on the north track and at the west end it runs past the switch. Again, waiting for the Asheville XO, the crew backs into the west switch siding, into the front of the first leg cars, and backs two-thirds of the original train fully in the siding.

PUT IT BACK TOGETHER FOR ASHEVILLE

The engines pull out and hustle back to Melrose as before (possibly without more crew food). Back at the bottom of the hill, the engines couple on to the remaining cars and caboose and drag them over the mountain. At east switch, this train also stays on the north line, but it stops just before the west switch. The engines cut loose and juke over to couple to the beginning of the train. The first two thirds pulls out (albeit, with the second third first and the first third second) and backs to connect with the last third of the train.

When everything is coupled and all train lines are checked, the triple is complete and the whole train heads towards sawmill curve, once again on its way west to Asheville.

Let's go back (page 3) and pick up the eastbound unit coal train waiting at Pace's Crossing. Not only has it stopped to board a road foreman for the trip down the other side, but also the brakemen jump off here to set up retainers to the HP position on only the first 30 cars (to help absorb the force of car loads coming over the hill). The brakes on the other 66 cars remain in the slow-direct position - brakes automatically stay on for over a minute after application (giving the engineer time to recharge the brake line). These UCT's use silver, high side gondolas and the train of 96 cars is split by two or three mid-train, radio controlled helpers (and their radio car which handles all the signals and MU's with the helpers).

The train waits a few feet west of Pace's Crossing for clearance. Just as far to the east is a crossover heading east from the south track over to the north mainline. This crossover is used to keep long strings of westbound cars (probably empties) from blocking Pace's Crossing. Moody's Crossing (2,000 feet east) has strict timetable rules to protect the road from being unnecessarily blocked by trains.

Soon the UCT begins its eastbound ascent to the top. I was surprised at the rapid acceleration [Very easy to model!] of this heavily loaded train, but Melvin Warren, Piedmont Division Road Foreman of Engines, explained the modern technical engine features that make it possible with the hi adhesion engines. In no time, the 13,000 tons of coal are whisked east upgrade at 25 MPH.

It is not unusual for the eastbound loaded UCT to meet its empty counterpart waiting on the south siding in Saluda. At times, the empties get in town as much as an hour before the loads, but with the Highway 176 bridge just one block from the crossing, city traffic is not backed up even though Greenville Street is blocked.

CRUMPLED TRAIN . . . HEARTBEAT AWAY

Not stopping in Saluda, the heavy UCT cruises through town at about 15 MPH and cuts back on the power so that the caboose will cross Greenville Street at 8 MPH. Simple as this may sound, a crumpled train is always a heartbeat away as the cars crest the grade — especially with the UCT's mid-train helpers pushing and pulling for all they are worth. The railroad considers that not stopping the UCT at the crest is safer than stopping because of the problems of starting a pusher train on a steep grade with a curve at the top.

On average, there is a 300,000 pound force on couplers cresting Saluda grade. This demands careful handling and fingertip control.

If the lead engines go into full dynamic brake too soon and if the slave engines continue pushing at full power, the curving crest in Saluda might be the final straw in a compacting action that could quickly turn the top-of-the-hill train into an accordion-like array of cars strewn around town. For many long time Saludians, it wouldn't be the first time.



JIM WRINN

UCT SD's follow their radio car down Saluda.

And if just the opposite action occurs — head end continues pulling hard down the steep hill and slaves begin backing off too early — you can expect to hear a coupler or drawbar break and put the train in two. I recently saw a broken knuckle on the ground near the crest and I wondered if it was a result of a faulty coupler, a handling error, or just life on the mountain.

620 MILES EVERY 40 HOURS

The downhill grind is practically the same as with the earlier freight, except that these spiffy gondola type coal cars are equipped with the latest Cobra Composition brakes for a considerable improvement in braking. At Melrose, the smoking UCT is dragged all the way off the Pacolet Bridge to the Fall Creek Trestle at Slaughter Pen Cut. Since only 30 brakes have been engaged by retainers, release to the slow, direct release position is quick and the trip continues.

This unit coal train is called the Belmont because it services the Belmont coal-fired electric generation facility just west of Charlotte, NC. The loads come from a mine at Andover, VA, in Appalachia, and complete the 620-mile round trip in just 40 hours.

