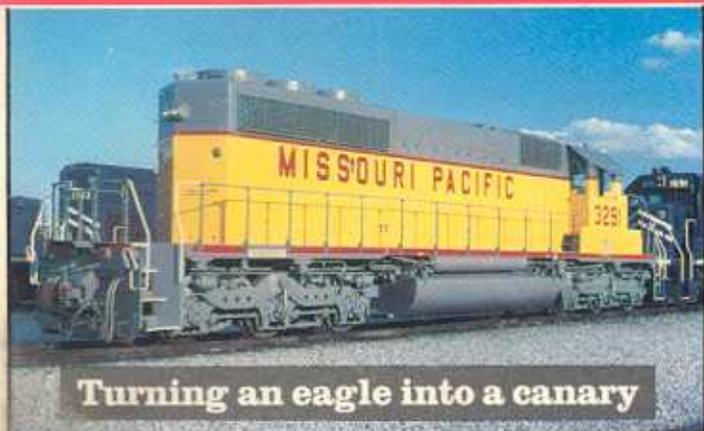


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Trains

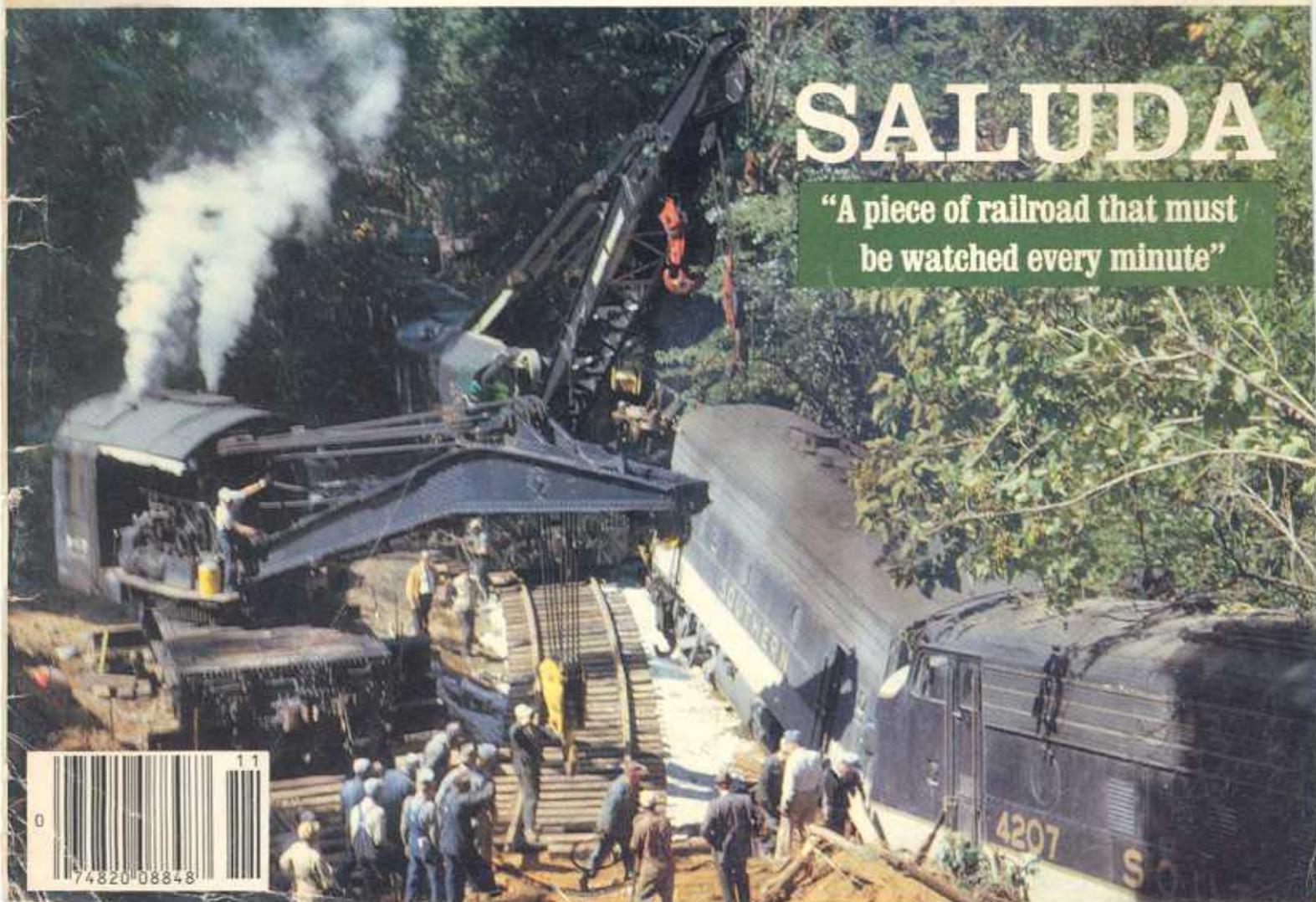
THE MAGAZINE OF RAILROADING



Turning an eagle into a canary



Brewster-built
switcher
spree



SALUDA

"A piece of railroad that must
be watched every minute"



74820-08848

SALUDA is either straight up in Run 8, or straight down, cycling the air, maximum use of dynamic brake, do not exceed 8 mph. Train 172 levels out over Pacolet River dip (right); train 269 (lower left) starts upgrade out of Melrose; and, as seen from the power of 171 in the hole at Melrose (lower right), train 172 descends, wreathed in brake-shoe smoke.

S A L U D A

Where you either run the train or the train runs you!

FRANK CLODFELTER

1 THE nation's steepest standard-gauge mainline railroad, over Saluda Mountain, is a part of Southern Railway's Carolina Division, with headquarters in my hometown of Asheville, N.C. This division, extending from Charleston, S.C., to Asheville, ranges in terrain from the waters of the Atlantic to the highest mountains in eastern America. Asheville sits in a bowl surrounded by the Appalachian chain of mountains; a few miles west of the city lies the Great Smoky Mountains National Park, the most visited national park in the United States. This western North Carolina region has 223 peaks over 5000 feet in elevation and 49 above 6000 feet. Nearby Mount Mitchell, 6684 feet, is the tallest mountain in the eastern U.S.

Railroading for locomotive engineers in such a setting presents many problems foreign to other divisions, *i.e.*, inordinate slack action; the balancing of a train over Saluda Hill; and proper use of dynamic brakes in conjunction with the automatic air brake to prevent a train's stalling or running away down the excessive grades.

Asheville is served by only one railroad, with four outlets, and, with respect to grade, it has no counterpart on any standard-gauge main line within the nation. These four prongs leading to and out of the city are:

1. Asheville-Spartanburg, S.C. The timetable lists the distance as 67.4 miles to the freight yard at Hayne, S.C., adjacent to Spartanburg on SR's Washington-New Orleans main line. The most notable feature of this outlet is Saluda, located 32.3 railroad miles east of Asheville. Publications for years have described Saluda Mountain with a maximum grade of 4.7 per cent, although the grade actually reaches 5.1 per cent on 100 feet of the mountain.

2. Asheville-Salisbury, N.C. This run is 141 miles east to the abandoned Salisbury station and 8.8 additional miles north to the new Spencer Yard on SR's Washington-New Orleans main. The maximum grade is 2.2 per cent over the Blue Ridge Mountains between Old Fort and Ridgecrest. The 12-mile stretch from Milepost 111 east of Old Fort station to the eastern Continental Divide at Ridgecrest's Milepost 123 is generally regarded as the most scenic of Asheville's four rail outlets. The track curls over itself to gain elevation, pass through seven tunnels, cross Mill Creek 11 times, and round a vast horseshoe curve overlooking An-

draws Geyser against a background of Pisgah National Forest.

