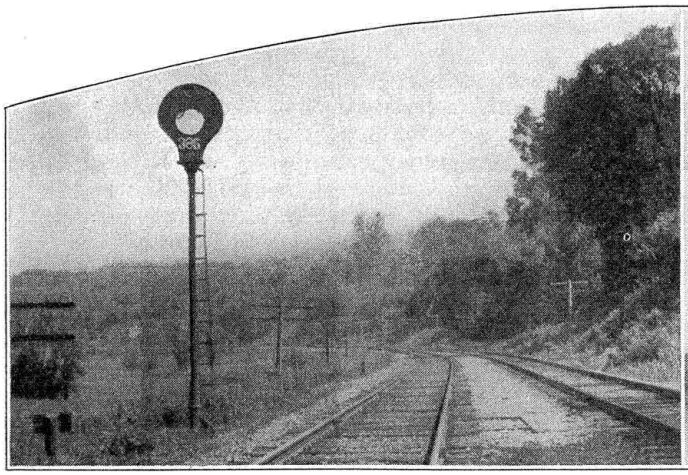
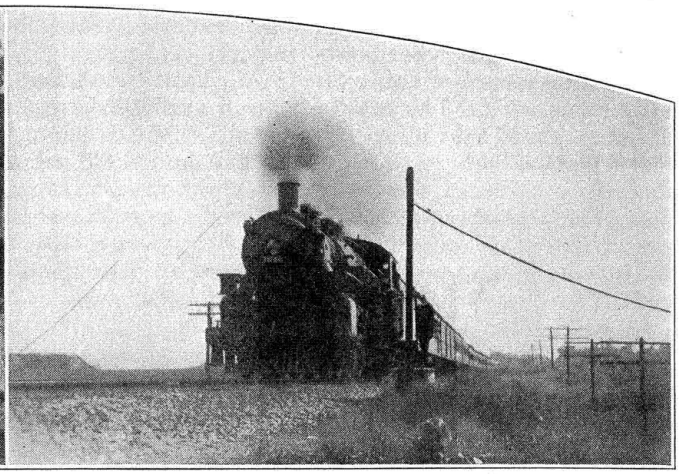


The automatic signals were the Hall disc type, the signals being located at the left, as the C. & N. W. operates left-handed on double track.



A recent picture showing a train passing a former signal location and what might now be termed a phantom location. Many train stops have thus been eliminated.

Automatic Train Control on the Chicago & North Western*

Continuous inductive system used with cab-signals, but without wayside automatic signals—Token and key, and the recurrent acknowledgment are features of systems

By J. A. Peabody
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HARDLY had the running of trains been started than it was found necessary to devise means of stopping them, these studies resulting in the automatic air brake. All of the practical train control devices of today are based on using the air brakes to do the actual work of stopping the trains. Long before the air brake had been perfected, patent applications were made for devices to stop trains when about to get into trouble. With all this enthusiasm to save lives and property a great deal of which was by men who knew little, if anything, about the practical requirements of a railroad, the government was bound to be and it was called on to make investigations and pass legislation.

One of these early stopping devices called for a hook to be installed between the rails which would be raised when necessary and catch on an axle. The fact that if the hook held, it would probably pull the truck from under the car did not seem to trouble the inventor.

By 1900, the inventions had become very numerous, and railroad executives were flooded with suggestions and devices, backed often by men of prominence, particularly shippers, making necessary the giving of serious consideration, even though the device was considered not only impractical but absurd. One of the first devices given a practical test consisted of an arm attached to an automatic signal which would project over the track when the signal was in the stop position. A pipe, connected to the air brakes, projected above the top of the train and on this was erected a glass tube of sufficient length to come in contact with the arm when in the horizontal position. If the signal was not obeyed, the tube would be broken by the arm on the signal and the brake set. Unfortunately icicles formed in a tunnel, broke the tube on a passenger train and the passengers were almost suffocated before they could be released.

Commission Starts Investigation

In 1906, by congressional enactment, the Interstate Commerce Commission was directed to investigate and report on automatic train control. The Block Signal and Train Control Board was appointed, consisting of five disinterested men, and tests and investigations were made at government expense. It is reported that this board investigated over 1,000 devices.

Up to about this time the only devices showing practical possibilities required the opening of a valve in the train air line by a device on the roadside. Signaling had been developed so that the mechanical means originally used for operating the automatic block signals, that is, a treadle hit by the wheels of a train as it passed by, had been superseded by the track circuits. The automatic signal was being rapidly installed for the protection of trains and with this development, signal departments of the railroads were coming into more prominence, and as every train control device that showed practical possibilities depended primarily on some connection with a signal system, it was natural

*This article is an abstract of a paper presented by Mr. Peabody before a recent meeting of the Western Railway Club in Chicago. The lecture was illustrated by lantern slides thrown on the screen, which were explained by Mr. Peabody.