



ESTABLISHED IN APRIL, 1856.

Published Every Friday.

At 73 Broadway, New York.

The subscription price is \$4.20 a year in North America, and \$6.08 in foreign countries.

EDITORIAL ANNOUNCEMENTS.

Contributions.—*Subscribers and others will materially assist us in making our news accurate and complete if they will send us early information of events which take place under their observation, such as changes in railroad officers, organizations and changes of companies in their management, particulars as to the business of the letting, progress and completion of contracts for new works or important improvements of old ones, experiments in the construction of roads and machinery and railroads, and suggestions as to its improvement. Discussions of subjects pertaining to all departments of railroad business by men practically acquainted with them are especially desired. Offers will oblige us by forwarding early copies of notices of meetings, elections, appointments, and especially annual reports, some notice of all of which will be published.*

Advertisements.—*We wish it distinctly understood that we will entertain no proposition to publish anything in his journal for pay, EXCEPT IN THE ADVERTISING COLUMNS. We give in our editorial columns OUR OWN OPINIONS and those only, and in our news columns present only such matter as we consider interesting, and important to our readers. Those who wish to recommend their inventions, machinery, supplies, financial schemes etc., to our readers can do so fully in our advertising columns, but it is useless to ask us to recommend them editorially, either for money or in consideration of advertising patronage.*

Some of the large railroad companies are watching carefully the attempts to introduce new air brakes and are trying to prevent the use of inefficient brakes on freight trains. So far, orders have been issued to conductors to cut out uncertain and unknown air brakes only; but a further decision has been reached that if such brakes are found to be cut in with the standard brakes of the road, owing to the inability on the part of inspectors and trainmen to distinguish between the good and the bad, something will be done to prevent as far as possible receiving cars with uncertain brakes. At present cards will be issued to be tacked on each side of the cars with the words "odd air brake" there on. An important step has already been taken by the Executive Committee of the Master Car Builders' Association in the allotment of the subject of standard air brake tests to the Committee on Metal for Brake Shoes, Messrs. Rhodes, Wall and Gibbs. The primary purpose of this Committee is, as we understand, to compare the New York with the Westinghouse, taking the latter as a standard. This Committee has already had one meeting. The interest shown by several general managers to whose attention this matter has been brought is sufficient to encourage the adoption of a clause in the rules of interchange that will prevent the use by private car companies and others of an air brake that is not in every way what has been determined by experiment to be a safe and operative device for freight trains.

The Chicago, Burlington & Quincy is conducting a series of trials of the Westinghouse and the New York air brakes this week at Burlington. The plan was to commence on Wednesday morning with a test of the New York air brake with the new triple valve. On Thursday a test was to be made of the Westinghouse with the light graduating spring, and on Friday a test of the same brake with a heavy graduating spring. It may not be generally known what is meant by the graduating spring; it is the spring under the piston of the triple valve which keeps this piston traveling within the limits of the graduation or service stops under ordinary conditions. When there is a large reduction of pressure in the train pipe, the triple valve piston moves forward and compresses this spring and brings into action the emergency feature which applies the brakes with greater force and rapidity than for service stops. The use of the heavy spring has been a necessity in order to give a greater latitude in which the engineer may work his brake handle without bringing the emergency feature into action, during the period when the old three-way cock is being removed from the locomotives and the new automatic engineer's valve used in its

place. The light graduating spring is the proper one to use as soon as freight trains are nearly all equipped with air brakes and the automatic engineer's valve is generally applied to the engine. These trials at Burlington are the most important that have taken place since the Westinghouse train went around the country in 1887. Measurements will be made of the action of the two types of brakes under regular service conditions on a fifty car train. There will be a dynamometer car and a slideometer in the rear car, as at the Burlington, 1887, tests. The purpose of these tests is to determine two things—the comparative rate of action of the New York air brake and the other the amount of shock produced in a fifty car train with vertical plane couplers in the ordinary condition, in the last car on a fifty car train, during an emergency stop with each type of brakes.

The Chicago & Northwestern has given the Hall Signal Company a contract for automatic wire circuit block signals to equip 87½ miles of its double track lines (on the divisions terminating in Chicago), and in connection with the same work will put in 52 Hall bells at street crossings, thus making the contract the largest ever given for automatic signal work. It calls for the erection of 200 block signals, to be placed at an average of 4,000 ft. apart. President Hughitt, General Manager Whitman, and Assistant Engineer Carter adopted the Hall system after carefully investigating the systems in use on the Pennsylvania, Boston & Albany, New York Central and various other roads. The block signals will be put on the different divisions as follows: Galena Division, from Forty-fifth street (Chicago), to Turner Junction; Milwaukee Division, from Claybourne Junction to Waukegan; Wisconsin Division, from Claybourne Junction to Barrington. The decision to use the wire circuit, with short sections so that no permissive blocking will be allowed, makes this a very interesting installation and it will be watched with much interest. Automatic block signaling has now obtained so good a foothold that the question of its efficiency as compared with the man-operated system is an important one, and managers and signal engineers who desire to see perfection attained will look with interest to the operation of this extensive plant for additional data bearing on the solution of that question. The relative merits of different automatic systems can also be better compared than has been possible so far. For roads of comparatively light traffic the competition, for the present, is between the Hall and the Union Electric clock work. The electro-pneumatic is a very complete system, but probably too expensive for any positions but those where the traffic is intense. The Hall has the advantage of simplicity in using no force but the electro-magnet, but the disadvantage of a glass covering over the signal, if that is a disadvantage. The use of a wire circuit system presupposes absolute blocking only, but absolute blocking is the only right kind under any system. It must also be assumed that trains will not break in two, but that is not an insurmountable difficulty, for these signals have been used for years on the New York, New Haven & Hartford; and it would, moreover, be easy to have the rear car instead of the engine clear the signal for a block section that has been vacated. Western railroad men who have been unwilling to judge of signals operated under Eastern methods will now have a chance to see the working of the wire circuit system under their own conditions, and on one of their best roads.