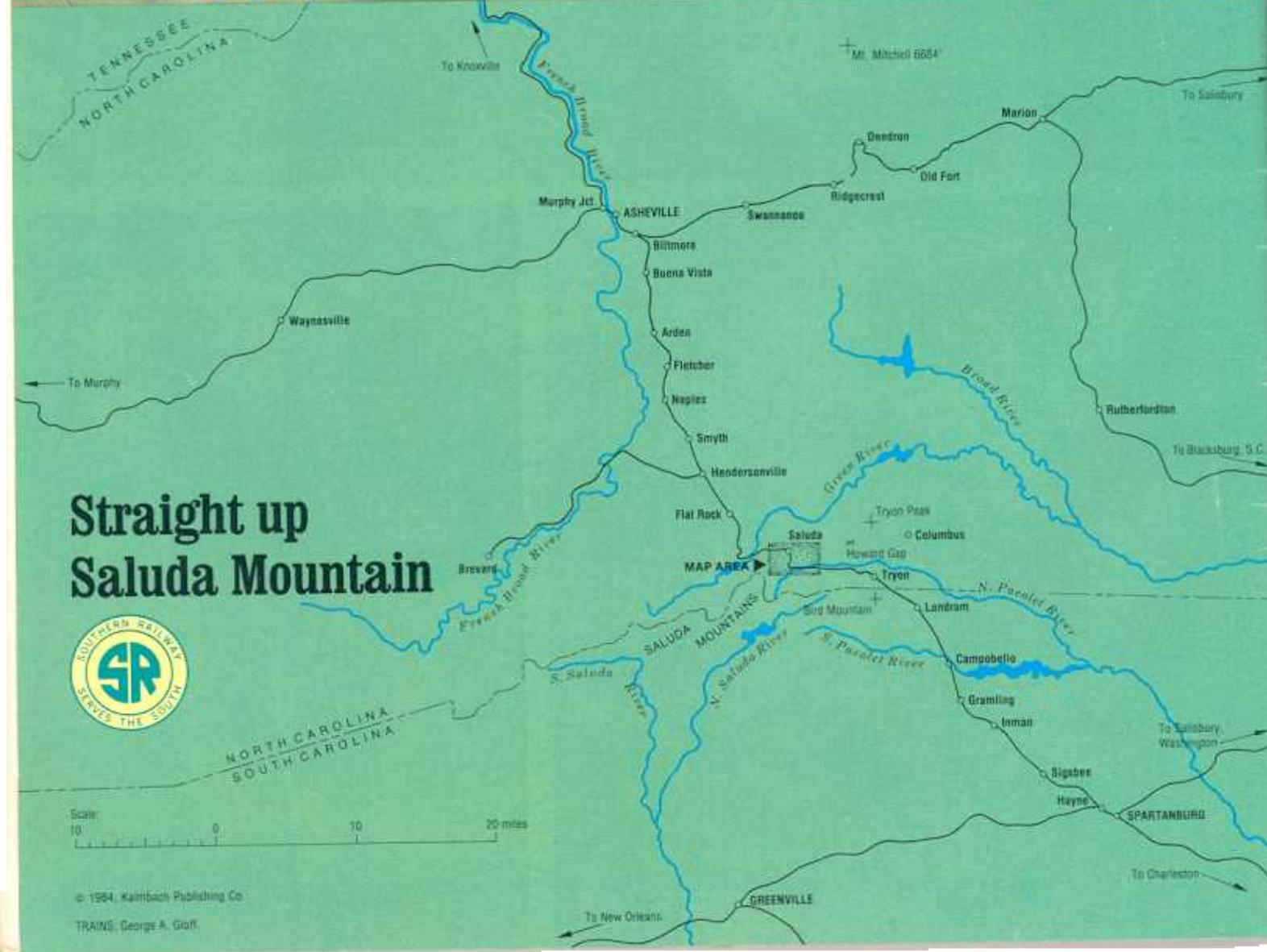
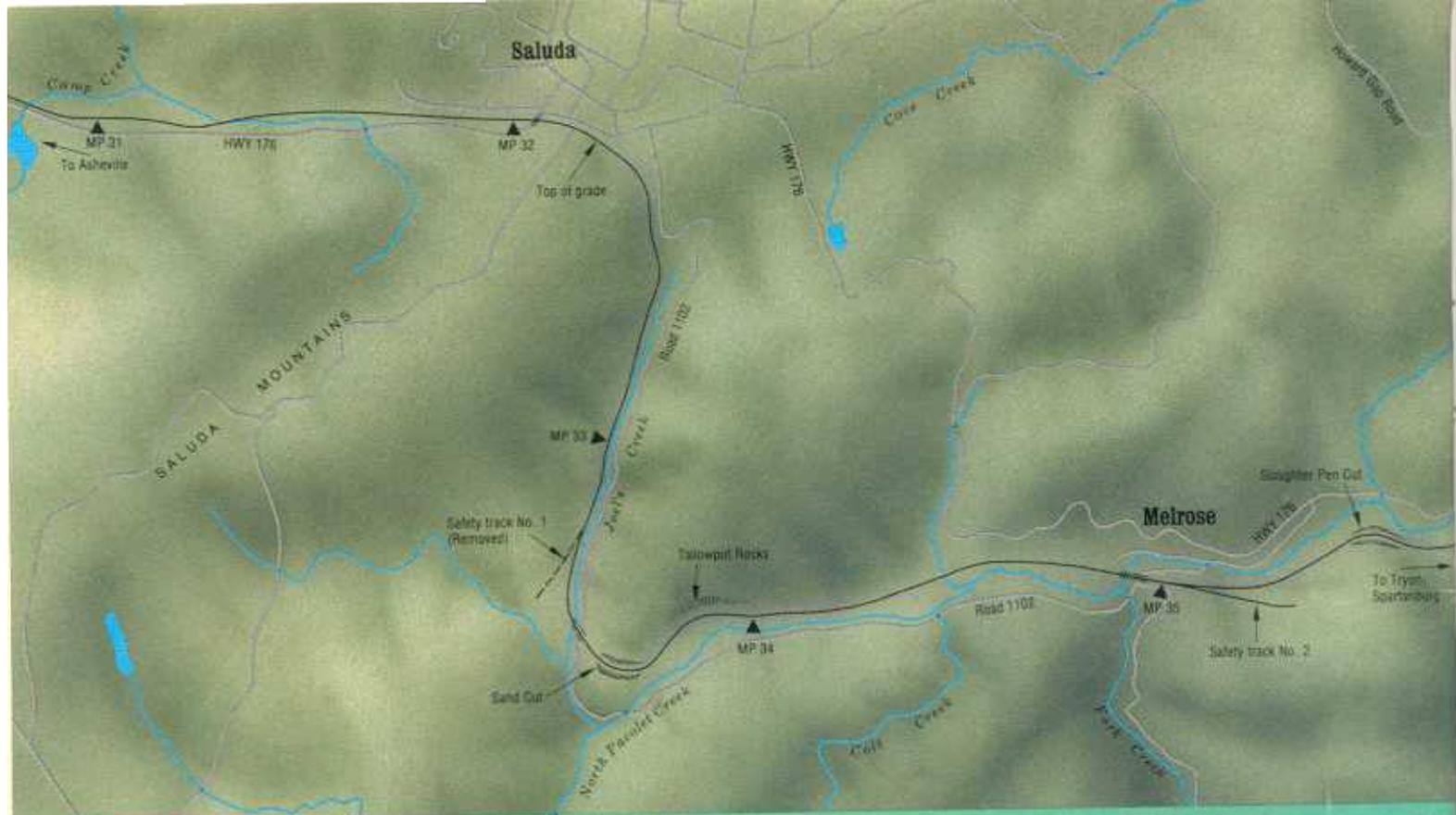
3. Asheville-Murphy, N.C. Balsam Mountain, with a 4.3 per cent grade, and Red Marble Mountain, with its 4.2 per cent grade up the Nantahala Gorge [Nan-tuh-HAY-luh], are close rivals of Saluda Mountain. The Murphy Branch is a dark (non-signaled) territory which we railroaders term the wagon-wheel line of the Carolina Division. In a race with the Louisville & Nashville to reach Murphy, the railroad was hastily constructed along ancient Indian trails or cow paths. During steam days, only small engines such as Consolidations were used because of restricted bridges, curvature, and light rails. We who had hand-fired doubleheaded 2-8-0's to the tune of 18 to 20 tons per day on a bouncing deck between Asheville and Murphy nicknamed them the "Blue Goose." The senior fireman scientifically selected the first or second engine for whichever one held the engineer most adept at "hooking up" his engine. A good engineer favored our arms and backs, as we were the prime movers.

4. Asheville-Knoxville, Tenn. This is the water-level route along the French Broad River and the gateway to points west such as Cincinnati and Chicago.

President and Chief Operating Officer H. H. Hall of Norfolk Southern, of which Southern Railway is a subsidiary, wrote to me on December 1, 1982, about Saluda: "I have many, many impressions of Saluda Mountain both during the time I was a train dispatcher in Asheville and also when I returned later as division superintendent . . . It is undoubtedly the most dangerous and critical stretch of mainline railroad anywhere in the country, and the unusual events that have occurred on the mountain would fill a rather large book. Fortunately, modern equipment such as pressure maintaining features of locomotives as well as more sophisticated brake equipment have reduced the danger to some extent, but as you know it is still a piece of railroad that must be watched every minute. I am sure there are many records of runaways on the mountain in years gone by—quite a few in my time. Probably you recall one when an ammunition train almost reached the top of Saluda Mountain and ran away backwards. As I recall there was only one individual who remained with the train and that was the engineer of the helper. I am not absolutely

