

## INTERSTATE COMMERCE COMMISSION

REPORT OF THE DIRECTOR OF THE BUREAU OF SAFETY IN RE  
INVESTIGATION OF AN ACCIDENT WHICH OCCURRED ON THE  
CHESAPEAKE & OHIO RAILWAY AT HAWK'S NEST, W. VA.,  
ON JUNE 21, 1930.

August 5, 1930

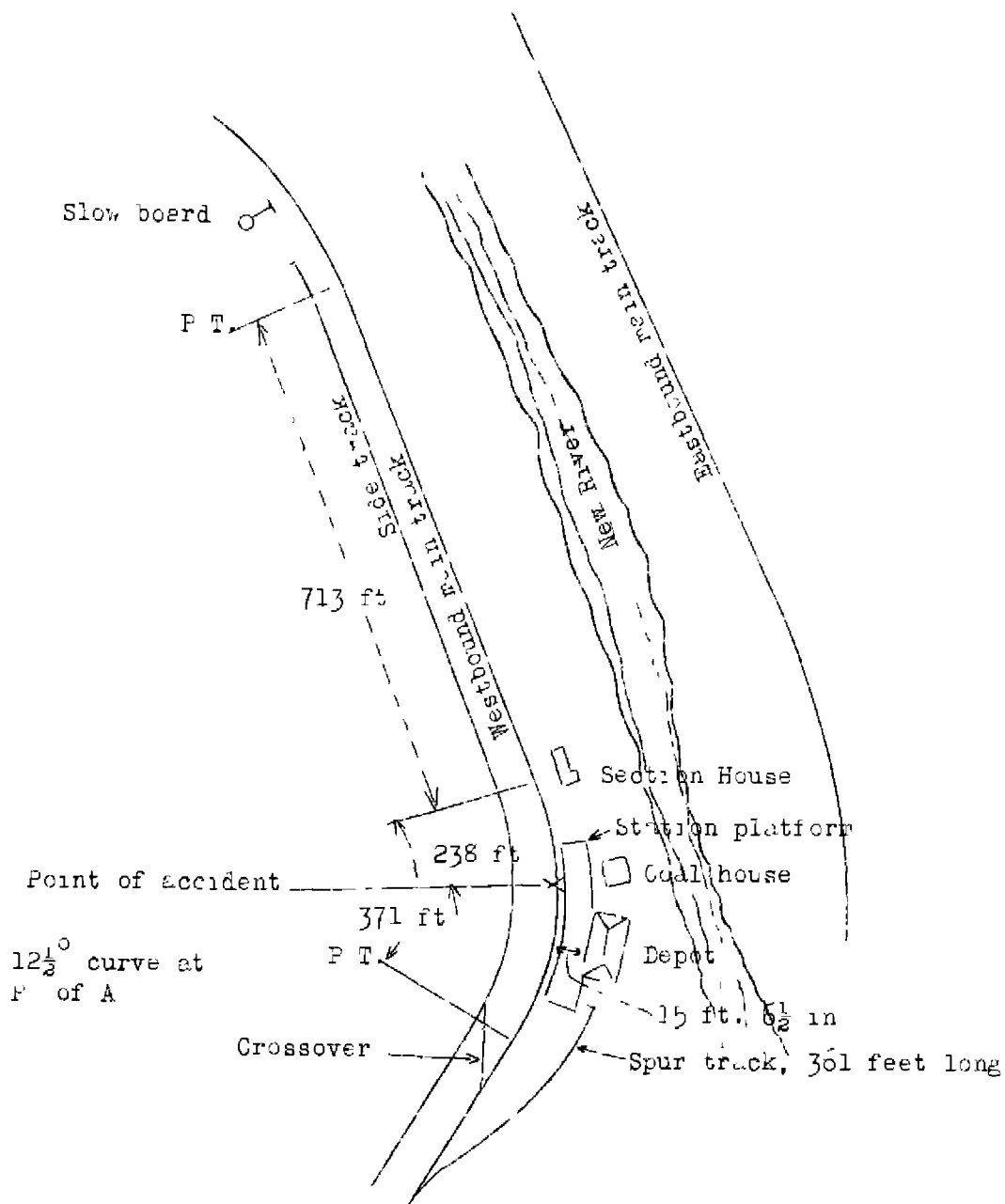
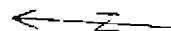
To the Commission:

