

EFFECT OF THE FLOOD ON THE OHIO ELECTRIC RAILWAY

Conditions on the Ohio Electric Railway system are becoming normal again rapidly, except at points where track and bridges were damaged so seriously that time will be required to prepare them for regular operation. The difficulty with floods began to develop on the morning of Tuesday, March 25, on the most northerly lines of the sys-



Ohio Flood—Washed-Out Culvert on Ohio Electric Railway

tem, and as the floods swept south other lines and property controlled by the company were affected on succeeding days. Communication between the different offices and the general offices in Cincinnati was cut off for a time but was restored as quickly as possible and the work necessary to permit resumption of operation was begun. The full extent of the damage done to the property of the company cannot be judged accurately at this time, but the principal points at which loss has been sustained are given in the following summary of conditions on the entire property. The system is divided into several districts and in all of these some difficulties causing suspension of operations have arisen.

THE SOUTHERN DISTRICT

The southern district is that served by the Cincinnati, Dayton & Toledo Traction Company, which is leased by the Ohio Electric Railway Company and comprises the interurban line between Cincinnati and Dayton, the branch line from Miamisburg to Germantown, the Hamilton city railway line and the Dayton city railway line. The greatest loss in this district, and in fact on the entire system, was between Dayton and Hamilton. About 50 per cent of the high-tension transmission line between these two points was destroyed.

Very little damage was done between Dayton and West Carrollton, but between the latter point and Miamisburg the track was washed very badly in a number of places. Thus a bridge across the Miami River on the Miamisburg-Germantown branch and about 50 per cent of the track between Miamisburg and Franklin were washed out. The greatest damage in this section, however, was at Chautauqua, where for a distance of about half a mile the tracks and roadbed, as well as poles and wires, were entirely washed away. Some of the rail is badly bent and twisted and cannot be used at all.

The substation at Franklin was damaged slightly by water, and there was about 2 ft. of water in the building. Between Franklin and Middletown there were a large number of washouts, but none of these was very serious. Very little damage was done to property at Middletown. South of Middletown, however, a new 1200-ft. bridge with concrete piers and abutments was completely wrecked. This bridge crossed the Miami River and was built two years ago of 90-ft. plate girders. The abutment of this bridge on the Middletown side remains, together with the first pier from that abutment, and also two piers about the middle of the river. The latter two piers, however, were damaged. The span of girders supported by the

abutment and the first pier remain in place. The other piers were washed away. The approaches on both sides of the Middletown bridge were damaged badly. The tremendous force with which the water swept down on this bridge is shown by the fact that two bridges of the Cleveland, Cincinnati, Chicago & St. Louis Railroad just above this one, which were erected at about the same time but were of much heavier construction, were also wrecked completely.

The overway across the Cincinnati, Hamilton & Dayton Railway tracks on the line between Middletown and Trenton was also wrecked completely, but the bridge over Elk Creek, a short distance away, was not damaged. With the exception of one washout on the tracks between Trenton and West Hamilton the damage in this section was slight.

On B Street in West Hamilton for a distance of a mile, although the tracks were not damaged, the overhead construction was entirely destroyed. Practically every pole was cut off at the ground line and carried away. When the flood reached West Hamilton it came so suddenly and with such force that one car on the city line which was caught on B Street was wrecked by floating debris. The upper structure of the car body was battered to pieces and carried away. Although the force of the water was not strong enough to carry away the car motors and trucks, which remained on the track, numerous freight cars of the steam railroad company in this vicinity were swept away.

The county bridge at High Street connecting West Hamilton and East Hamilton was completely destroyed, and this cut the line of the company in two at that point.

A good deal of damage was done to some of the city lines in Hamilton, and there were a number of washouts between that city and the terminal of the interurban lines in Cincinnati.

THE WESTERN AND NORTHERN DISTRICTS

The western district comprises the interurban lines between Dayton, Ohio, and Richmond, Ind., and between Dayton, Ohio, and Union City, Ind. These lines were damaged very slightly, but their operation was discontinued until April 7 on account of the power situation. The lines receive current from the Lindenwald power station at Hamilton, Ohio, but were unable to get it because of the destruction of the high-tension transmission lines extending from Lindenwald to O'Neils, the first substation south of Dayton.

The northern district comprises the Lima city railway,



Ohio Flood—Damaged Track Between Springfield and Dayton

light, power and heat plants, the interurban lines between Lima and Defiance, Lima and Toledo, Lima and Fort Wayne and Lima and Springfield.

On these lines the damage was very slight, though about 17 miles of track were under water, and one end of the bridge at West Liberty dropped a little, but has been raised since. Several of the lines discontinued operation

for from four to five days, but all are open now and normal service has been resumed. No damage was sustained by the city railway and lighting systems of Lima.

THE CENTRAL DISTRICT

The central district comprises the interurban line from Dayton to Columbus, the branch line from Medway to New Carlisle and the Columbus-Orient interurban line.

The line between Columbus and Dayton suffered a good deal of damage immediately west of Columbus. The paving, foundations and tracks were washed out for a distance of about 800 ft., and as the city bridge across the Scioto River at Tom Street, Columbus, was also washed out, operation into that city was necessarily discontinued. A temporary bridge is being built at this point, which will permit the resumption of operation soon. No damage whatever was done to the new interurban station at Columbus and the damage between Columbus and Springfield and in the city of Springfield was small.