PHOTOS / THE AUTHOR

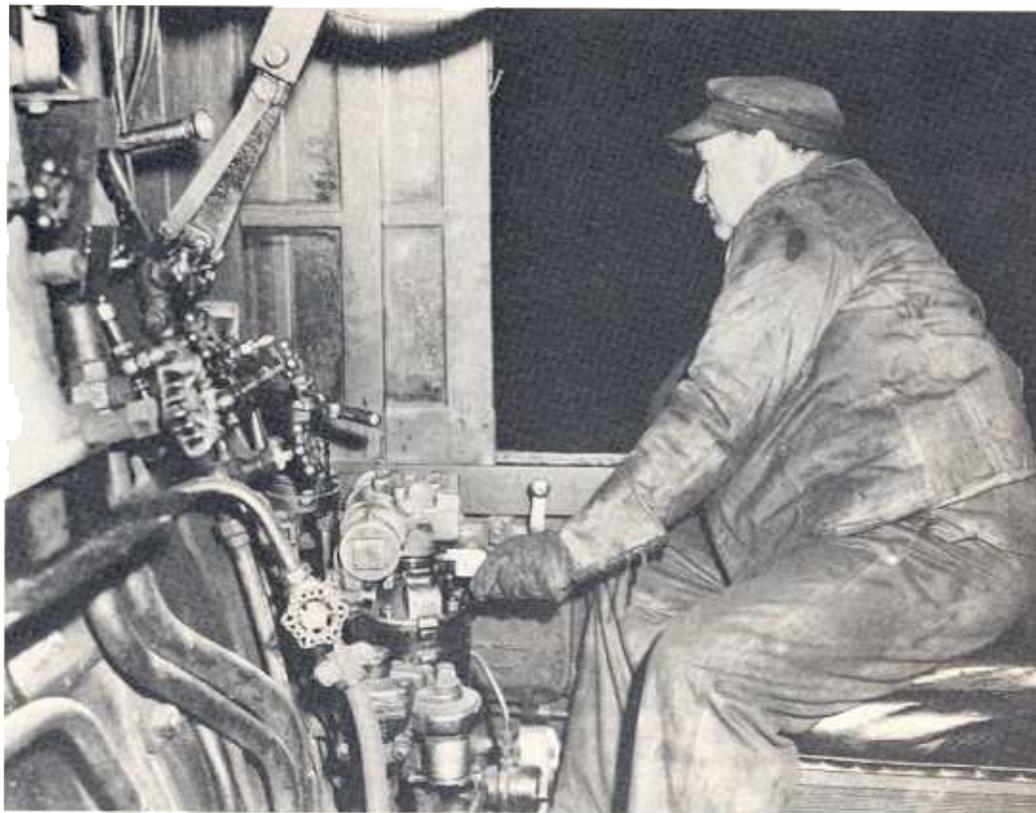




Straight up Saluda Mountain



JOHN WESLEY GIBBS, "The Flying Parson," gentles the automatic descending Saluda. One of the fastest runners on the Asheville Division, the Parson liked to tell of a fireman who threw down his scoop while their Mike was highballing near Campobello, N.C., and shouted to him, "Slow her down or we'll both get killed!" The Parson explained that he was a Russelite and he would go directly to heaven if he was killed. The fireman replied, "Slow her down for my sake—I'm not sure where I'm going!"



sure, but I believe his name was Avery Morgan . . . He stayed with the train and did what little he could to retard the speed of the train and in any event undoubtedly kept it from going over the end of the runway track. In my book that's a real hero."

Straight up

MANY people wonder why a railroad as steep as 5.1 per cent was built up Saluda Mountain when a grade over 2 per cent is considered steep and expensive to operate. You will discover the best answer if you drive through the rolling hill country around Landrum, S.C., and look west at the wall of mountains that rise abruptly in the Tryon-Saluda, N.C., area. You will notice that the vertical range of the Blue Ridge Mountains is devoid of the usual foothills or cross crenelations. From Melrose to Saluda there is no way to gain elevation by winding around foothills or having the rails wind over themselves as Major Wilson managed at High Fill above Dendron, N.C., in building the SR predecessor Western North Carolina Railroad between Old Fort and Ridgecrest.

This was the problem confronting Capt. Charles W. Pearson, late of the Confederate Army, when he assumed the task of building a railroad from Tryon to Asheville in 1877 for the Spartanburg & Asheville Railroad (later renamed the Asheville & Spartanburg).

The original survey of the first railroad to crest the Blue Ridge Mountains from the south ran by Columbus, N.C., and along Tryon Mountain, cresting at Howard's Gap (opposite Saluda Gap). Col. Thad S. Coleman was chief engineer in charge of relocating the route of the railroad from Spartanburg to Asheville, with Captain Pearson as assistant engineer.

Coleman and Pearson abandoned the original survey because of the estimated costs of building tunnels and about 13 extra miles of track. However, the chief factor in seeking another route was the unstable condition of the mountain, which was continually slipping. (In recent years, it required

several years and millions of dollars for the builders of Interstate Highway 26 to cope with this unstable condition.)

Captain Pearson was appointed resident engineer for the Spartanburg & Asheville when actual construction was started in 1877. He had no choice except to build the railroad straight up Saluda Mountain.

Loss of life and property on Saluda was the most serious problem that faced the Southern Railway when it was organized on July 1, 1894. This grim mountain began to take its toll soon after the first train negotiated the grade on July 4, 1878. In 1880, 14 men were killed on Saluda; in 1886, a runaway work train killed 6 convicts, 2 guards, and a foreman; in 1890, 3 men lost their lives; and in 1893, 3 men were killed and another lost a leg. This last wreck, which occurred at the first steep curve east of Melrose, was a conglomerate mass of coal, steel, timber, and a carload of cattle, and the curve has since been known as "Slaughter Pen Cut."

In view of this record, Southern made a survey to determine if another route avoiding Saluda Mountain was feasible. The survey proved that Captain Pearson was correct: he had no way to build a railroad except straight up.

The runaways of 1903

THE Southern Railway, discouraged by the loss of life and equipment on Saluda, was frantically searching for a solution to the problem when three more runaways occurred in 1903.

W. P. "Pitt" Ballew was involved in the first. A veteran of the hill, he had begun his career as a locomotive engineer on September 14, 1899. Pitt may have been a pint-sized engineer fighting a big mountain, but what he lacked in size he made up in steel determination to somehow conquer his favorite run out of Asheville. He became a legend in his own time, and to his contemporaries he was downright colorful. He wore a black Dunlap hat with the fine polished look of an aristocrat.

Ballew, who died in 1940, explained his runaway trip: "I'm not superstitious, but it sure pays to keep a wary eye



Kalmbach Books: Mike Schafer.

Frank Clodfelter, 1911-1984

WILLIAM FRANKLIN CLODFELTER loved cameras and locomotives. Born in Asheville, N.C., he inherited railroading from his father, General Foreman of Car Repairs, Asheville Division, who gave him his first railroad job: cleaning coaches for \$2.32 a day in 1931. Frank honed his lens ability to become chief photographer of the Asheville *Citizen-Times*, then returned to the railroad—"there would never be but one job for me!" Before he retired, Frank ran Asheville-Salisbury trains 4 and 3. At Frank's request, SR President Graham Claytor posted E8's 6906/6903 to their last run August 8, 1975, terminating a Carolina Division passenger service begun October 2,



1880. But Frank was more than a locomotive man who photographed engines in 48 states and coast to coast in Canada—yes, and commissioned 20 paintings for his book *Fogg and Steam* (Pruett, 1982). He was sensitive concerning geography, literature, animals, people, and history. And he was tough enough to hand-fire 2-8-0's on the Murphy Branch (and K4's on the Pennsy for a spell), tough enough to postpone the deadline of a terminal illness to finish this story on Saluda.—D.P.M.

on number 13. We left Asheville with engine No. 440 on July 13, 1903, and we had 13 cars of Interstate coal next to the engine, two merchandise cars, and a car of eggs next to the hack. When we started down the mountain, I made an application with the automatic brake, and to my surprise I heard only a faint hiss of the brakes instead of a sharp exhaust to indicate that the brakes were being applied to all the cars. I blew brakes to warn the trainmen who were riding the tops of the cars to tie up hand brakes. Fireman Bob Daugherty and Brakeman Jim Halliburton swung off the train when I shouted that we had no air and the train was running away."

Conductor R. C. Ervin caught the caboose east of the station, and when he felt the momentum of the train and noticed the air gauge on the peg, he realized the train was gone. Standing on the front of the hack, he noticed Flagman Roscoe Garrison (who later resigned and hired on the Central of Georgia) running over the bouncing cars toward the rear of the train. The moment Roscoe's feet touched the cab floor, Ervin raised the pin and cut the caboose loose from the train.

The last man to leave the train was Engineer Ballew. Preoccupied with trying to save his train by reversing the engine, applying sand, and attempting every trick of the trade, Pitt realized too late that all hope was gone. The short, heavy coal train was going too fast for a man to swing off running and hold his balance. To stay aboard meant certain death. Pitt hurriedly climbed down to the last step of the engine and hurled himself down a cinder-covered embankment. Moments later the train turned over below where the first safety track on the mountain was later installed. Engine 440 landed on its side surrounded with a pyramid of coal—a temporary monument to Pitt Ballew's

wild ride. The 13 coal cars and the two merchandise cars were a total loss. Only the last car of the train remained on the rails, the carload of eggs in somewhat scrambled condition. The train crew who had jumped to safety found Pitt near death at the foot of the mountain—a scarred and broken little man who had fought to the last moment to save a train entrusted to his care.

Railroad officials discovered that an angle cock between the cars had been turned. It was thought that someone might have turned the angle cock after the brakes had been worked at Saluda, or that a bouncing drawhead might have partly turned it—enough to maintain the pressure on the engine gauge, but not enough to retard the train when the automatic brake was applied.

While Pitt was in the hospital recovering from his injuries, two more runaways occurred on Saluda. A month after Pitt's runaway, Third No. 62 left Asheville August 13, 1903, with Jack Averill Jr. at the throttle, Fireman Charlie Hair at the scoop, and W. B. Sherrill as brakeman. This train had 13 Interstate and Seaboard coal cars, all export coal bound for Charleston. Engineer Averill lost control of his train before he reached Sand Cut, about halfway down the mountain. The engine crew stayed on the locomotive in an attempt to bring the train under control. Approaching Melrose at the foot of the hill, the runaway reached an estimated speed of 60 mph—a freewheeling ride into eternity!