On June 21, 1930, there was a derailment of a passenger train on the Chesapeake & Ohio Railway at Hawk's Nest, W. Va., resulting in the death of two employees and the injury of two passengers, one express messenger and one employee. This accident was investigated in conjunction with a representative of the West Virginia Public Service Commission

Location and method of operation

This accident occurred on the New River Subdivision of the Hinton Division, extending between Hinton and Haraley, W. Va., a distance of 72.5 miles, in the vicinity of the point of accident this is a double-track line over which trains are operated by time-table, train orders and an automatic block-signal system. The accident occurred on the westbound main track, just east of the depot at Hawk's Nest. Approaching the point of derailment from the east the track is tangent for 713 feet, followed by a compound curve to the right 371 feet in length with a maximum curvature of  $14\frac{1}{4}^{\circ}$ , the derailment occurring on this curve at a point 238 feet from its eastern end, where the curvature is  $12\frac{1}{2}^{\circ}$  and the superelevation of the outside or high rail is 3 inches. The outside rail on this curve at the point of accident is flange-worn, the gage side of the head being worn to an angle of about 20 or 25 degrees, and this portion of the rail is greased twice daily. The grade for westbound trains is 0.125 per cent ascending at the point of derailment.

In the vicinity of the point of accident the main tracks are parallel and are separated by New River, the westbound main track being laid on a bench cut along the mountain side on the north bank of the river, while the eastbound main track is on the south bank. The station platform, depot, coal house and other buildings at Hawk's Nest are located on the south side of the westbound main track, the initial point of derailment being opposite the coal house. A side track parallels the westbound main track on the north and there is a crossover, extending from northeast to southwest, connect-



Inv. No. 1646  
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ing these two tracks, the east switch of the crossover being about 125 feet west of the initial point of derailment. A spur track, 361 feet in length, leads off and parallels the westbound main track on the south, the trailing-point switch being located 403 feet west of the point of derailment, at the time of the accident three box cars stood on this spur track.

The track is laid with 130-pound rails, 39 feet in length, laid in March, 1929, with an average of 22 hardwood ties to the rail-length, tie-plated, double-spiked on the inside and single-spiked on the outside of the rail, equipped with anti-creepers, and ballasted with lime rock to a depth of about 12 inches. The track was well maintained. The top of the station platform is practically level with the top of the south or high rail; it is composed of cinders and limestone chips, bordered by a wooden curb, and the north curb of the platform is 1 foot 11 inches from the gage side of the outside rail on the curve.

The speed limit for passenger trains in the territory in which the accident occurred is 50 miles per hour, in addition, there is a slow-board on the engine-man's side of the track, 1,210 feet east of the point of derailment, further restricting the speed of passenger trains to not more than 20 miles per hour on the curve on which the accident occurred, the resume-speed-board being located 3,037 feet west of the slow-board. The slow-board was located near the west end of a curve to the right and owing to a rock cut on the north side of the track the view of the slow-board from the engine-man's side of the cab of a westbound engine was restricted to 318 feet.

The weather was clear at the time of the accident, which occurred about 8.55 p. m.

#### Description

Westbound passenger train No. 47 consisted of one express car, one combination baggage and passenger car, two coaches, one dining car, and three Pullman sleeping cars, in the order named, all of steel construction, hauled by engine 474, of the 4-6-2 type, and was in charge of Conductor Turner and Engineman Haskell. This train passed Sewell, the last open office, 10 miles east of Hawk's Nest, at 8:42 p. m., according to the train sheet, five minutes late, and was derailed while traveling at a speed variously estimated to have been from 20 to 55 miles per hour.

