LATEST DEVICES FOR PUBLIC SAFETY

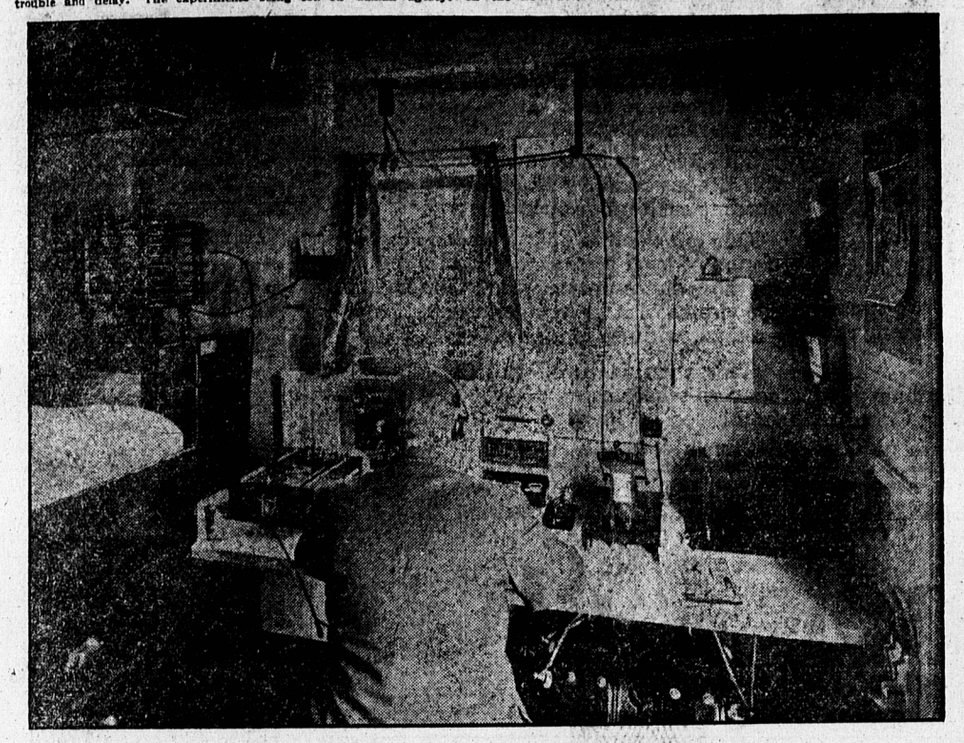
ANGUS SHOPS OF THE CANADIAN PACIFIC RAILWAY CO., MONTREAL.

In the near future, if the experiments now ducted are in connection with a wireless train they are now testing it is claimed that the pro- being tried out by the Canadian Pacific Railway control device which has been invented by Mr. cess is automatic, and that it is absolutely non- prove successful, railway accidents on this road Frank W. Prentice, of Toronto. Within the last dependable on human aid for its working. will be almost impossible. The business man, twenty years the C. P. R. have installed on their So far the system has worked perfectly. A the immigrant, the college undergraduate, and lines many systems which have reduced the risk portion of the Company's tracks between West the newly-weds will be able to travel to their of mishaps to a minimum, but the trouble is Toronto and Parkdale, has been equipped with heart's content without fear of meeting with that these systems are all somewhere dependent apparatus, and in tests made so far trains of trouble and delay. The experiments being con- on human agency. In the new device which eleven and twelve cars have been stopped by the wireless wave in a little over 30 seconds, with absolutely no interference by the engineer or other trainmen.

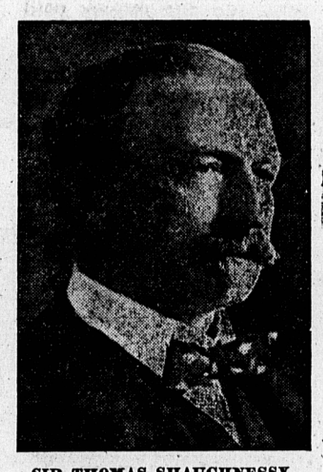
The installation on which the experiments are being conducted comprises two miles of double-tracking, consisting of six blocks, each 2,500 to 3,000 feet in length. The wireless wave generators and transformers which raise the voltage from 110 to 22,000, are located at the end of each block, being controlled by alternating current and relays. The wireless wave is contained in a wooden trunking laid midway between the rails.