"DEATH CLAIMS TWO HEROES IN 'SLAUGHTER PEN CUT'" was the headline the following day, Friday morning, August 14, in the Asheville *Citizen*. The subhead read: "Saluda Mountain Witnesses Another Disastrous Wreck on the Southern Railway." The account read:

"Melrose, (Via Tryon) N.C., Aug. 13—Through freight train, third No. 62, from Asheville to Spartanburg, ran

away on Saluda Mountain at 2:15 p.m. today. The engine and 13 coal cars were wrecked near Melrose at the exact spot where Engineer Tunstell's train was wrecked several years ago. The engine and 11 cars are a total wreck piled up in a cut, demolished. Engineer J. H. Averill Jr. of Asheville, and Fireman Hair, of Asheville, are killed, and are under the wreckage. Their bodies cannot be found until the wreck is cleared. Brakeman W. B. Sherrill, of Swannanoa, had both legs cut off and will likely die. Engineer Averill was a bright young man, 23 years of age, a son of Col. J. H. Averill, of Charleston, S.C. His father, mother, wife, and two little children, brother and sister, are spending the summer at Saluda and all were within three miles of where he met his untimely death. Averill stayed on his engine with his faithful fireman, doing all he could to check the speed of the train until the engine buried him. As the runaway train passed Melrose the operator, J. W. Heatherly, ran out of the station house and Fireman Hair threw up his hand and smiled. Heatherly fainted. Conductor Howie and his flagmen, Bishop and Ward, were unhurt."

The third runaway on Saluda in 1903 occurred a week after the Averill wreck. Engineer J. F. Dougherty, with a westbound Hayne-to-Asheville train, passed Melrose with a "shirt-tail of cars" (not enough tonnage for a helper) and slipped down on Saluda east of Sand Cut. The train ran away backwards before the crew had time to tie up hand brakes and double into Saluda. None of the crew jumped from the train, as they were confident that the speed of the train was not fast enough to derail at Slaughter Pen Cut; also, they were hoping that the train could be brought under control.

The Melrose operator quickly notified the Asheville dispatcher that the extra west was running away backwards and was passing Melrose. The alarmed dispatcher was aware that another westbound extra was due at Tryon, 5.7 miles east of Melrose; and if the train had passed Tryon, there was no way of warning the crew. The Asheville dispatcher frantically hammered out a message to the Tryon operator: "Throw a red train order board on the westbound extra and get him into the siding as quickly as possible. There's a runaway coming down the mountain, and he's already by Melrose!"

The westbound extra was already blowing the crossing a few feet east of the Tryon station when the operator dropped a red board in his face. Running toward the locomotive, the operator shouted his emergency message to the crew. Quickly reversing his locomotive, the engineer held his breath when he heard a constant whistling on the 1.5 per cent grade west of the station. Seconds after the westbound extra cleared the main line, the runaway train shot past. Engineer Dougherty's runaway sailed across the 400-foot Vaughan's Creek trestle and, after hitting the 1.5 per cent grade up Bird Mountain, seesawed back and forth before finally settling to a stop. None of the crew was hurt.

The quick action of the Asheville dispatcher, the Tryon operator, and the crew of the westbound extra had saved lives and another costly wreck. Railroading at its best!

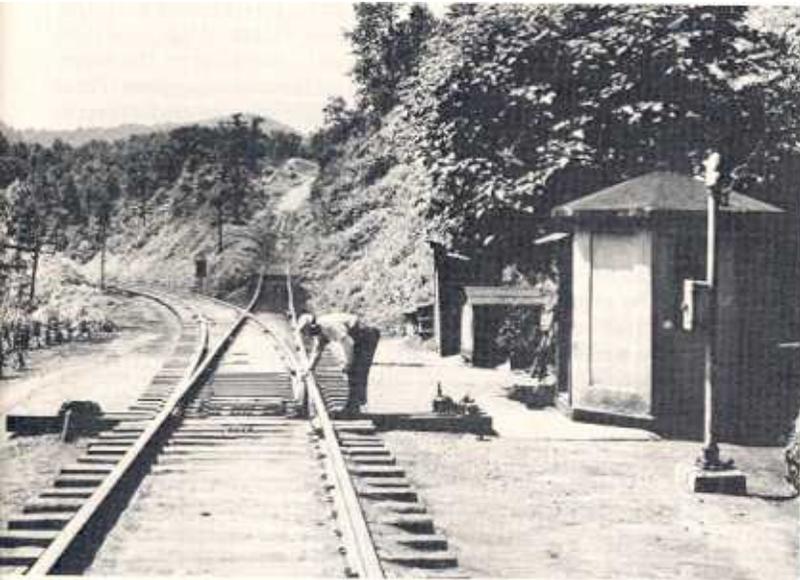
The Rutherford, N. C., *Tribune* for August 20, 1903, published the following news item: "Freight on the Asheville and Spartanburg road may be wholly abandoned and all freight brought over the Knoxville and Augusta division, now being built. Twenty-seven men have been killed crossing Saluda Mountain, and every death has been caused by the wrecking of a freight train, there not having been a single passenger disaster on record."

Safety tracks and brakes

THE three Saluda runaways in 1903 led to two changes in operation over this unique mountain—in their degree of importance: 1. safety tracks; and 2. brakes on coal cars.

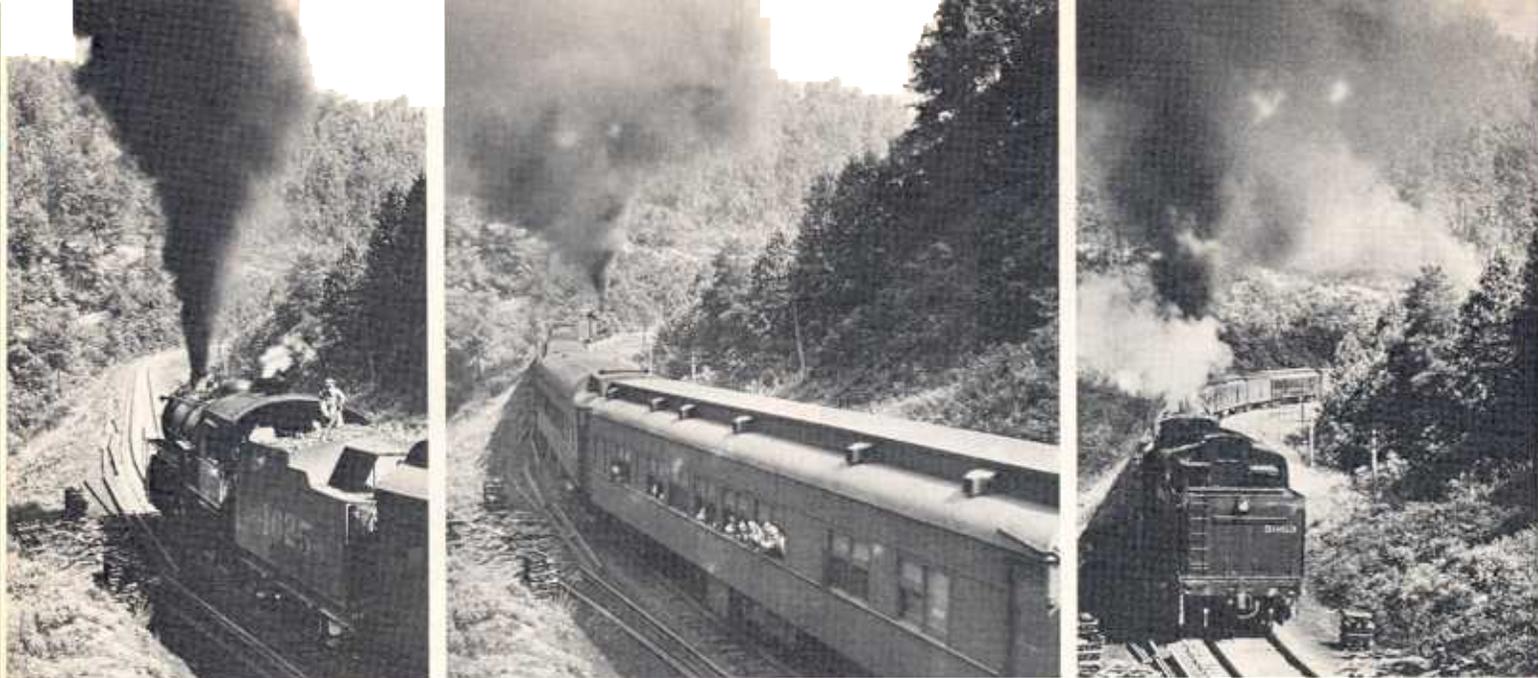
Pitt Ballew, crippled and maimed in the first runaway down Saluda in 1903, had ample time to reflect on the grade while recuperating in an Asheville hospital. Although Pitt was a serious person, he possessed a quiet sense of humor. He related how he inadvertently caused a sensation and alarm while he was a patient. "I shouted from my bed, 'I'VE GOT IT! I'VE GOT IT!' The nurses rushed in to see if I was out of my head or expiring of my injuries. The nurses calmed down when I assured them I was all right mentally and physically. Then I requested they send for Southern's Superintendent G. R. Loyall as quickly as possible.