Engine 474, its tender, and the first three cars in the train were derailed to the south. The

engine came to rest on its left side, badly damaged, diagonally across the spur track, headed northwest and 235 feet west of the point of derailment, it was practically stripped of its appurtenances on the left side, the cab was torn entirely off, while the engine truck was torn apart and its wheels deposited in the debris. The tender was also on its left side across the spur track, east of the engine. The first three cars came to rest practically upright and parallel with the westbound main track, the first car was telescoped on its south side by the tender for about one-fourth of its length. Two of the three box cars that stood on the spur track were struck by the derailed train and destroyed, while the third car was slightly damaged. Approximately 170 feet of the spur track was torn up, the crossover connecting the westbound main track and the side track was knocked out of line about 3 feet, while the west end of the depot was knocked out of line about 10 inches. The westbound main track was slightly damaged, one rail being bent, a few ties lunched and the track knocked out of line. The employees killed were the engineer and fireman, and the employee injured was the baggageman.

#### Summary of evidence

Conductor Turner stated that he was riding in the seventh car and was unaware of anything wrong, prior to the accident, the train came to a sudden stop and he immediately looked at his watch, it then being 8:55 p. m. Conductor Turner did not notice anything to indicate excessive speed, he said the train was handled nicely from Sewell to the curve at Hawk's Nest, the air brakes were applied in the vicinity of the slow-board, at which time he estimated the speed to have been about 40 or 45 miles per hour, and after the speed was reduced to about 30 or 35 miles per hour the air brakes apparently were released as the train was running smoothly at the time of the accident. Conductor Turner did not pay particular attention to the speed approaching Hawk's Nest, nor did he feel any emergency application of the air brakes prior to the derailment, he thought the speed was the same as usual at this point. Conductor Turner further stated that he conversed with Engineman Haskell at Hinton, about 50 miles east of Hawk's Nest, and that the engineman appeared normal. Brakeman Boone was riding in the last car and thought that the speed was about 45 or 50 miles per hour between Sewell and the slow-board at Hawk's Nest, he stated that the air brake application made in the vicinity of the slow-board reduced the speed to about 25 or 30 miles per hour, and he estimated the speed to have been about the same or perhaps a little faster at the time of the accident. Brakeman Boone stated that the air brakes worked properly in making various stops en route. Baggage-man Bastic stated that proper test was made of the air brakes at Hinton, he was

riding in the baggage car approaching Hawk's Nest and estimated the speed to have been about 50 miles per hour; a service air brake application was made and the speed was about 25 or 30 miles per hour at the time of the derailment. Baggage-master Bostic further stated that no emergency air brake application was made just prior to the accident, but that the air brakes applied in emergency when the derailment occurred. Statements of other members of the crew developed nothing additional of importance.

Night Roundhouse Foreman Pierce stated that he conversed with Engineman Haskell during the course of the brief stop made at Thurmond, located about 17 miles east of Hawk's Nest, in order to make minor repairs to the blower valve of the engine, and that the engineman appeared normal in every respect.

Section Foreman Bennett stated that on the night of the accident he was sitting on the front porch of his house, the section house being located opposite the east end of the curve on which the accident occurred, and that train No. 47 approached at such a high rate of speed, about 50 or 55 miles per hour, that it caused him concern. As the train passed, the fireman waved to him and then the section foreman heard the air brakes apply as the train passed his door, then the derailment occurred. He heard the engine whistle sounded for Hawk's Nest. Section Foreman Bennett stated that he generally watched train No. 47 and that ordinarily it would be traveling at a speed of about 20 or 25 miles per hour at this point, but that on the night of the accident the speed was unusually high. Section Foreman Bennett said that the curve involved is greased twice a day, regularly, that the elevation is only 3 inches, and that it is safe only for speeds of 20 miles per hour or less. In his opinion the accident was caused by excessive speed.

Operator Warren, stationed at Gauley, about 7 miles west of Hawk's Nest, stated that as was his custom he was listening in on the telephone to ascertain when train No. 47 would be by MacDougal, located about one-half mile west of Hawk's Nest, there was noise on the telephone and the wires failed a few seconds after 8.53 p. m. by the clock in his office, apparently as a result of the derailment.