The system so operates that a train entering a block stops the wave in the block to the rear, giving the danger condition to a train entering that block. The current runs to meet the train always. The receiving device is located on the foot or running board of the locomotive, and consists of a rotating coherer for receiving the current, a train line valve and an air whistle, both controlled by this coherer. Connected with the coherer is a receiving antennae suspended beneath the engine, six inches above the wooden trunking in the middle of the track. When the block ahead is safe the wireless wave emanating from the wave wire continuously spans the gap between the trunking and the moving train, assuring the engineer that all is well. Three seconds after this continuity is broken by some train occupying the block ahead the air whistle gives warning to the engineer. Three seconds more and the brakes are applied to the train, and whether the driver wills it or not the train is brought to a standstill. When the air whistle sounds so long as there is danger ahead. gives the alarm, the driver can if he wishes press a button in the cab and so prevent the application of the brakes, but the whistle continues to sound so long as there is danger ahead.

If, as seems likely from the preliminary trials, the Prentice system is found feasible, a more extended addition of it is practically certain on the C. P. R. lines.



WIRELESS OPERATOR ON BOARD STEAMSHIP.
All of the palatial steamships oper-ated by the C. P. R. in their Atlantic and Pacific Ocean services are equipped with wireless telegraph apparatus. They are also equipped with special fog signals.



SIR THOMAS SHAUGHNESSY.
President C. P. R.

The following dispatch gives the full story of the invention of the C. P. R. system of wireless train control:

Engine No. 798 of the Canadian Pacific service thundering along at a speed of 45 miles an hour between North Parkdale and West Toronto, last fall, was brought to a standstill with the throttle wide open, the steam gauge registering a pressure of 190 pounds, and Engineer Tom Hallam standing in his cab, a mere spectator.

The brakes had been applied on the big locomotive and train of twelve cars by electricity. The engineer's hand had nothing whatever to do with it, and there was something absolutely uncanny in the demonstration. It seemed as though some giant hand had seized the equipment while in full career and held it as easily as does a policeman a small boy.

DISPATCHING TRAINS BY TELEPHONE ON THE C. P. R.
Over 4,000 miles of the Canadian Pacific Railway's lines are now equipped with telephone train dispatching circuits. This is a great deal safer than the old method of dispatching trains by telegraph, and besides has the added value of allowing quick communication between a train stalled or derailed between stations and the nearest dispatcher.

EMPLOYEES BEING INSTRUCTED HOW TO PROCEED IN CASE OF ACCIDENT.
Over two thousand employees of the Canadian Pacific Railway are in a position to render First Aid to Passengers in case of necessity. Branches of the St. John's Ambulance Society have been established at all the principal points on the railway and the company employs an instructor to conduct examinations, etc.

F. W. PRENTICE.
Inventor of Wireless Train Control.

Culmination of Tests.

Experiments with a wireless train control system have been quietly conducted on that part of C. P. R. right of way for some time, and the demonstration was the culmination of a long series of successful tests. Engine No. 798 weighs, when loaded, close to 115 tons. The twelve cars making up the train would make, on a conservative estimate, about 240 tons more. When one takes into consideration the speed at which the train was running, the grip of the wireless at once commands attention.

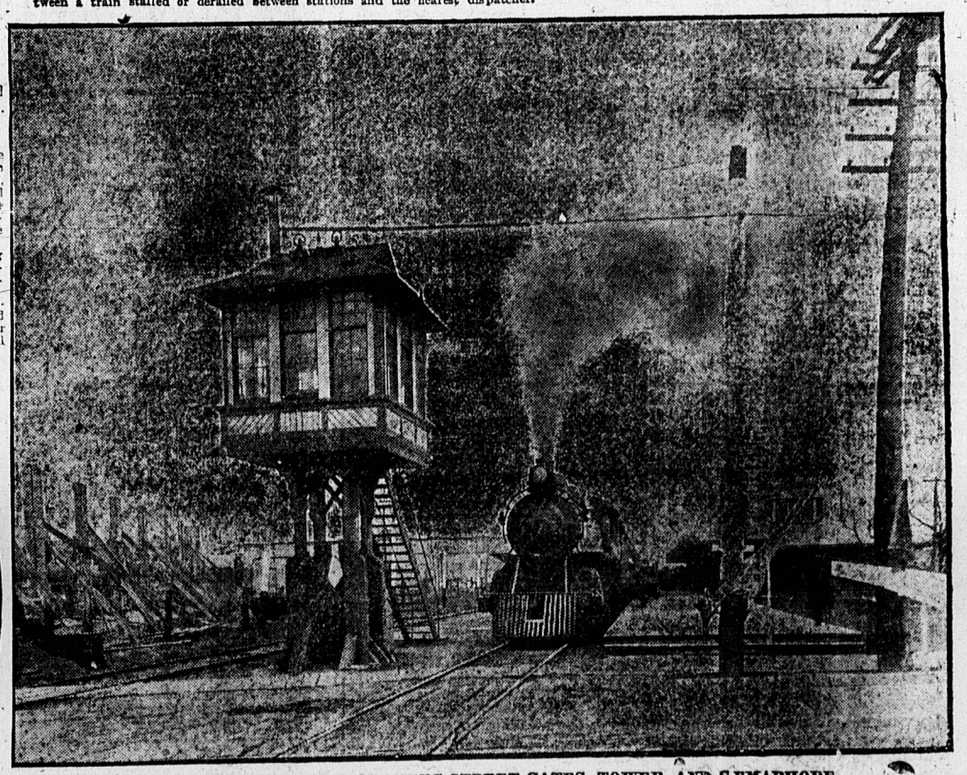
This automatic train-control system is the invention of a Toronto man, Frank W. Prentice, of Melbourne Avenue, and the wizard Marconi can claim some small credit for the idea.