Three Thousand Miles of Block Signals.

The present marked activity in the matter of block signaling gives ground for confidence that the rate of progress in this means of safety is to show a decided increase, and in view of this probable expansion, it may be worth while to look backward for a moment. Over three thousand miles of American railroad is now operated under block signal rules, a larger total than is appreciated by most men, even those interested, unless they stop to count it up. As the comparing of our lack with England's abundance in this matter has come to be in a sense a habit, it will be well to revise our notes, and, although American signaling is still in its infancy, to definitely recognize the progress that has been made. It should be remembered that we are not to compare our two per cent. out of thousands of miles of "thin" road with Great Britain's 95 per cent. (based on 100 per cent. of very busy roads); the fairer comparison would be to take the roads according to their density of traffic.

To set forth present conditions in a clearer light we have put the mileage of the principal roads running trains under a space interval system in tabular form,

and print the table hereunder. The 8,000-mile estimate just given is made up of the mileage indicated by a star (*). The total of these starred figures is over 3,500 miles, but we have stated the sum conservatively because a number of the items were partly estimated, notably the Pennsylvania system east of Pittsburgh, which has 580 miles that we know of, but on which there are a number of single track divisions for which the exact figures have not come to hand. Other items represent lines on which there are varying conditions, as stated in the footnotes; but the total of the entire list, nearly 7,000 miles, should not by any means be regarded as a "manufactured" statement, for it represents practice which is a decided improvement on old-fashioned methods.

The list includes only those roads employing the space interval to a greater or less extent on a considerable length of road. But as progress may be looked for among those who have already taken some action, it is proper to name, in this connection, a half dozen or more other roads which have small sections of road blocked. These are: Connecticut River; New York, Ontario & Western; Savannah, Florida & Western; Seaboard & Roanoke; East Tennessee, Virginia & Georgia; Nashville, Chattanooga & St. Louis, and Southern Pacific.

MILEAGE OF RAILROADS OPERATED UNDER BLOCK SIGNAL RULES.

	No. Auto- matic Miles of road.	Auto- matic Miles of road.
Baltimore & Ohio.....	320*	
Baltimore & Ohio Southwest.....	8*	
Boston & Albany.....		7*
Central of N. w. Jersey.....	37	
Chesapeake & Ohio.....	848*	
Chicago & Alton.....	33*	
Chicago, Milwaukee & St. Paul.....	6'6"	288*
Cincinnati, Hamilton & Dayton.....	25*	
Cleveland, Cincinnati, Chicago & St. Louis.....	15*	
Fitchburg.....		16*
Lake Shore & Michigan Southern.....	755*	
Michigan Central.....	41*	
New York Central & Hudson River.....	15*	14*
New York, Lake Erie & Western.....	453*	
New York & New England.....		15*
New York, New Haven & Hartford.....	60*	55*
New York, Providence & Boston.....		21*
Old Colony.....		130*
Pennsylvania.....	Entire system east of Pittsburgh.....	700*
Pennsylvania.....	Entire system west of Pittsburgh.....	300
Wabash.....	76*	
West. hore.....	423*	
Total miles.....	6,563	397

We need not repeat what we have often said before, that in consequence of the absence of interlocking much of the block signaling falls a good deal short of perfection, nor that permissive blocking, for freight trains, is practiced on nearly all the lines represented. In fact this last explanation has to be made for a considerable percentage of English roads. And the most that the British Board of Trade has done in the way of compulsion has been to order companies to erect and maintain the apparatus or appliances deemed by the Board necessary for the operation of the block system; no action is taken to prevent permissive blocking, though the inspectors always frown upon it severely when they come across it in an accident investigation.

What we wish to emphasize is the central fact that the safety of passenger trains is being secured, on a mileage that is now large enough to be appreciable, better than can possibly be done by the time interval system. From 1,000 to 1,500 miles of the manual and 200 miles of the automatic signals have been put in use within the past three years. The Erie now has over 300 miles additional in preparation and the Central of New Jersey has just given a contract for about 25 miles of electro-pneumatic signaling for its four track line. The extension of the pneumatic eastward from Pittsburgh on the Pennsylvania and the active preparations being made by the New York Central to block the whole of its main line, 439 miles, are too well known to need repetition. The Hall Signal Co.'s contract with the Chicago & Northwestern, just announced, is more fully spoken of elsewhere.

New York to Chicago in 18 Hours.

A mail train to run from New York to Chicago in about 18 hours, over the New York Central & Hudson River and the Lake Shore & Michigan Southern, has been discussed in the newspapers during the past week.

* Operated under the following rule: "A train that is passed at an open telegraph station by a passenger train going in the same direction, will not leave that station until notified by the operator that the passenger train has passed the next telegraph station. If the wire is not working will wait 20 minutes. A mail train may pass a closed or non-telegraph station to allow a passenger train until 20 minutes after departure of the passenger train."

† All trains blocked a station apart in foggy weather and snowstorms.

‡ Before and behind passenger trains, freight trains run on 10 minute time interval.

§ In foggy weather passenger trains are kept a station apart by the train dispatchers.

|| We are not sure that this does not include some detached station signals.