"I explained to Mr. Loyall that the Southern build two safety tracks on Saluda: the first about a mile from the top of the sharp curve above Sand Cut, where the mountain



SWICHTENDER R. A. Moody cleans switch points lined for the heavily sanded rails of Safety Track 1, which he clears for the main once the engineer of the Mountain type on No. 28 sounds a long, a short, and a long to indicate that his train is under control.





rises abruptly to the right of the descending tracks. The second at Melrose at the foot of Saluda Mountain—several hundred feet west of Slaughter Pen Cut.”

The Southern Railway, impressed with Pitt's suggestion, immediately surveyed and built the two safety tracks, which were put into service before the end of 1903.

According to the late E. B. Hall, former mayor of the town of Saluda and veteran Saluda operator, Safety Track No. 1 was 1080 feet long and was located 8001 feet east of the depot. The grade ranged from 4.3 to 9.87 per cent. At the end-of-track were anchored timbers chained to the track and a mound of dirt 60 feet long, 14 feet wide, and 6 feet high. The track was heavily sanded.

Safety Track No. 2 was cut out of the side of the mountain for 1464 feet at the foot of Saluda grade, opposite the operator's shanty at Melrose. This track was located several thousand feet west of Slaughter Pen Cut and had grades that varied from 5.47 to 10.27 per cent. This track was also heavily sanded.

After the safety tracks were completed in November 1903, switchtenders were stationed at Safety Track No. 1, and the switch was kept lined for the safety track. Engineers on descending trains were required to blow one long, one short, and one long at the whistle board 800 feet from the safety track if their train was under control. After the switchtender threw the switch to the main line, the engineer was required to give two short blasts of the whistle to acknowledge that his train was still under control.

Safety Track No. 2 was controlled by the Melrose operator with the same whistle procedure.

Installation of the safety tracks saved many lives and countless thousands of dollars worth of equipment over the years. There is no record of the number of "mild" runaways that have occurred since the tracks were installed; certainly these could otherwise have been major runaways.

A passenger train descending Saluda in October 1904, less than a year after the safety tracks were put into service the previous November, ran away after passing the first safety track under control. The speed of the train was so great that it ran up to the end of Safety Track No. 2 at Melrose. Fortunately, there were no injuries, but the engine was damaged when it hit the rock cliff at the top of the safety track. If the safety track had not been built, it is most probable that Slaughter Pen Cut east of Melrose would have claimed more victims.

Safety Track No. 1 saved another passenger train dur-

ing the devastating flood of July 1916 when the Asheville Division was almost washed away. Engineer Tom Tarpley, on First No. 10 bound for Jacksonville, whistled for switchtender R. W. Ward to give him the main. Ward refused to throw the switch. Tarpley was in an explosive mood until Ward explained: "The track walker has discovered that the cinder fill between here and Sand Cut has been washed away and the bridge over the Pacolet River at Melrose has been destroyed. Park your train in the safety track!"

The railroad quickly made arrangements for transportation, food, and lodging for the 300 stranded passengers who had landed on Saluda about sundown. The train remained in the safety track for 13 days until tracks, fills, and bridges were replaced.

While I was chief photographer for the Asheville *Citizen-Times*, I photographed the wreck of Ls-2 2-8+8-2 No. 4052 on September 25, 1940, when it ran away up Safety Track No. 1 at an estimated speed of 25 to 45 mph. The huge engine swept aside the chained timbers like matchsticks and plunged over the end of the dirt mound with the first two cars of the train. Engineer "Turk" Pope and the brakeman saved their lives by quickly jumping as the train started up the short safety track. Although engineer Pope shouted to his fireman, "JUMP! JUMP!" the unfortunate man remained aboard and was crushed to death when he was pinned against the hot boiler by coal that poured into the cab from the upturned tender. Engineer Pope dug desperately with his bare hands in a futile effort to save his fireman. His bleeding hands uncovered enough coal to find that his fireman was dead.

The second change on Saluda after the 1903 runaways concerned brakes. The Southern Railway discovered that in Saluda wrecks, Interstate coal cars outnumbered other types of cars in runaways. The Interstate Company, located at Bulls Gap, Tenn., owned its own cars and shipped a tremendous amount of coal over the SR via Saluda for export through Charleston. In the interests of economy, its coal cars were equipped with steel wheels, which heated more quickly than wrought iron and considerably lessened braking efficiency. Furthermore, to reduce the danger of flattening wheels, the company requested that brake piston travel on its cars be cut to 6 inches and brake levers shortened to 2½ inches. All of these factors reduced braking power 50 to 60 per cent. Interstate's cars met Interstate Commerce Commission specifications for average grades through the United States, however Saluda was in a class by itself. The Ashe-

G.I.'S get an earful of 127,900 pounds of tractive effort coming to grips with Saluda Mountain as Mike 4625, assisted by Santa Fe 5063, pull and shove No. 9, the *Skyland Special*, up-grade on August 3, 1942. High on the side of the mountain in the rear above the train is Safety Track No. 1.

ON dry, sanded rail, an Ss-class 2-10-2 could lift 500 tons up Saluda. Ratings today per unit for diesels are 430 tons for GP and 615 tons for SD power.



CLODFELTER snapped Santa Fe types stored but not being scrapped. "I prefer to retain them in my memory blasting full tonnage up Saluda."



ville Division superintendent issued instructions that Interstate coal cars comprise no more than 50 per cent of trains descending Saluda.

Workhorse

SPANNING the years 1917-1953, Southern Railway's Santa Fe type locomotives were unquestionably one of the longest lived and most successful classes of steam locomotives on the continent. Although not as beautifully proportioned nor as fast as my favorite SR freight engine, the Ms-4 Mikado, the Santa Fe's were held in deep respect by management, shop forces, and engine crews.

Southern received 55 2-10-2 engines from Baldwin during 1917-1918, Nos. 5000-5054, class Ss—bulky, low-speed locomotives with 57-inch drivers, 28×32-inch cylinders, Southern valve gear, Duplex stokers, 190 pounds steam pressure, up to 378,000 pounds engine weight, and 71,000 pounds tractive effort (raised to 74,000 pounds when pressure was increased to 200 pounds). An additional 25 Ss-class engines arrived from Alco's Richmond Works in 1918, numbered 6350-6374 for SR's Cincinnati, New Orleans & Texas Pacific but soon renumbered 5055-5079 because they could not satisfactorily operate in the close clearances of the CNO&TP. (USRA-design Ss-1 2-10-2's Nos. 5200-5249 were barred from the Asheville Division because of their longer rigid wheelbase.)

Shop forces at Asheville made several modifications to Ss-class Santa Fe's assigned to Saluda. The water glass on both the engineer's and fireman's side was made longer than normal so that crews could safely measure the water level in the boiler while descending or ascending the mountain; a second air pump was installed because of the excessive use of air brakes on Saluda; some engines used as helpers or on the head end of passenger trains were equipped with cab signals and steam-heat connections; and water pipes were installed over the driving wheels so that a constant flow of

water would cool the tires while descending the mountain.

Santa Fe's and Mallets were not permitted on through freights between Asheville and Hayne until the 1930's when bridges and trestles were strengthened. The articulateds were transferred in 1943 to the Birmingham Division to haul coal. The Santa Fe's made their greatest showing from then until the diesels arrived in 1949; some served as Saluda helpers until 1952.

Although many of Southern's steam locomotives were scrapped at the Hayne, S.C., shops only a stone's throw from my home, I never ventured to see them meeting death with a torch. I prefer to retain them in my memory as they blasted full tonnage up Saluda or hit the high iron of the rolling Piedmont, ears laid back with a full head of steam.

Steam bath

THROUGHOUT my lifetime of working on the hill as a locomotive fireman on hand-fired and stoker-equipped steam engines, and as a locomotive engineer running unit coal trains, rail trains, freight and passenger trains, an unforgettable memory is an episode occurred while I was firing a Santa Fe type on the second-trick Saluda helper. My hoghead was "Coldwater" Roberts, and one of our evening assignments was helping No. 27, the *Carolina Special*, from Melrose to Saluda.

One winter afternoon after the helper conductor coupled the air hoses of our 2-10-2 to the rear Pullman on No. 27, the helper engineer blew two short blasts of the whistle to notify the engineer on the head end that he had cut out the automatic brake on the helper engine, shoved up the slack, completed the brake test, and was ready to leave.

There was a simultaneous opening of throttles as black Santa Fe 5011 and green-and-gold Mountain 6492 blasted alternate exhausts off the ridges in rhythmical explosions. The air was filled with the pungent smell of coal smoke and valve oil, the sound of grinding flanges biting curved rails,

and the earthy odor of fallen leaves on the forest floor.

The two engines gently handled the train as it crossed the wooden bridge over Melrose's Pacolet River, where the grade changes from 1.3 to 4.4 per cent; however, within a few hundred feet, as the grade jumped to 5.1 per cent on the steepest part of the hill, the engines were beating their hearts out. The occupants of the seven-car train were witness to one of the most arresting examples of cooperation in human endeavor—the crews of two steam locomotives working in unison to move a train over Saluda.

There was no conversation. There was concentration aboard the two locomotives. Each man was absorbed in the details and responsibility of his job in moving the passenger train safely and on schedule over the hill.