Fourteen or fifteen years ago, when the exploits of the little Italian genius were the talk of the world, Mr. Prentice became interested. At that time he was a dispatcher for the Canadian Pacific in Toronto, Ont. A Toronto man wanted to have a wireless apparatus built for advertising, and the operator built it for him. Shortly afterwards he moved to Pittsburg to the Baltimore & Ohio Railway, where he became chief clerk to the chief dispatcher of that road, in the Smoky City.

Dream Suggested Wireless.

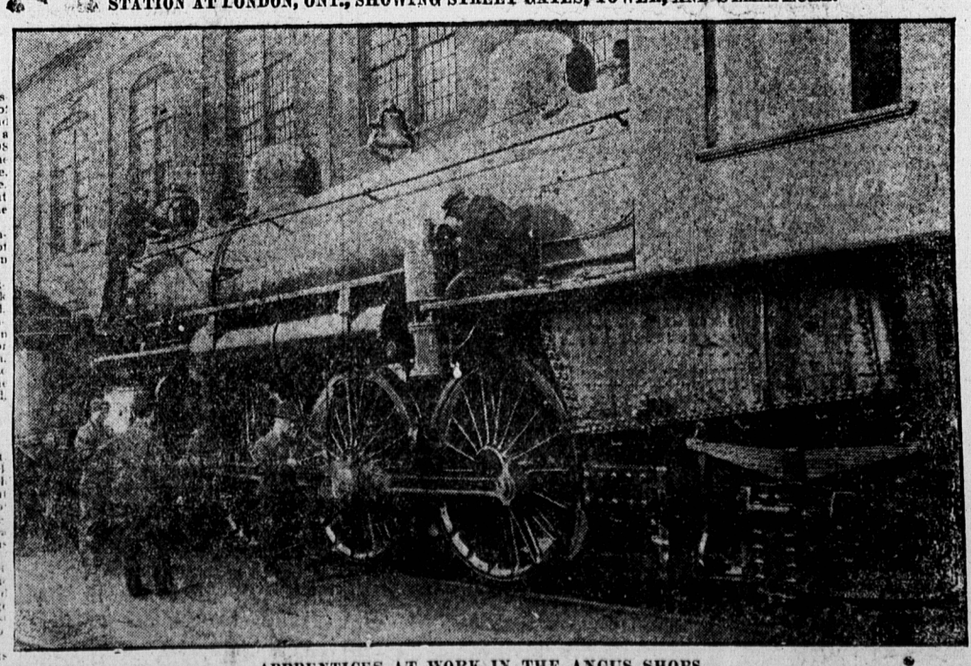
Fourteen years ago, on the 13th day of August there was a head-on collision between a stock train and a passenger train on the line in which a friend of his was involved. He worried about it a good deal, and that night had a dream of placing a wireless generator on the van to prevent such accidents. Awakening with the idea still in his mind, he commenced work, and has been at it ever since.

The Baltimore & Ohio Company paid $40,000 for his experiments, which were conducted on the ten-mile stretch of track between Relay and Elkridge, out of Baltimore—the same mileage where Morse, of telegraphic fame, sent his first successful message, and where the first locomotive was first successfully operated by steam. since then he has been conducting experiments on the C. P. R.



STATION AT LONDON, ONT., SHOWING STREET GATES, TOWER, AND SEMAPHORE.

INTERIOR VIEW OF AIR BRAKE INSTRUCTION CAR.
Every employee on the C. P. R. trains has a thorough understanding of the construction and action of the air brake. Every year the Company's Air Brake Instruction Car makes the trip over the lines and gives lectures on matters connected with the brake.



APPRENTICES AT WORK IN THE ANGUS SHOPS.
Apprentices at the Angus Shops of the Canadian Pacific Railway at Montreal are very carefully trained. When a boy enters the shops he is first of all given a thorough grounding in the principles of reading, writing, and arithmetic, and is then put to work under a competent instructor. During this course of studies his pay goes on at the same rate as though he were working. The C. P. R. builds all its own rolling stock and its equipment is all thoroughly overhauled every year, thus minimizing the danger arising from defective parts.