Belmont Electric is also served by CSX, on an all or nothing basis. When CSX has the contract, Saluda sees no UCT's. The contract changes hands every so often, and, when active, Saluda sees a full UCT about every other day. CSX loads come down the Clinchfield.

If all goes well for an empty westbound UCT, it will make the return Spartanburg-Asheville run without stopping. It arrives at Melrose slowed to 20 MPH and continues right up the hill to Saluda. [From the Not-Worth-An-Attorney file: Under our watchful video eyes, Saluda police clocked a UCT cresting the grade in downtown Saluda at 23 MPH.] Passing through town at a brisk rate, the UCT continues down towards Pace's Crossing and on to Asheville.

SINGLES DO THE TRIPLE, TOO

One unique situation that may become a thing of the past with modern powered UCT's, is the occasional running of a single-engine westbound freight. Towards the end of the video you see one engine running light (eastbound near the old depot) and the same engine at Melrose just before Henry Taylor says, "... engineers are artists." This train originated in Spartanburg, but the power was off a UCT.

As engines continually improve, fewer of them are needed per ton. Thus, the 12 F-units needed to drag a UCT in the early 60's have been reduced today to five units of the six-axle hi adhesion SD-60/C39-8 ilk. Occasionally, once they get to Spartanburg one unit drops off at Hayne (only two headend units are needed for the leg to Belmont and then back to Asheville). It is this single unit that picks up its own freight bound for Asheville. Single-engine or not, this solo thoroughbred will do the triple at Melrose, if his load requires.

CATCHING UP WITH AN A&S LOCAL

Local trains provide considerable modeling interest as they help define the on-line services with their cars and cargoes. A morning local runs out of Asheville, hip-hopping to Pisgah Forest and back. In the evening another local leaves Asheville for Hendersonville and Flat Rock. About two times a week that local will continue over Saluda to switch everything through Campobello and Inman. A track upgrade for higher speed in the middle 80's cut locals from four to two daily.

Frequent work trains are apt to be lugging a half-dozen side-dump ballast cars or a brace of spider-like track repair units. You may see Sperry's inspection, induction-ultrasonic car looking for rail defects or even a stone studded rail grinder doing its stuff (though not on the hill itself). Recent repair of the Pacolet River Bridge and track maintenance in Slaughter Pen Cut have kept the work trains busy.

On April 18, 1990, a westbound headed by two SD-60's rammed a tractor trailer loaded with sulfur at Campobello. Fortunately, there were no injuries and damage was light (to the train anyway ... parts of the town were evacuated as the trailer burned). Wreck trains from both Hayne and Asheville were ready, if needed.

Among recent unique movements was an NS inspection train September 13, 1989. Running as the last of seven very shiny cars, the top executives faced aft, looking where they'd been through a rear window.

Except for light movements, rare company inspection trains, work trains, and local freights, you can expect Saluda rail activities to be regular freights or unit coal trains. But keep in mind, whatever train you try to take up and down that hill, just like the real thing, your model of America's Steepest Class-1 Grade will require you to be the boss ... you can't afford to let that hill boss you around!

A TRIVIAL PURSUIT OF STEEP HILLS — SALUDA'S PURE CLAIMS TO MERE FAME

Given 100 more pages, I could write 100 more Saluda train stories. Each of the following items has its own terrific tale, but we'll settle for just the highlights.

FIRST TRAIN UP THE MOUNTAIN — July 4, 1878, westbound, 10:30 AM.

FIRST DIESEL ON SALUDA — May 25, 1949, with a 4-unit F7 combo. (My thanks to Frank Clodfelter, Trains, November 1984, Kalmbach Publications, for some of this info.)

LAST STEAM ON THE HILL — Southern's 2-8-2, #4501 ... TWICE! 1972 with 4 cars. 1985 pulling 3 empty pulp wood cars and pushing 2 SD's (why?). 1952 for last steam helper.

MOST RUNWAYS IN ONE SUMMER — 3 in 1903; one seesawed itself to still east of Tryon.

FEWEST CRASHES FOR 18 OR MORE YEARS — Nothing serious since 1971.

LAST DEATH ON THE GRADE — 1940 ... and never a passenger death!