The relaxed passengers along the green aisles of the Pullman, day-coach passengers chatting leisurely among themselves, and patrons of the dining car enjoying polished silverware on white tablecloths with cut flowers—all were unaware of the intensive concentration of the engine crews. The two engineers were alert to the danger of driving wheel slippage that could result in a stall on the mountain—ready on an instant's notice to shut off the throttle, opening again quickly to regain footing. A stalled train would mean time lost on the schedule; difficulty in starting a train on the steep grade without burning the rails; and chance of damaging valve gear or flattening driving wheels if they went into a spin. Foremost in the minds of the enginemen was the safety of passengers and fellow crew members as they kept their eyes trained on the roadbed to observe track conditions, signals, road crossings, diamond boards, or flagmen. As required by the rules, the engineers frequently looked back or ahead on curves to inspect their train for hotboxes, dragging equipment, or sticking brakes. They were constantly checking boiler water level in the sight glasses; too little water in an engine turning over the crest of Saluda could result in a boiler explosion.

Running a steam locomotive is an art, but so is proper firing. Passengers looking out from the *Carolina Special* that day, as well as the crew on the helper engine, would note that the veteran fireman on the Mountain type was demonstrating his professionalism with the skill that comes from years of experience. A trail of gray smoke from his en-

gine indicated proper combustion, and the white vapor from the pops, just under the release mark, was proof of a full head of steam. He was firing by the stack and the steam gauge—glancing out occasionally at the stack to be sure the smoke was not too heavy and then back at the steam gauge so that the safety valves would not pop at 200 pounds pressure. Shutting back on the stoker or pulling on the injector to put cold water in the boiler would prevent the release of the pops and consequently the loss of steam. This fireman, by knowing the road, figured ahead to quit firing a few moments before the engineer shut off the throttle to drift down a hill, gently opening the blower to keep smoke out of the cab, working the injector to keep a safe supply of water but not enough to "drown" the boiler so that the engineer would be working *dry* rather than *saturated* steam.

After adjusting the stoker on the Santa Fe helper that I was firing, knocking off the injector before I had too much water in the sight glass, it was time to steal a moment for observation. The scene out of the broad open window was straight out of Currier and Ives. The massive Santa Fe helper, workhorse of the Asheville Division, was talking to the mountain in a labored voice—an indication that she was down on her knees with tonnage. The rear marker lights on the green Pullman were beginning to glow in the fading winter light. Up ahead, the driving wheels of the green-and-gold Mountain type engine were highlighted by the rays of the setting sun.

And speaking of observation, how can I ever erase the sight of that passenger engine with an authentic engineer at the throttle? J. B. Barnhardt, engineer on that green engine heading the *Carolina Special*, was the eptome of a Southern Railway runner. Yes, proudly clad in freshly laundered overalls, red bandana pinned to his shirt, safety goggles bridging his nose, gray cap squarely set on his head, a 23-jewel Hamilton Railway Special watch secured to a gold Simmons chain, and light gloves for a delicate touch of the throttle—he was a picture of confidence, pride, and responsibility. He spoke with a deep-throated Southern accent and he brooked no nonsense.

Suddenly, moments after I had photographed the scene and placed my 4×5 Speed Graphic safely back in the seatbox, there was the stinging pain of hot boiler water en-

THE 4-8-2 leading No. 27, the *Carolina Special*, the 6492, a sister of the 1477, looked fine, so did the train from the rear as Engineer "Coldwater" Roberts of 2-10-2 helper 5011 smoked a cigar and checked his 23-jewel Hamilton Railway Special hung from a Simmons gold chain. Then all hell broke loose!



veloping my body. The cab of the helper engine was so clouded with steam that visibility was impossible—a pipe had broken somewhere! There was a loud blast of profanity from Engineer Roberts, who was suffering the same fate that had befallen me. He blew one short blast of the whistle and shut off the throttle; within seconds the train stalled. Engineer Barnhardt on the lead engine had quickly reduced throttle to keep his driving wheels from spinning, keeping the slack stretched while he applied the automatic brake to avoid the possibility of a runaway backwards.

This was an example of the fact that there is no substitute for experience; it has always been my opinion that **SALUDA WAITS ON NO MAN**—you either run the train or the train runs you!

I climbed out the window of the helper engine to escape the spray of hot water and was preparing to jump to the ground and run around the rear of the engine and drag Coldwater out of the right-hand side of the cab when a double stream of profanity assured me that my engineer was not being scalded to death. The helper conductor came scrambling down the coal pile from his doghouse on the tender to ascertain the trouble; alarmed passengers filled the rear vestibule of the Pullman to witness the spectacle of the stalled engine with hot steam erupting from the cab where the engineer and fireman were taking a steam bath! After a few moments the steam subsided, and I was able to locate the cause of the trouble. I discovered that the copper pipe leading to the sight glass on my side of the engine had broken and was spraying hot water and steam into the cab.

I suggested to Coldwater that I shut off the boilerhead valve leading to the water gauge on my side and that he could use the gauge on his side until we reached Saluda. "Hell, no!" barked Coldwater. "You're not cutting off a damn thing from this engine! I reported that leaking line the last time this engine went to the roundhouse and they didn't do anything about it. Now let the Master Mechanic chalk up another engine failure to his record!"

Coldwater shouted to the conductor: "Cut this engine off—we're backing down into the spur track at Melrose and the fireman will kill the fire!"

This episode happened before the era of walkie-talkie radio communication. When the operator at Melrose learned

of the engine failure and stalled train, he notified the chief dispatcher in Asheville and advised that the eastbound freight for Hayne had not departed from the siding in Melrose. The orders came quickly: "Instruct the crew on the eastbound freight to cut off their engine and back up to No. 27 and help the train to Saluda." But that Santa Fe was not equipped with reverse sanders, and after a fire-flying slipping of the driving wheels on unsanded rails, the train moved forward a few feet and slipped down, as anxious and amused passengers looked out from the Pullman vestibule.

The Melrose operator witnessed the second engine failure on Saluda and promptly notified the dispatcher, who instructed operator Baty Hall at Saluda: "Instruct the westbound freight in the siding at Saluda to cut off their engine, back down the mountain below Sand Cut, and doublehead No. 27 to Saluda."

The *Carolina Special* suffered a 2-hour delay in one of the most dramatic and amusing incidents that ever occurred on Saluda Mountain.

The diesel runaways

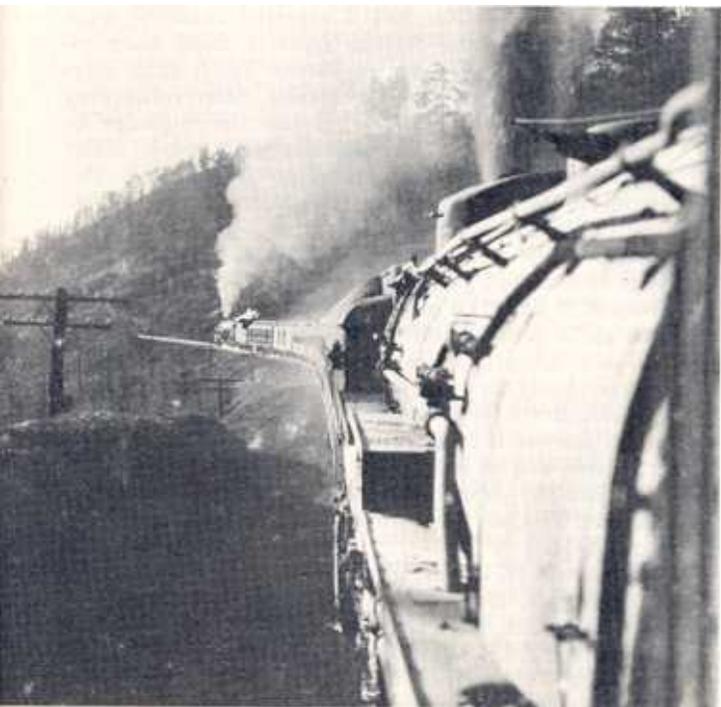
"THIS TRAIN IS GONE!" Road Foreman of Engines K. D. Lewter made this dramatic and spine-tingling announcement over the train radio in the darkness of the early morning of September 20, 1964, after the brakes of No. 154 had been placed in emergency and the flange-biting wheels of six F7's gained uncontrollable speeds. Railroaders from the Asheville dispatcher to the operator at Hayne Tower were electrified by the announcement that a diesel-powered train was running away down Saluda Mountain. Crews as far away as Spartanburg cut their conversations and carpecks in their Asheville shanty froze in terror.

Brakeman Tom Jenkins was the first to leave the train. He had climbed up on the rear diesel unit after turning up retainers and was pouring a cup of coffee. When the radio report from the lead unit announced the train was running away, he swung off and watched the train hurtle by.

Leonard Biddix, Carolina Division engineer who was the fireman on this first diesel runaway down Saluda (a unit coal train powered by six F7's), explained what happened: "We balanced the train over Saluda Mountain and applied the automatic brake for an inspection of brakes by the trainmen. After the brake inspection, we released the automatic brake so that the retainers could be turned up on the cars. After the head-end brakeman returned to the rear unit and we heard from the conductor on the caboose, we started down the mountain. We used the dynamic brakes when the train started rolling and charged the train line with three applications of the automatic brake. However, normal applications with the automatic brake failed to check the speed of the train. We drew the air down to 75, 71, and then to 55 pounds, but this did not check the speed of the train. We realized that we were running away and placed the brakes in emergency position.

