

INTERSTATE COMMERCE COMMISSION
WASHINGTON

REPORT OF THE DIRECTOR
BUREAU OF SAFETY

ACCIDENT ON THE
BALTIMORE & OHIO RAILROAD

ALLANDALE, OHIO

JUNE 28, 1939

INVESTIGATION NO. 2367

-2-

SUMMARY

Inv-2367

Railroad:	Baltimore & Ohio
Date:	June 28, 1939
Location:	Allandale, Ohio
Kind of accident:	Derailment
Train involved:	Freight
Train number:	Extra 4534-4530
Engine numbers:	4534-4530
Consist:	109 cars and caboose
Speed:	8-12 m. p. h.
Operation:	Timetable, train orders, and automatic block-signal system
Track:	Double; 2°40' curve to the right; 0.93 per- cent ascending grade for westward move- ments
Weather:	Rain
Time:	9:10 p. m.
Casualties:	1 killed and 2 injured
Cause:	Washout

Inv-2367

July 28, 1939

To the Commission:

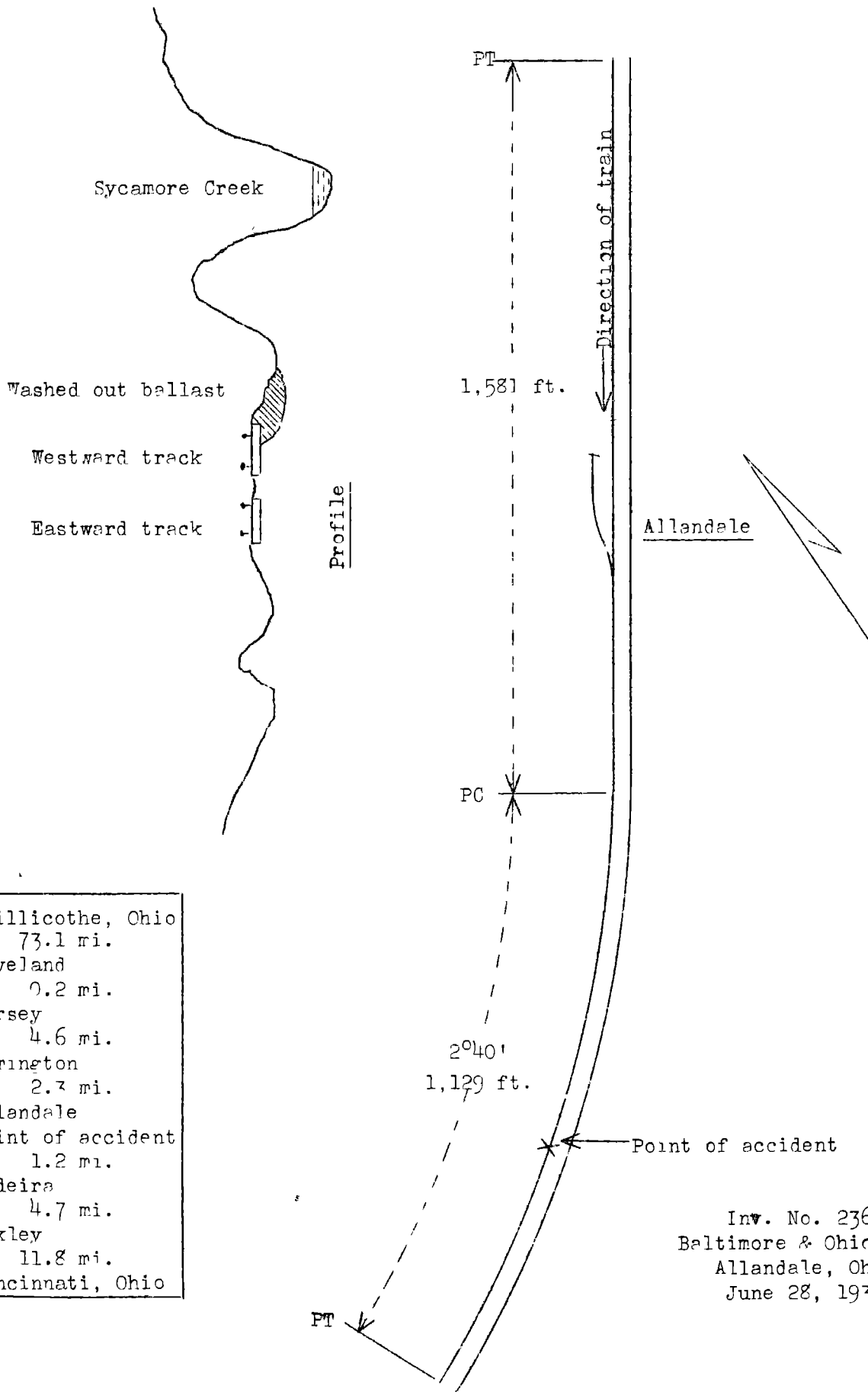
On June 28, 1939, there was a derailment of a freight train on the Baltimore & Ohio Railroad near Allandale, Ohio, which resulted in the death of one employee and the injury of two employees.