FIRST DIESEL AND LAST F-UNIT TRAIN TO RUNAWAY ON SALUDA — September 20, 1964. Engineer Leonard Biddix tells about his runaway on the Saluda video. He also once had a runaway, three-engine, mid-train helper (in the video, too).

LAST RUNAWAY (THAT CRASHED) — November 14, 1971. Engineer J. T. Stanberry: "Southern said, 'The computer says the train can make it down the hill.' And it was right!"

'T WAS A VERY GOOD YEAR

1927 IS KNOWN FOR — 30 freights and 8 passenger trains traversed Saluda in one 24-hour period; air brakes were deemed reliable enough that the extra crew of brakemen that tended every train was eliminated; and the Brotherhood of Railway Clerks of Southern Railway opened their Mountain Home, which is now the Orchard Inn bed and breakfast just east of Saluda.

IDEA FOR SAFETY TRACKS — 1903. Engineer Pitt Bellow, recovering from his own runaway wreck injuries, suggested inescapable safety tracks. The facts: Installation completed October 1903. No. 1: 1080 feet, 4.3 to 9.87%. No. 2: 1580 feet, 5.47 to 10.27%.

FIRST PASSENGER RUNAWAY — October 1904, smashing hard into the timber barrier at the high end of the Melrose safety track. There were no injuries, but one heavily damaged engine. A year earlier the train would have crashed in Slaughter Pen Cut, likely with deaths. Thanks Pitt ... great idea!

LONGEST HILL CLOSURE — July 14 to August 3, 1916, due to torrential rains which caused wide spread damage all around Western North Carolina including, the complete washout of the cinder fill west of Sand Cut.

MOST TIME WHOLE TRAIN SPENT ON SAFETY TRACK NO. 1 -- 13 days ... after engineer took the No. 1 safety when he found that the above cinder fill was washed away. The undamaged train was removed on July 28, 1916, after repair of the uphill tracks.

SAFETY TRACK NO. 1 REMOVED — 1955 after IOC approval (based on an improving safety record and better train control by diesels). 35 years later, site is hard to locate.

NUMBER OF RUNAWAYS SINCE NO. 1 WAS REMOVED — 2. Both the 1964 and 1971 runaways were out of control well before passing the site of the removed safety track.

SAFETY TRACK NO. 2 LAST USED — January 4, 1985, when three of four SD's crept past the switch, unable to stop their heavy coal train when the switch did not align to the main line (see Saluda video and July 1985 Railfan & Railroad, Carstens Publications).

INTERESTING FAMILY TRAIN STORY — Mona Patterson's father used to be the head helper driver at Melrose. She told me that after school she'd hang on to the side of a box car for the ride down and then sit atop the coal in her daddy's tender for the ride back up. She was 8 years old back then and 74 in November 1989, when we talked.

LAST REGULAR PASSENGER SERVICE TO SALUDA — December 5, 1968, when fabled engineer Frank Clodfelter drove the Carolina Special for the last times down and up the Saluda grade with Train #28 to Hayne and Train #27 back to Asheville. Frank was driving F-3's on that last day — #4144 eastbound and #4138 westbound — draped in SR President Brosnan's funeral black and white colors. The swan song consist was an F-3, baggage car, passenger car and another unneeded passenger car, all to carry one real passenger and several railfans. [Would that exact consist sell out today? In a heartbeat!]

PET NAME OF THE CAROLINA SPECIAL — the Carolina Creeper.

LAST PASSENGER TRAIN OVER SALUDA — September 13, 1989 — 7-car Norfolk Southern, Asheville to Charleston, executive inspection train ... idea, planning, video crew transportation and music by Bill Rice ... video available from American AltaVista.

MOST PASSENGERS TO WALK DOWN THE STEEP HILL — 300 passengers departed safety track No. 1 the morning of July 16, 1916, slid and slopped down a steep muddy hill, and made their way to Melrose one day after the worst flood in Saluda area history.

INTERESTING PASSENGER FACT — Bill Schafer of the Southern Railway Historical Assoc., says, Saluda grade is so steep that on even short passenger trains, say three cars, the rearward passengers are sitting higher than the nose of the lead engine.

EARLY COMMUTER — Present city utility commissioner John Rhodes used to commute to work in Saluda by "boarding" slow uphill freight trains just below east switch.