Division Engineer Drumeller arrived at the scene of the accident about 3½ hours after its occurrence. After daylight, careful inspection was made of the track for a distance of about one-half mile east of the point of derailment. There was a flange mark on top of the south or outside rail of the curve, beginning at a point 3 feet 9 inches east of where the flange left the rail, at which point there were also one or two light flange

marks. There were also some light marks on top of the rail, but nothing in the way of a dent or scar to indicate that the engine had run over any obstruction on the rail. In his opinion the engine truck was the first to be derailed, and the accident was caused by excessive speed. General Master Mechanic Hitch's statement was similar to that of Division Engineer Drumeller. General Master Mechanic Hitch also stated that inspection of the engine subsequent to the accident disclosed the engine truck, springs and hangers to be in good condition.

Engine Inspector Waldrop, at Clifton Forge, stated that he inspected engine 474 on its arrival at that point on the trip prior to the accident, the wheels were in good condition and a check of the lateral showed it to be well within the prescribed limits, while nothing was found wrong with the engine truck. Assistant Roundhouse Foreman Parker, also at Clifton Forge, stated that he inspected engine 474 before the trip on which the accident occurred was started and that the engine was in good condition at that time.

Road Foreman of Engines Glass arrived at the scene of the accident about 3 1/2 hours after its occurrence and examined the engine truck wheels, driving tire flanges, brake valve, throttle and reverse lever. The throttle was closed, the brake valve handle in lap position, the independent valve in service position and the reverse lever in backward motion, apparently as a result of the reverse lever being struck after the engine was derailed. There was a scar on the flange and tread of the left front driving wheel and a similar mark on the right front driving tire flange, these marks apparently were caused by the engine striking the box cars on the house track. He was also of the opinion that the accident was caused by excessive speed.

Track Walker Watkins last inspected the track where the accident occurred about 5 hours prior to its occurrence, gaging it and looking over the joints but found no condition that needed correcting.

Track Supervisor Patton said that the track at this point is elevated for a speed of not more than 20 miles per hour, and he did not think it safe for higher speed. He described the marks on the track and roadbed after the accident, and said that in his opinion the derailment was caused by the engine turning over due to high speed.

Inspection of the track disclosed flange marks on top of the south or outside rail of the curve, which indicated the point of derailment to be 238 feet from

the point of curve. Two or three light flange marks appeared on the top surface of that rail and extended diagonally outward from the gage side for a distance of 3 feet 9 inches, disappearing at the outside edge of the top of the rail, this point being fixed as the point of derailment. Starting about 25 feet east of this point, the rusted outside portion of the top of this rail, upon which the wheel treads do not ordinarily make contact, in normal movement around the curve had a bright mark extending along its surface for a distance of about 20 feet, indicating that weight had been applied and wheels had rolled over this portion of the rail between these points. At a point about 8 feet west of the point of derailment a bolt and its nut were sheared off the angle bar on the outside of the south rail and the next nut of this joint was marked by a flange. About 42 inches west of this joint flange marks appeared on the top of the third tie from the joint, these flange marks were heavy and continued at intervals along the top of the ties outside the south rail, diverging toward the ends of the ties until they disappeared in the debris of the platform at the end of about the fourth tie from the joint. A trench 5 inches deep and 12 inches wide appeared in the surface of the station platform about 2 feet from the north edge of the curb, this mark beginning at a point 16 feet 5 inches east of the point of derailment, beginning at a point 34 feet west of the point of derailment, the curb was entirely torn out and the platform was plowed up to a width of about 8 feet for the rest of its length, the trench made by the derailed equipment between the spur track and the main track being about 2 feet deep. The only flange mark between the rails appeared at a point about 18 inches south of the low or north rail, and about 13 feet west of the point of derailment, this was a very light flange mark and extended diagonally across the ties until it reached the inside of the south rail, from which point it continued along the gage side of that rail and stopped at a point about 58 feet west of the point of derailment. There was no mark on the top of the rail at this point, but about 2 feet west of this point a flange or wheel mark appeared on the top of the base on the outside of the south rail, this mark being 7 inches long, from which point westward the ends of the tops of the ties on the south side of the track were crushed and splintered for a distance of 72 feet. The south rail was canted slightly from a point 10 feet west of the point of derailment to a point 64 feet beyond, the spikes being pulled as much as  $1\frac{1}{2}$  inches within this distance. There were no flange or wheel marks at any point between the rails on the tops of the ties, or on top of the rails, deep enough to indicate that the driving wheels on the