Location and Method of Operation

This accident occurred on that part of the Ohio Division designated as the Chillicothe Sub-division, which extends between Chillicothe and Oakley, Ohio, a distance of 86.1 miles. In the vicinity of the point of accident this is a double-track line over which trains are operated by timetable, train orders, and an automatic block-signal system. The accident occurred on the westward main track approximately 1,150 feet west of the spur-track switch at Allandale. Approaching this point from the east there is a $1^{\circ}59'44''$ curve to the right 1,015 feet in length, then a tangent 1,581 feet in length, followed by a $2^{\circ}40'$ curve to the right 1,129 feet in length; the accident occurred at a point about the center of this latter-mentioned curve. The grade for west-bound trains is 0.93 percent ascending more than 2 miles to the point of accident and extends to Madeira, a distance of 1 mile beyond, where it then changes to 1.02 percent descending a distance of several miles.

The track structure consisted of 100-pound rail, 33 feet in length, laid on an average of 18 treated ties to the rail length; it was single-spiked, fully tieplated, equipped with 4 anchors per rail, and ballasted with washed gravel to a depth of 7 inches below the ties. The track in this vicinity was not very well maintained.

The south fork of Sycamore Creek parallels the eastward track at the south from the peak of the grade at Maderia eastward a distance of 3,690 feet; it then passes under both tracks and parallels the westward track at the north at a distance of from 15 to 40 feet to and beyond Allandale. Drainage ditches are provided at each side of the tracks; these ditches are approximately 1 foot in depth below the grade line, 1 foot wide at the bottom, and 3 feet wide at the top. In the vicinity of the point of accident an earth bank, varying from 2 to 10 feet in height, separates the creek from the railroad ditch. Approximately 65 feet east of the point of derailment a ditch had been



o	Chillicothe, Ohio
	73.1 mi.
o	Loveland
	0.2 mi.
o	Dorsey
	4.6 mi.
o	Remington
	2.3 mi.
o	Allandale
X	Point of accident
	1.2 mi.
o	Wadeira
	4.7 mi.
o	Oakley
	11.8 mi.
o	Cincinnati, Ohio

Inv. No. 2367
 Baltimore & Ohio R.R.
 Allandale, Ohio
 June 28, 1939

cut through this bank to the creek; the bank at this point was 30 inches in height above the roadbed and sloped gradually toward the east a distance of 300 feet to where the ground was level. A 36-inch pipe culvert under the tracks was situated about 10 feet east of the ditch. The drainage area which contributed to Sycamore Creek comprised about 0.8 square mile and about 0.9 square mile, respectively, at the north and the south sides of the tracks.

The bank between the creek and the tracks was covered with small trees and shrubbery, and the view had by the engine-man of a west-bound train was very much restricted.

Automatic signal W-176-46 is located 3,153 feet east of the point of accident.

It was raining at the time of the accident, which occurred at 9:10 p. m.

Description

Extra 4534-4530, symbol Cincinnati 97, a west-bound freight train, consisted of 40 loaded and 68 empty cars and a caboose, hauled by engines 4534 and 4530, both of the 2-8-2 type, and was in charge of Conductor Hopkins and Enginemen Hobensack and Alexander. This train departed from Chillicothe, 80.2 miles east of Allandale, at 3:43 p. m., according to the train sheet, picked up one car en route, and at Loveland, the last open office, 7.1 miles east of Allandale, the following message was received:

Engine 4574 west, engine disabled Remington,
cut off and assist over Madeira.

Extra 4534-4530 departed from Loveland at 7:41 p. m., stopped about three-fourths mile east of Allandale, where the leading engine was cut off and then this engine shoved Extra 4574 up the grade to Madeira. After the leading engine returned, the train proceeded westward, passed signal W-176-46 displaying a proceed indication, passed Allandale, and was derailed at a washout while moving at a speed estimated to have been between 8 and 12 miles per hour.

