February, 1937

lem will be the repair and replacement of motors, relays, batteries, etc. On the Evansville division, approximately 50 miles of L. & N. road, mostly single track, is under 10 ft. of water, and it is estimated that in this territory alone approximately 98 base-of-themast mechanism signals have been affected. A G.R.S. all-electric plant at Eighth avenue, Evansville, with 14 switch machines, is also under water. Several mechanical plants have been covered, a plant at West Point, Ky., 23 miles out of Louisville, at a crossing of the L. & N. and I. C., being under 16 ft. of water.

N. & W. and the C. & O. Affected

Extended sections of the Norfolk & Western main line were inundated between Kenova, W. Va., and Portsmouth, Ohio, about 87 automatic signals, 7 crossing signal locations and 1 crossing gate location being flooded in this territory. Interlockings at Ironton, Ohio, and Portsmouth, as well as the electro-pneumatic car retarder installation at Portsmouth, were all flooded, and the complete extent of the damage has not, at this writing, been determined, although rehabilitation is being rushed as fast as possible.

The Chesapeake & Ohio main line paralleling the south side of the Ohio river from Huntington, W. Va., to Cincinnati was flooded for extended sections, numerous automatic signals, several interlockings at Huntington and Ashland and one C.T.C. installation at Limeville being damaged by high water. In the vicinity of Cincinnati, the C. & O. tracks and interlockings are at a high level and not much damage was done.

On the C. & E. I. and I. C.

The Chicago & Eastern Illinois line into Evansville was not seriously affected, only three signal locations being damaged by floods, and this road continued to render freight and passenger service throughout the disaster.

The floods affected lines of the Illinois Central at Paducah, Ky., Louisville, Evansville, and Cairo, Ill. However, the damage to interlockings and signaling was limited to about \$25,000. Only one interlocking, a mechanical plant, was flooded. Automatic block signaling was inundated on about 10 miles of line in the vicinity of Paducah and on about 10 miles near Louisville. The water did not get high enough at Mounds, Ill., or at Cairo, to cause any damage to signaling.

Rear-end Collision

ON NOVEMBER 24, 1936, there was a rear-end collision between a passenger train of the Chicago, North Shore & Milwaukee and a passenger train of the Chicago Rapid Transit Company on the tracks of the last-named company at the station at Granville avenue, Chicago, which resulted in the death of 10 passengers and the injury of 58 passengers and 1 employee. An investigation of this accident was made by representatives of the Bureau of Safety, Interstate Commerce Commission, in conjunction with representatives of the Illinois Conimerce Commission.

The accident occurred on a fourtrack line, illustrated in the accompanying sketch, over which trains are operated by time-table and book of

with good visibility, at the time of the accident, which occurred about 6:15 p.m. Train R-5, a northbound "L" express passenger train, passed Lawrence avenue about 6:10 p.m. and had just been stopped at the home signal at Granville avenue when it was struck by train No. 725. Train No. 725, a northbound North Shore passenger train, passed Lawrence avenue at 6:13 p.m., 14 min. late, and was running at a speed estimated to have been about 10 miles per hour when it collided with the rear of the "L" train at Granville avenue. Train R-5 consisted of eight coaches. The sixth and seventh cars were of steel construction, the first, second, and fifth cars were of steel-underframe construction, and the third, fourth,

- To Lawrence Ave.	Tr.1 , Station platform	m To Howard St
	Tr. 2 V	
Tr.	3	
Tr.4	M.	
Direction of trains-	Point of accident	<- 80' -> 19 20

rules, and are subject to the direction of towermen at interlocking plants. The movement from track 4 to track 3 is made by means of a crossover, the facing-point switch on track 4 being located 127 ft. north of the north end of the station platform, which is between tracks 2 and 3. The interlocking signal governing movements over this switch is located 80 ft. north of the station platform and is a two-arm, two-position home signal of the lower-quadrant semaphore type; the top arm, signal 20, governs through movements on track 4 and the lower arm, signal 19, governs crossover movements to track 3. There is no distant signal to indicate to motormen of approaching trains the position of the home signal. These signals and the crossover switches, as well as the other signals and crossovers in the vicinity, are operated from a tower which is located 31 ft. north of the station platform. This accident occurred on track 4, at a point 420 ft. south of the home signal. Approaching this point from the south the track is tangent from Lawrence avenue, a distance of about 13/4 miles, while the grade is practically level. The view from Lawrence avenue northward to the point of accident is unobstructed. The weather was clear, and eighth cars were of wooden construction. Train No. 725 consisted of three coaches, of steel construction.

The first six cars in the "L" train were not derailed and none of them was seriously damaged; one pair of wheels of the seventh car was derailed and this car was slightly damaged; the eighth car was demolished, having been telescoped approximately 35 ft. of its length by the first car of the following train. None of the cars in train No. 725 was derailed and only the front end of the leading car was damaged to any extent. The employee injured was the motorman of train No. 725.

The conclusion of the report of the Bureau of Safety was that this accident was caused by failure of North Shore train No. 725 to be brought under control until it was too late to avoid colliding with the train ahead, and by the lack of any system to provide for the proper spacing of trains. It was recommended that wooden cars be eliminated from service as rapidly as practicable, that the use of wooden cars associated in trains with cars of steel or steel-underframe construction be prohibited, and that immediate consideration be given to the need on this line for an adequate block-signal system.