"When we left the top, Flagman Sherlin was calling off the air pressure shown on the caboose—he never let up calling air until the brakes were shot and he heard Mr. Lewter's announcement that the train was gone.

"When the train reached a speed of 22 mph as we approached Sand Cut, Road Foreman Lewter dropped off on the left side of the Cut. Engineer Charlie Green jumped off the right side of the train. After we got through Sand Cut, I swung off and jumped past some rails laying along the track. I was able to stand up but ran off into a briar patch and got scratched up. When the train got by I found Charlie Green with a fractured ankle—his foot had landed in a pot hole. I asked Charlie where Mr. Jenkins and Mr. Lewter were. About that time we saw Mr. Lewter running down from Sand Cut. . . . We still had not found Tommy Jenkins. I walked back up the mountain and found Tommy walking down the other side of Sand Cut. We waited to hear what





SOUTHERN had dieselized its wrecking derricks by November 14, 1971, when three SD units got away. Crew obeyed Rule 108's injunction: "In case of doubt or uncertainty the safe course must be taken." They joined the birds.

would happen when the train hit the safety track at Melrose. There was a tremendous sound such as you might hear during a violent thunderstorm or about like a bomb going off.

"Tom, Jenkins, and I got Charlie Green supported between us and he hopped down the mountain on one foot. At Melrose, we found flagman Sherlin and conductor Benfield looking over the wreckage, which was a sight to behold. They had ridden the caboose down the hill and said the cab made a real easy stop and they were not injured in any way. I could hear the wrecked engines running, but I could not get to them because cars were piled on both sides of the safety track. A bystander said he knew of a path around the wreck. I shut down the motors of each unit. All were running except the lead unit, which had hit a rock cliff. Some engines were on their sides, but so far as being hurt they were not that bad off. The lead engine that hit the rock cliff was the only one that had any appreciable damage."

Carolina Division Trainmaster H. L. Sherlin, flagman on the runaway train, in a letter of March 14, 1983, to me, gave his version of what happened: "I remember that caboose No. 3290 did not have an operative cab radio, and I had to call air by walkie-talkie to the Saluda operator, who relayed the information to the engineer on No. 154. I gave the air pressure as the engineer drew down the air with the automatic brake—my last words were we're gone at 75 pounds and shot at 71 pounds. I felt the train would stop; however, as we approached Sand Cut, the speed increased, and I tied up a handbrake on the caboose. After coming out of Sand Cut, the conductor wanted to cut the cab off but I decided not to. Further, at this point I became very concerned that the train would not negotiate the turnout at the safety track. I stood on the porch of the cab and noticed that fire was flying from some of the wheels. I watched to see that the engines headed into the safety track and quickly ran back into the cab and lay down and got a good hold—something that the conductor had been shouting for me to do.

"I remember the 16th car from the caboose stood on the safety track switch. All cars were derailed or turned over from the west end of the little trestle in the safety track to the engines. Six units were derailed and landed crossways, but none turned over. I remember that the engines plunged

down the mountainside several hundred feet and cut down trees up to 18 inches thick."

Saluda operator Charlie Merrill retained his report:

1:11 a.m. No. 154 arrived at Pace's crossing, Saluda, N.C., to inspect train and work his retainers.

1:12 a.m. Mr. K. D. Lewter, road foreman of engines, arrived at Pace's crossing to check engine 4392 and ride train down Saluda Mountain. Engine 4392 was kicking a ground relay reported by Fireman L. L. Biddix.

1:30 a.m. Mr. Lewter radioed me to notify Hayne Shop and have them meet No. 154 on arrival. Message was "Engine 4392—power contactor flashing over and kicking ground relay."

1:32 a.m. No. 154 departed Pace's crossing after working retainers.

1:42 a.m. Caboose passed the depot and I handed up orders No. 15 and No. 302. I reported that the train looked good passing Saluda depot. I came back inside to call the operator at Hayne Yard, L. E. Shirley, and relay message to Hayne Shop concerning engine 4392. While I was giving the message to Hayne I heard the flagman say they were under the bridge with 104 pounds of air on the cab. The engineer did not answer so I repeated it on my radio. Caboose went over the top of the hill with 98 pounds on the gauge and again I told the engineer. Almost as soon as I got that out of my mouth the air was down to 75 and then to 71. Then the flagman said: "You shot at 71 pounds!" Mr. Lewter broke in on the radio and said: "Charlie, we're running away—we ain't got no brakes." I told the train dispatcher, Gib Eller, that from all indication I had No. 154 running away. He told me to call and see if everything was under control. I called and there was no answer."

1:50 a.m. No. 154 entered the safety track at Melrose.

No. 154: Engines 4247-6754-4350-4207-4392-4215. Caboose X-3290.

Engineer: C. H. Green

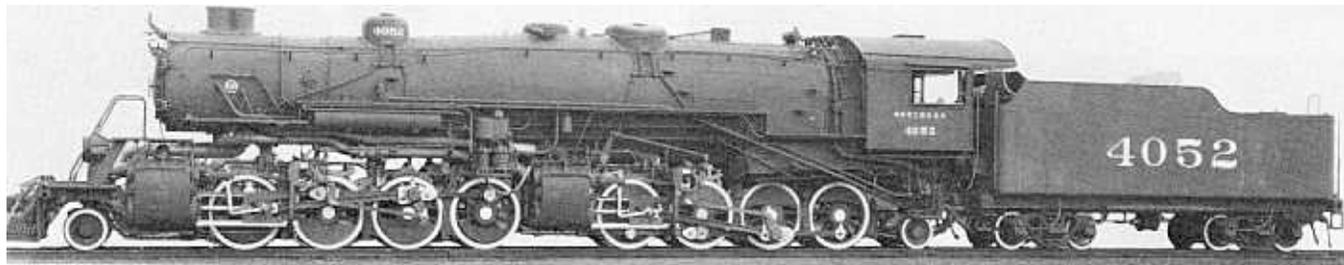
Fireman: L. L. Biddix

Conductor: C. L. Benfield

Brakeman: T. E. Jenkins

Flagman: H. L. Sherlin

Road foreman of engines: K. D. Lewter



Collection of H. L. Broadbelt.

FLAT SPOTS between 3 and 6 inches long were discovered on all driving wheel tires of Ls-2-class 2-8+8-2 4052 following its Saluda runaway with train Second 150 on September 25, 1940. An Interstate Commerce Commission investigation faulted inexperience of recently promoted

engineer and his lack of air brake knowledge for the accident, in which the fireman died when crushed by coal against backhead of boiler. Locomotive stopped 119 feet beyond and 30 feet below the end of Safety Track No. 1. "It was dark and rain was falling at the time . . . 5:45 a.m."



Consist: 69 loads, 0 empties, 6300 tons, all Duke Power coal for Belmont, N.C.

23 head cars were turned over or derailed and 46 rear cars could be pulled back.

Damage to engines: 4247—\$25,000; 4350—\$8000; 4392—\$7000; 6754—\$15,000; 4207—\$6500; 4215—\$8000.

The second diesel runaway down Saluda Mountain occurred on November 14, 1971, with SD locomotives. Rule No. 108 in the railroad's book of rules states: "In case of doubt or uncertainty the safe course must be taken." The crew on the runaway train may not have thought of rule No. 108; however, they abided by the instruction—they joined the bird gang and there were no deaths or injuries. The three engines derailed just as they started up Safety Track No. 2 at Melrose.

A member of the crew stated: "It was a sight to behold. Within a space of seven car lengths 44 cars were piled upon themselves with the six rear cars and the caboose remaining on the rail."

Why the safety track is rusty

THE age of diesel-electric locomotives on Saluda began May 25, 1949, when Southern began operating EMD F7's in freight service. Four units totaling 6000 h.p. took 1500 tons up Saluda without help; with a Santa Fe type helper they were rated at 2000 tons. Average speed Melrose to Saluda was 10½ mph compared with 6 or 7 mph with two 2-10-2's. In steam days two Santa Fe's took 1000 tons up Saluda Mountain. Two Ms-class Mikados occasionally doubleheaded up the mountain with 700 tons or, with a Santa Fe helper, 1200 tons. With a Mallet helper the tonnage was 1250.