north side of engine 474 had run over the ties or the south rail. The flange marks at the point of derailment were not thought deep enough to have been made by the driving wheels of the engine.

According to the train sheet, train No. 47 passed Sewell, the last open office, 11.07 miles east of Hawk's Nest, at 8.42 p. m. Conductor Turner fixed the time of the accident at 8.55 p. m., while Operator Warren at Gauley said that the wires failed at 8.53 p. m., the average speed, according to the conductor's statement, would be approximately 51 miles per hour, and according to the operator's statement, 60 miles per hour.

### Conclusions

This accident was apparently caused by train No. 47 entering upon a sharp curve at a rate of speed considerably in excess of that for which the outer rail was superelevated.

Owing to the fact that both the engineman and fireman were killed as a result of this accident, it is not known what occurred on the engine immediately prior to the accident. When last seen by the surviving members of the crew, Engineman Haskell appeared to be in normal condition, he sounded the engine whistle when approaching Hawk's Nest, and he made a brake application shortly before reaching the curve. He was an experienced engineman, familiar with the physical characteristics of this line, and it is not known why he failed properly to control the speed of his train when approaching this curve.

None of the members of the train crew was paying particular attention to the speed of their train. Prior to the accident there had been no unusual condition or circumstance to direct their attention to the question of speed. The derailment occurred only 238 feet from the eastern end of the curve, and after entering upon the curve there was nothing any member of the crew could have done to avert the accident.

The fact is established by the evidence that a brake application was made as train No. 47 approached the curve where the accident occurred. Members of the train crew thought it was made at a point near the slow-board, although none of them noted the exact location. The section foreman, however, stated that he heard the brakes being applied as the train passed his house, which would indicate that the application was not made until the train had practically reached the point of curve.



From the records and various estimates in the testimony it is believed the speed of train No. 47 when approaching Hawk's Nest was at least 50 miles per hour and probably somewhat higher. That the speed was not sufficiently reduced before reaching the curve is apparent from the results.

The indications are that the speed was so high when engine 474 encountered the curve that the engine truck wheels climbed the outer rail and that it began to overturn toward the south plowing out the platform as it went, until an angle was reached where the wheels slid off the rail without leaving any heavy marks between the rails, completing the turn near the west end of the station and finally coming to rest on its left side. There apparently was no track condition which caused the derailment, there were no broken rails, the only material track damage was at the point where the engine came to rest, and this plainly being a result of the derailment and not its cause. The somewhat curve-worn condition of the rail was not thought aggravated enough to constitute a contributing factor of importance. Careful examination of engine 474, made subsequent to the accident in the presence of the Commission's inspector, failed to develop anything which could have caused the accident.

The investigation developed that the slow-board was located 603 feet nearer to the curve involved than the distance indicated by the C&O Ry. standard braking distances, further, that the view for engineers of west-bound engines of this slow-board was considerably restricted due to a rock cliff. It is not thought, however, that the location of this board had any bearing on this accident, as Engineman Haskell had been running regularly over this track for about seven years and was thoroughly familiar with the physical characteristics. Since the accident the slow-board has been re-located.

With the exception of Train Porter Price, all of the employees involved were experienced men, at the time of the accident they had been on duty for various periods ranging from four hours or less, prior to which they had been off duty 8 hours or more

Respectfully submitted,

W. P. BORLAND,

Director.