INTERESTING MELROSE FACT — Though there is no trace of it now, the Melrose Go-Cart Track used to operate next to and just south of the remaining safety track.

SALUDA GRADE FISCAL THEORY — Bob Loehne's and Sadie S. Patton's (Hendersonville Historian) theories are that the hill is so steep because it was far cheaper that way. Sadie says in a December 11, 1949, clipping in the Asheville Citizen Times that a course was plotted which required heavy grading and cutting plus several tunnels. It would have taken 13 miles to go 3 crow's miles (same as between Old Fort and Black Mountain) and cost much more. Easy grade idea nixed ... railroad legend born.

SALUDA MOUNTAIN FACT — There is no such mountain! There is a Saluda city in both NC and SC, a Saluda Gap, a Saluda Street in Columbia, SC, and a Saluda Cocktail.

WHAT SOME SALUDA RESIDENTS THINK — That the grade is steepest grade only east of the Mississippi or Rockies ... probably once was a number one steep hill out west.

SLIGHTLY INTERESTING SAND CUT FACT — The well known mid-hill observation point used to be called Big Cut because it was a cut into sand in excess of 70 feet high and 16 feet wide at the base. April 1990 update: This cut could become just a half-cut soon. NS has been plowing off the south side to reinforce the earth fill on the next curve east. Maybe now we will call it something dramatic like Big Open or Sand Curve.

BEST PLACE TO JUMP OFF A RUNAWAY TRAIN — Just ask engineers Biddix and Stanberry. As with almost every runaway since the turn of the century, when the railroad stopped berating crew members for jumping from runaways, Sand Cut has been the place to land.

THEY RUNAWAY BACKWARDS, TOO — If you stall on the hill, just double over ... or slide, backward down grade into the safety track ... like an ammunition train did once.

GREAT MODELING IDEA — If you are a serious modeler and want to build yourself a decent replica of Sand Cut, why not put your cat's litter box beside your layout and next time your limited loses its brakes and heads for the Melrose safety track, make like an engineer who follows railroad orders and, joining the birds, jump in the box.

STEAM HELP — 2-10-2's were the mainstay and the class of Saluda's helper engines, serving the hill from 1917 to 1952. These Santa Fe types were special because:
1) They had water pipes running horizontally over the driving wheels to sprinkle water on tires while braking downhill to keep tires from over heating and falling off;
2) They had second air pumps because of the excessive air brake demand; and
3) Both water glasses were extra long for safe reading on Saluda's steep grade.

STEAM MAGIC — Because the Santa Fe's were so heavy they were not allowed to operate between Hayne and Asheville, except at Saluda grade, until bridges were strengthened in the 1930's. How then did they ever get to Saluda in 1917? Assemble them there?

HOW STEEP IS THAT MOUNTAIN?

A SURVEY SURE TO SETTLE THE 112-YEAR OLD QUESTION.

MELVIN WARREN, NS General Roadforeman of Engines, Piedmont Division — He says perhaps as steep as 5.3% and 5.4% near timing zone; Sand Cut is most shallow at 3%. Hill probably averages 4.5 to 4.7%.

JOHN GILBERT, Crossties Over Saluda -- 5.03% at steepest point (reference an ICC 1940 investigative report), but in an 1982 update he quotes Association of American Railroads at 4.7% for maximum grade.

ASHEVILLE CITIZEN, April 20, 1928 — article by W. B. Heriot, "SALUDA GRADE IS REAL FEAT OF ENGINEERING." Heriot: Ascent is 885 feet in 3 miles. [That's 5.59%! Gees Louise, that hill really is steep!]

SPARTANBURG HERALD, July 30, 1933 — Harry Thomson, a prominent Spartanburg citizen in his day, showed a newspaper clipping supposedly from an older Spartanburg paper stating facts exactly the same as listed in the Asheville paper above. Neither paper had a fact source.

WASHINGTON POST, Don Phillips feature — 4.7% without reference

RAILROAD magazine, circa 1948, Taming Saluda, by Herbert G. Monroe, former trainman Southern Railway — 4.7% without reference.