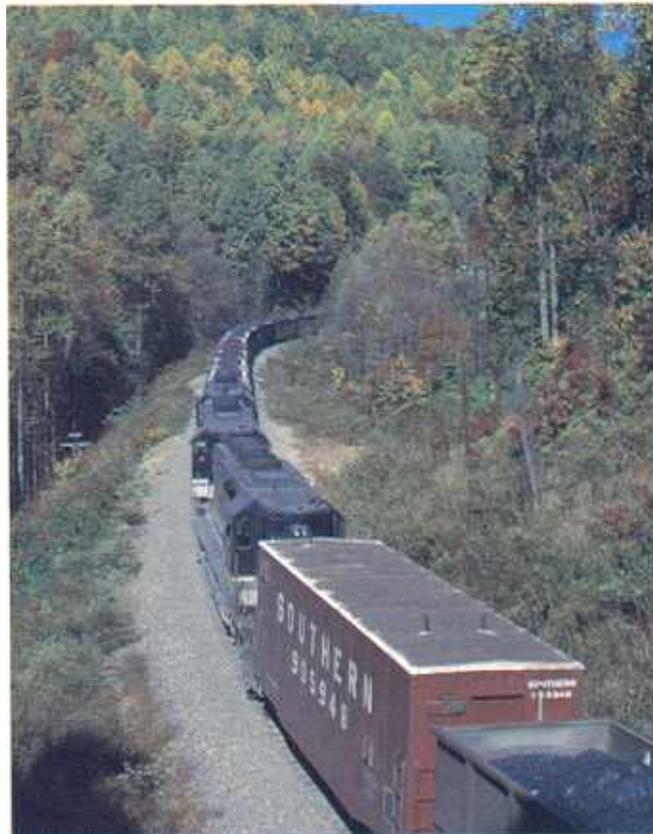
Southern Railway's February 1950 *Ties* magazine ex-

plained: "Here was no mere extension of diesel usage—this was tackling one of the hardest tests in railroading. With the roar of diesel engines working at full capacity as trains wound their way around curves going up grade, and with the whine of traction motors with their electrical fields reversed to convert them into generators operating as dynamic brakes on the downgrade, these locomotives proved that the toughest job on the Southern—one of the toughest on any railroad—was well within their capacity. And, railroading on Saluda Mountain was safer."

During a 29-day period in April 1984, 65 freights ran Asheville to Hayne, 72 trains from Hayne to Asheville. Eastbound tonnage: 354,322; westbound, 273,200. Average trains daily (both ways): 5. Trains ran at irregular hours.

A typical diesel-powered train in current use on the Asheville-Hayne run, with a tripling train on the return trip, was selected at random from the train sheets in the office of L. E. Wetsel Jr., superintendent of the Carolina Division, with the assistance of W. E. Milholen, assistant superintendent. The date of the run was April 5, 1984. Eastbound freight No. 178 had Engineer Ray Wallace at the throttle and Conductor Paul Ross on the caboose. There were three EMD SD40/SD40-2 locomotives, 3283, 3176, 3212—a total of 9000 h.p.—with 5337 tons in a 94-car train of 35 loads and 59 empties.

The Hayne-to-Asheville train, No. 187, was powered by the same units, except that by changing ends, 3212 was the lead unit. This tripling train consisted of 5187 tons—44 loads and 22 empties. Leaving Hayne, Conductor Ross figured the tonnage of each cut from the waybills. Each SD40 is rated at 540 tons up Saluda Mountain. The head-end brakeman was advised by Conductor Ross which car to cut behind before the train arrived at Melrose. The train was



CREDIT George Westinghouse and Southern Railway operating savvy for this remarkable feat: 13,500 tons' worth of unit coal train being safely escorted down Saluda Mountain by the combined air compressors and dynamic brakes of the 7 SD units (4 up front, 3 slaves toward the rear).

stopped on Saluda Mountain by Engineer Wallace with the stretched on the train before the first cut was made. When the brakeman reached the designated car, he uttered one word on his walkie-talkie: "Slack." Engineer Wallace provided just enough slack for the brakeman to lift the pin. Then the brakeman rides the rear of the cut to Saluda, where it was parked and the locomotive returned to Melrose to pick up each remaining cut in turn.

General Road Foreman of Engines I. R. Mauney, Norfolk Southern, Atlanta, Ga., wrote this description of negotiating Saluda at my request:

"Eastbound freight trains are monitored for proper dynamic braking and air-brake use during 10 miles of operation prior to arriving at Saluda. This is to determine that all systems continue to function properly so that action can be taken to correct any problem before any attempt is made to descend Saluda.

"Unit coal trains usually consist of 96 cars, 13,500 tons, with seven diesel units in service. The power is operated with four SD locomotives on the head end of the train and three SD locomotives located at mid-point in the train and controlled by radio response. This is a total of 21,000 h.p., with extended range dynamic braking.

"The cars in the unit trains depart Appalachia, Va., with the retainer valves set in slow-direct position. This position will permit retaining brake cylinder pressure for 86 seconds after a brake application. This permits recharging the air brake system while maintaining retarding force on the cars during release and brake applications on a grade. Retainers are required because American freight train brakes are of the direct release type.

"The eastbound unit coal trains are stopped approximately one-half mile before reaching the crest of the Saluda grade, and the retainer valves on the head 10 cars are set in high-pressure position. This position will keep the brakes applied after a brake application until the retainer valves are repositioned. This continuous brake on the head end assists as a buffer during the cresting and while descending the grade, keeping the in-train forces at a steady state.

"The unit train crests the grade at 15 mph and gradually reduces the throttle to "off" position. The dynamic brake is applied and slack bunched in the portion of the train on the east side of the grade. Repeated air brake applications and releases are required in filling the brake cylinders during the cresting with the remote-control locomotives in idle condition. These units are placed in a dynamic braking mode by radio immediately after cresting. When the entire train has executed the crest, the train speed will be controlled not to exceed 8 mph by maximum use of the dynamic brake and repeated brake applications and releases until the train has descended the grade. After executing the 3-mile descent with some of the grade at 5.1 per cent, the train is stopped and the retainers on the head 10 cars are repositioned to slow direct release. The train then continues to the final destination. During the operation on the grade, the instruments on the locomotive are monitored most attentively and action taken to keep the train speed constant. Air pressure on the rear of the train is monitored frequently, and crew members respond to any cause that needs attention.

"Conventional trains, with all the power on the head of the train, approach the crest at slow speed on a 1.8 per cent ascending grade and crest on a 4 per cent descending grade, pulling the train over the crest until some 40 per cent of the weight is on the east side of the crest. The train is somewhat balanced in a stopped position. The train air brake is applied, and crew members inspect the entire train for proper braking. When the brakes are released throughout the train, the crew members position the car retainer valves in high-pressure position on all cars in the train. This will permit retaining brakes throughout the descending operation and during recharge of the air brake system.



GREAT day in the morning: Locomotive 4501 storms up Saluda unassisted at 11:30 a.m. on July 8, 1972, hauling coach, observation cars *Missionary Ridge* and *Lookout Mountain*, and gondola. Aboard: W. Graham Claytor Jr., L. Stanley Crane.

"The train is started at low throttle and immediately transferred to maximum dynamic braking, with repeated air brake applications filling the brake cylinder for a constant brake. The system is recharged frequently, but the brake cylinders remain filled, keeping the brakes applied on each car. Some 20 to 25 brake applications are required to reach the base of the mountain in a 21-minute operation on the descending side of the grade. After descending the grade, the train is stopped and the retainers are repositioned to direct exhaust, and the train proceeds.

"Safety precautions are executed to the limit in handling trains on Saluda Mountain. All forces know what is required, and their expertise is applied to the fullest. This is the reason the Safety Track, located at the base of the mountain, is coated with rust due to not being used for many years. The trains approach the Safety Track switch, which is lined for that track on a timing circuit; it will remain lined for the Safety Track if the train is exceeding 12 mph. If train speed is less than 12 mph, the switch automatically lines for the main track, and the train continues toward Hayne and its final destination.

"Trains ascending the grade usually are required to double the train from the base over the top, and many are required to triple the mountain, depending on tonnage, but here again, safety in operations gets the job done."

The last Carolina Special

THE date was December 5, 1968, and the *Carolina Special* made its final run between Asheville and Hayne. The train, which once ran out of Chicago (over NYC's Big Four to Cincinnati, thence over Southern) to Asheville, where it divided into sections for Charleston, S.C., and Goldsboro, N.C., was a typical American passenger train of the steam and diesel era. During its prime years it consisted of mail and baggage cars, coaches, a diner, and Pullmans—even an observation car proudly marked *Carolina Special*. It was not a fast train, but when one considers the rugged and diverse country through which it ran, it must be ranked as one of the most utilitarian and colorful that ever served the South.

The EMD F3's that I ran on the final run of the *Carolina Specials*, Train 28 Asheville to Hayne and No. 27 back, were 4144 and 4138, respectively. On those runs the train had dropped to sub-zero respectability—the usual baggage car and coach powered by a single diesel unit, plus an additional coach, not needed. To add to the gloom, the F units were draped in D. W. Brosnan's funeral black and white.

This epitaph was written by W. D. Workman, who rode the engine with me from Hayne to Asheville, and published in his Columbia, S.C., *The State* on December 12, 1968: "Many adjectives were applied to Southern Railway's *Carolina Special* over the years. 'Crack' was not one of them. More often it was dubbed, either out of frustration or affection, 'The Carolina Creeper.' But for over half a century, the *Carolina Special* was a vital passenger link between South Carolina and the Midwest. For years now, it has been dying in pieces as revenues tumbled. Last week the *Carolina Special* left Columbia for the last time. Aboard was Editor W. D. Workman Jr. of *The State*, in the company of a handful of railroad buffs and one legitimate passenger."

The *Carolina Special* operated for over half a century and was one of the nation's most enduring trains. Beginning in the year of my birth, 1911, it operated until December 5, 1968, when I ran its final trip up Saluda. I



W. D. Workman.

FRANK CLODFELTER runs train 27 on final trip up Saluda.