The leading engine stopped on its right side, parallel to the track, and with its front end approximately 100 feet west of the east end of the washout; the engine was badly damaged. Its tender remained coupled and stopped on its right side with its rear end on the westward track, and was uncoupled from the second engine. The second engine was not derailed, but its front end leaned to the left because of the soft track. The twenty-fourth, twenty-fifth, and twenty-sixth cars were buckled from the train and stopped across both tracks, but did not sus-

tain heavy damage. The remaining equipment was neither derailed nor damaged.

The employee killed was the front brakeman, who was on the leading engine, and the employees injured were the engineman and the fireman of the leading engine.

Summary of Evidence

Engineman Hobensack, of the leading engine, stated that the air brakes had been tested before leaving Chillicothe and they functioned properly en route. After leaving Loveland he was flagged twice en route to assist Extra 4574, which had become stalled. The last time was in the vicinity of Remington, 2.3 miles east of Allandale. His engine was cut off from the train and used to shove Extra 4574 to Madeira, 1.2 miles west of Allandale. During this movement the rain was so heavy that at times he could not ascertain his location. Then he started back to get his train and when he reached Camargo crossing, the first crossing east of Madeira, the water from both sides of the highway was running over the tracks. Throughout a distance of four or five rail lengths water reached the bottom of the journal boxes; there were some places where water was up to the rails and other places where it was an inch or more above the rails; the ditches along the tracks were full. He stopped his engine at Camargo crossing, returned to Madeira, and about 8:25 p. m. reported the water condition to the dispatcher. The dispatcher instructed him to stop No. 29, a first-class train, which was moving westward on the eastward track. As he started back the water was receding and when he reached the west end of the curve on which the accident later occurred, the water was above the rails about 1 inch and was moving rapidly. The front brakeman alighted and, walking between the two main tracks, he proceeded the engine around the curve, but gave no signal to indicate a dangerous track condition. The only place that looked bad was at the point where the ditch drains into the creek, but there appeared to be ample ballast at the ends of the ties, and as they proceeded toward the east end of the curve there was no water over the rails. The track appeared to be safe and he did not notice it giving way at any point. The rain had practically stopped when they reached their train. No. 29 appeared on the eastward track, and the brakeman flagged it and informed the engine crew of the track condition ahead. The leading engine was recoupled to their train and several attempts were made to start. An engine appeared at their rear and assisted in starting their train up the hill. Engineman Hobensack stated that when he passed signal W-176-46 it displayed a proceed indication and the train was moving at a speed of about 12 miles per hour when it was derailed. He thought the accident occurred about 20 or 25 minutes after he had last passed over the track with the light engine. He had been operating over this territory 34 years and previously had never experienced trouble caused by water on the

east side of the Madeira hill.

Fireman Glenn, of the leading engine, stated that after shoving Extra 4574 up the hill to Madeira, they started to return to their train, which had been left about three-fourths mile east of Allandale crossing. Water was washing debris upon the tracks, and they returned to Madeira to report the condition. When the engine returned eastward the second time the front brakeman preceded the engine a distance of about 30 yards at Camargo Road crossing where the water was running over the track; he also preceded the engine at Allandale crossing, but the water had receded somewhat at that point and was up only to the ties. They had traversed the track four times prior to the accident and at no time had he considered that the track was unsafe.

Engineman Alexander and Fireman McDonald, of the second engine, stated that west of Remington it rained exceptionally hard for 30 or 35 minutes. They stopped about 65 or 70 car lengths east of the point of accident and waited while the leading engine shoved Extra 4574 up the hill, and Engineman Alexander thought that 15 or 20 minutes elapsed from the time the leading engine returned to their train to the time of the accident. When his train started forward again, the headlight on the leading engine was burning brightly. He did not see any water on the track and did not have any warning whatever prior to the time the leading engine turned over. It was not raining hard at the time of the accident, which occurred about 9:10 p. m. Fireman McDonald stated that he thought he saw water over the ties on the crossing at Allandale, although it was dark and it was raining hard.

Conductor Hopkins stated that he was at the head end of his train when the leading engine returned after shoving Extra 4574 up the hill to Madeira, but nothing was said by the crew of the leading engine relative to the condition of the track. He boarded the train about 50 car lengths from the caboose and was on a tank car when the train stopped suddenly. After the accident, at the point where the engine turned over on its right side, he found that the ballast had been washed out from under the ties on the north side of the track. There was no water on the track at that time.

Flagman Cahill stated that the engine of Extra 4512 was shoving his train when the accident occurred.

The statements of the various members of the crew of Extra 4512 indicated that their engine had shoved Extra 4534-4530 a distance of from 40 to 50 car lengths at a speed of 8 or 10 miles per hour when the accident occurred.