On the line between Springfield and Durbin about 1000 ft. of track were washed out. Between Durbin and Osborne, a distance of about 11 miles, stretches of track were washed out entirely, and so powerful was the force of the water that in some places it is scarcely possible to see where the roadbed was originally. Right-of-way fences and poles, as well as track and roadbed, have disappeared completely on sections of the line between these two points. Where part of the roadbed stood originally at one point on this section there is a pool of water about 2000 ft. long, which in some places is 16 ft. deep. None of the structures or bridges on this section sustained any damage.

Between Durbin and Dayton the amount of damage was slight. The line has not yet been operated into Dayton because of the fact that Third Street, on which the tracks extend from Springfield Street to the terminal station, is covered with debris and wrecked houses. The wreckage of houses after drifting in the flood collected in this street and will make it impassable until the street is opened again for traffic. The first floor of the passenger station at Dayton was damaged, but no serious damage was done to the building itself. The freight house at Dayton was not damaged, but the contents were damaged. Very little damage was done to tracks and overhead work at Dayton.

The line between Columbus and Orient was not damaged, but cars can be operated only to the site of the Town Street city bridge crossing the river, because this bridge, as stated, was carried away by the flood.

The power plant at Medway was not damaged, as it happened fortunately that the force of the water carried away the dam raceway at that point and thus released the water, which otherwise would have flooded the power house. On account of the condition of the water operation was suspended for three or four days, but the electrical equipment did not get wet.

THE EASTERN DISTRICT

The eastern district comprises the interurban line from Columbus to Zanesville, the city line in Newark, the interurban line from Newark to Granville and the city lines and light and power plant in Zanesville.

The principal damage in this district was done in the city of Zanesville, where the loss was heavy. Lines of the city system were washed out for stretches of two or three blocks. The city bridge over the Muskingum River at Third Street, over which one line was operated, went out in the flood and that line therefore has not been operated since. The Southeastern Ohio Railway, Light & Power Company also lost its bridge over the Muskingum River at Zanesville.

The water in the power station at Zanesville reached a height of 15 ft., flooding the basement, boiler room and engine room. The water was up 12 in. on the switchboard gallery. This condition made it necessary to abandon lighting service at this point, but transmission lines were extended from the Hebron plant, and two portable sub-

stations were taken to Zanesville, so that current was obtained for the operation of some of the city lines. The Zanesville power plant escaped being wrecked when a girder of the Baltimore & Ohio Railroad bridge, which was dislodged by the water, just grazed the structure. The water entered the building with such force that it carried away all of the windows and sashes. The entire electrical equipment was under water for about three days, and when the water subsided it was necessary to clean out the mud, which had reached a depth of between 1 ft. and 2 ft. In order to dry out the equipment the company put furnaces all through the station, and in addition ran current through the generators at low voltage. Two employees of the Westinghouse Electric & Manufacturing Company, who had had experience in the drying out of equipment damaged by floods, assisted in the work. It was expected on April 11 that lighting service would be resumed in Zanesville in a day or two.

The city line in Newark, the Newark-Granville line and the Hebron plant escaped damage.

The water tore up the track in forty-two places between Newark and Zanesville but only for short stretches in each instance. In one place a rock dropped on the track from an adjoining hill, and this had to be removed with dynamite. On account of these conditions the interurban line could not be operated into Zanesville for several days.

Cars of the company were caught by the flood at various points and were damaged by the water. The principal damage of this nature was done at the carhouse of the company at Mound Street, Columbus, which was flooded. A number of interurban cars were damaged by the water at this carhouse. Three cars were caught in the flood at Miamisburg. About six cars were caught in the flood at Hamilton, two of which were interurban cars. Three cars were in McDowell Street, Columbus, and caught the full force of the flood at that point. Several motor freight cars loaded with freight, which were all ready to leave Dayton, were caught by the flood at that point and damaged.

The lines of the Cincinnati Traction Company and the Ohio Traction Company were but little affected by the flood. Accounts of the experiences of these companies were published in last week's issue.

FLOOD DAMAGE ON OTHER ROADS IN THE CENTRAL WEST

The Cincinnati & Columbus Traction Company had one span of a bridge across the Little Miami River washed away by the recent flood. This was part of a 460-ft. steel bridge at Milford, Ohio. The span which was destroyed was 160 ft. in length. One pier was undermined and toppled over. The bridge span was carried about 150 ft. down the river and was badly twisted and bent. Damage done to the track of this company by the water was inconsequential, although water covered about 5 or 6 miles of the track for one day. No water reached the power house, but when the bridge fell it carried down the overhead work, and on account of this situation operation was discontinued for two days on the western end of the line, although it was discontinued for only one day on the eastern end of the line. As two cars were left on the western end of the line, it was possible to begin operation and passengers crossed the Little Miami River by foot, using the county bridge for this purpose.

With the surface of the Wabash River 3 ft. above the level of the engine-room floor, satisfactory operation of the 12,000-kw generating station at Terre Haute owned by the Terre Haute, Indianapolis & Eastern Traction Company was maintained throughout practically the entire flood. A wall of sandbags was built around the building to deflect the current of the river, and a temporary brick wall was built across the building interior at each end. Centrifugal circulating pumps were used to remove the water which leaked into the basement.