SOUTHERN RAILWAY SYSTEM — STEAM LOCOMOTIVES AND BOATS, 1970 edition, Richard E. Prince. The grade varies between 4.09% and 4.70% climbing 605 feet in 2.7 miles [4.24%]. He says the Melrose elevation is 1,494 feet and Saluda is at 2,099 feet.

TRAINS, November 1984, by Frank Clodfelter. Referencing I. R. Mauney, Frank says the grade is 4.7% with a short run at 5.1% just up the hill from Melrose (ie, near timing zone).

ASHEVILLE CITIZEN HERALD, in article by Sadie S. Patton, December 11, 1949 — "...220 feet per mile..." equals 4.2%; also refers to climb of 600 feet in 3 miles.

RAILFAN & RAILROAD, July 1985, photo story by R.A.Oom about January train forced onto #2 safety track — 4.7% twice without reference.

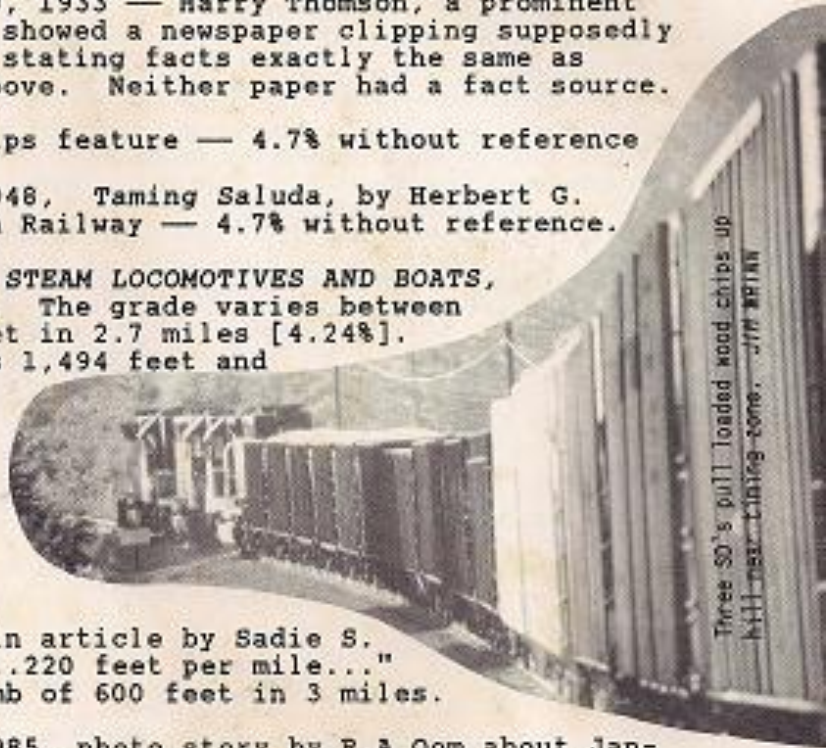
The NORFOLK SOUTHERN, in its video about taking a unit coal train down Saluda (Mountain of Challenge), says over 5% in certain sections and steepest at 5.4%. Sketchy company profile charts show just 4.4%.

BOB LOEHNE, circa 1990, Railmodeler's Guide to Saluda Mountain: By timetable the distance from Melrose to the crest is 2.7 miles, but Bob says actual grade covers only 2.5 miles. While the initial fall off from the crest is rapid, it is more than 1/10 mile before the grade reaches 4%. Likewise, the westbound tracks leave Melrose, cross the Pacolet River Bridge at about 1.5%, and don't reach 4% until more than 1/10 mile west of Melrose. For Loehne's money, the real meat and potatoes of the grade is 2.5 miles and Prince's altitudes are correct.

Based on given figures (* below), if the grade is 2.5 miles, then:

Source	Vertical Feet	Grade %
1928 and 1933 news clippings above:	885 feet*	6.70%
Clodfelter, Mauney, Phillips, R&R, Monroe:	620 feet	4.70%*
Richard Prince, book above:	605 feet*	4.58%
Sadie Patton, article above:	600 feet*	4.55%
Southern Railway/Norfolk Southern Profile:	580 feet	4.40%*

YOU BE THE JUDGE! HOW STEEP IS THE FAMOUS SALUDA GRADE?



Three SO's pull loaded wood chips up hill near timing zone. JFF WPIAN