Engineman Dean, of Extra 4574, stated that because of a die pin having been lost from the left link-block he was unable to reverse his engine and to take slack; therefore it was

necessary for engine 4534 to shove his train in the vicinity of Dorsey, 0.2 mile west of Loveland, and again up the hill to Madeira. It was his opinion that he could have handled the train if it had not been for the heavy rainfall, which was of such proportions that it was impossible to keep sufficient sand on the rail. He had never seen it rain harder than it did from the time he left Allandale until he reached Oakley. The water was running over the tracks at the crossings at Allandale and Madeira, and the ditches along the track were filled with water. He did not notice any rough spots and when he descended the west slope of Madeira hill there was much more water. He encountered water and some drift on the track. He stopped at Madisonville, 2.5 miles beyond Madeira, and reported these conditions to the operator at East Norwood.

Fireman Holley, of Extra 4574, stated that the engine became stalled, just east of Allandale and water was running on the track, and after they got started he observed that the side ditches were full and the current was swift; there was some water between the tracks, but he noticed nothing wrong with the track.

Conductor Dugan, Front Brakeman Sorg and Flagman Pinkerton, of Extra 4574, stated that as their train ascended the hill to Madeira they observed the water rising in the side ditches, but no water was flowing on the track, except in the vicinity of the east switch of the eastward siding where water was nearing the rail. As the train descended the west slope Conductor Dugan became very much concerned about the condition on that side, as water was very high, and he instructed the flagman to go back to protect the track. Flagman Pinkerton stated that it was about 8:25 p. m. when he alighted from the caboosc. He flagged No. 29 and informed the engineman that he had found the eastward track to be all right. He continued eastward, found brush and debris on the track at the first crossing west of Madeira, and the westward track badly washed. Reaching Madeira about 9:05 p. m. he called the dispatcher and reported No. 29 as having passed him. He heard Extra 4534-4530 coming up the hill and about 9:10 p. m. he heard the engine whistle sounding continuously. He continued eastward and met Engineman Alexander who informed him of the occurrence of the accident.

The statements of the members of the crew of No. 29 indicated that the only place they encountered water on the track was at the east siding switch at Madeira. Debris on the track indicated that water had been flowing over the track, but at this time it had receded. They estimated variously that their train stopped at the station at Madeira between 8:30 and 9 p. m.

Dispatcher Gibson stated that Engineman Hobensack called him from Madeira about 8:20 or 8:25 p. m. and reported water and drift on the track. About 8:35 or 8:40 p. m. he called

out the section men at Madisonville and Loveland and called Supervisor of Track Begley. About 8:55 or 9 p. m. Engineman Creager, of No. 29, called and said not to permit east-bound trains to use the eastward track between Madeira and Allandale until the track had been patrolled.

Section Foreman Allen, in charge of the section on which the accident occurred, stated that he was at his home in Remington, approximately $2\frac{1}{2}$ miles east of the point of accident, on the evening of the accident, and although a heavy rain had fallen he did not think it sufficient to damage the track. He did not have a telephone in his home, and the telephone on which he is called was out of service. He had been over his section that day, at which time the ditches were clear and there was no indication of washed track.

Section Foreman Colwell, in charge of the adjoining section at the west, stated that he was in his home at Madisonville, 4.3 miles west of Allandale, on the evening of the accident. He did not think that the rain had been sufficient to damage the track. About 8:45 p. m. he was called by the dispatcher to patrol the track, as water had been reported on the track between Allandale and Madeira. When he asked for a line-up he was told to wait a short time, and later was instructed to go to the point of accident on the wreck train.

J. F. Laffey, retired section foreman, who lives at Madeira, stated that it rained continuously for 3 or more hours, and about 9 p. m. the rainfall was heaviest. His home is situated about one-third mile west of the east switch of the eastward siding, at the south side of the tracks, and faces Camargo Road. The water was 3 inches deep on the concrete street and was moving 30 or 35 miles per hour toward the tracks. The ditches were filled with water, and he could see an area of water extending at least 300 feet, which was 3 feet deep at some places. He had never seen so much water around Madeira. There are no sewers for surface drainage, the open ditches serving this purpose. Prior to his retirement he had been section foreman at Madeira for 46 years, and during that period there had been times when the ballast had washed out up to the ends of the ties, and in some places under the ends of the ties, but it was never unsafe for train movements at least at restricted speed.

Supervisor of Track Begley stated that the operator at Midland City called him about 8:40 p. m. and reported water over the track from Madeira to Blue Cut, which is east of Allandale. Supervisor Begley told the operator to have the dispatcher call the section foreman at Madisonville and Loveland to patrol the track, and he himself started out immediately. About 9 p. m. he was on the dispatcher's telephone at Blanchester and, hearing the brakeman report the continuous whistling of the engine at Allandale, he realized that something was wrong. He proceeded

immediately to Allandale and reached the point of accident about 10:20 p. m. The water had receded at that time, and there was very little water in the ditches. From the point of accident westward to the east switch of the eastward siding at Madeira the ballast at the shoulders of both the eastward and westward tracks had been washed out to the ends of the ties. At one point on the westward track, the ballast had been washed out between the ties to a depth of about 1 foot. The eastward track was in safe condition except at a point immediately east of the point of derailment where the ballast had washed out from between and from under the ties to a depth of about 1 foot throughout a distance of about 15 feet. At the point of accident the ballast had been washed out 1 foot inside the north rail of the westward track a distance of approximately 100 feet.

Assistant Division Engineer Gilmore stated that when he arrived at the scene of accident no water was flowing in the side ditches, but a large volume of water was flowing in Sycamore Creek. At a point about 150 feet east of the point of derailment water had cut across the tracks and washed a hole about 3 feet deep from the south to the north under both tracks. A few feet west of the 36-inch pipe culvert where the side ditch leads into Sycamore Creek, water had washed out the ballast on the north side from under the ends of the ties a distance inside the rail of 1 foot and from 2 to $2\frac{1}{2}$ feet deep under the ties. From this point westward to the east switch of the eastward siding the ballast had been washed out from the ends of the ties from 18 inches to 3 feet deep. Assistant Division Engineer Gilmore stated that he continued toward the station at Madeira and found that ties and logs had been washed upon the eastward track, which indicated that the water had been over the rail at various points. There had been a bad washout at the east end of the eastward siding at a concrete culvert.

Discussion

The investigation disclosed that an unusually heavy rainfall occurred in the vicinity of Madeira between 8 and 9 p.m. The drainage ditches paralleling the tracks were unable to convey the abnormal volume of water and the tracks were covered at several places. As a result the ballast was washed out at the ends of the ties on both sides of the roadbed. At the north side from the east switch of the eastward siding to the point of derailment, the ballast had been washed out to the ends of the ties a depth of 18 inches to 3 feet; at the point of derailment it had been washed out inside the outer or north rail a distance of 1 foot and from 2 to $2\frac{1}{2}$ feet in depth under the ties; and at a point about 150 feet east of the point of derailment water had cut across from the south to the north and washed a hole about 3 feet deep under both tracks.

The leading engine of the train involved had just traversed the territory between Allandale and Madeira prior to the derailment. It had shoved a freight train up the hill to Madeira during a heavy rain, and when it started back toward its train, which had been left about three-fourths mile east of Allandale, the crew observed that water was running over the track at several places, and at one point it reached the journal boxes. The engineman stated that he stopped his engine at Camargo crossing and returned to Madeira to report the conditions, and when the engine started back toward his train the second time the front brakeman alighted and, walking between the tracks, preceded the engine on the curve on which the accident later occurred, but observed nothing dangerous. The water had receded somewhat, although at the west end of the curve it was about 1 inch above the rails and was flowing rapidly. At the point where the ditch drained into the creek, which was just east of the point of derailment, the track appeared to be in bad condition, but there seemed to be sufficient ballast at the ends of the ties, and the engineman felt that the track was safe for the speed at which he operated the train. The fireman stated that their engine traversed the track at the point of accident four times prior to its occurrence and at no time had he considered that the track was unsafe. According to the evidence, the front brakeman, who had preceded the engine on its return to their train and who was killed in the accident, did not indicate any dangerous track condition. The accident occurred about 20 or 25 minutes after the engine had passed over the track the last time, at which time the water appeared to be receding.

As soon as the engineman reported the water conditions from Madeira the dispatcher called the section foremen and the track supervisor, but the accident occurred before they could patrol the track. As his train descended the west slope of the hill the flagman of Extra 4574, the train which had been shoved up the hill by engine 4534, left his caboose to go back to patrol the track because there appeared to be more water on the west slope than on the east slope, but the accident occurred before he reached the east slope.

Judging from the amount of rainfall at their homes, located 2.5 miles and 4.3 miles from the point of accident, the section foreman in charge of the track involved and the section foreman of an adjacent section thought the rainfall was not sufficient to endanger the track.

According to the evidence, this was the first time in more than 46 years that the track in this vicinity had been washed sufficiently to endanger train movements.

Conclusion

This accident was caused by a washout.

Respectfully submitted,

W. J. PATTERSON,

Director.