



FRIDAY, AUGUST 24, 1900.

CONTENTS

ILLUSTRATED:

Electric Interlocking at Fremont and Genoa.....563
 Some Notes on Rail Joint Fastenings.....564, 565
 American Practice in Block Signaling (Inset).....565, 566, 567
 Frame Connections, Heavy Pittsburgh Locomotives.....567
 Works of the New England Gas & Coke Co.....570
 Some Handy Appliances, Shop and Road.....570, 571

CONTRIBUTIONS:

Brake-Beam Pressure.....561
 Y. M. C. A. Night Schools.....561

EDITORIAL:

The Railroad and the Towns.....568
 Purification of Feed-Water.....568
 Telephones in Railroad Signaling.....568
 Editorial Note.....568
 New Publications.....568, 569

MISCELLANEOUS:

The St. Paul and the Northwestern Elevated.....561
 Rail Steel.....561
 Water Supply of the City of New York.....561, 562
 The Transportation Show at Paris.....562, 563
 Alabama as a Field for the Railroad Builder.....563
 Return Circuits and Electrolysis.....563
 Signaling of the Paris Fair Belt.....567
 Purification of Feed-Water.....569, 570

GENERAL NEWS:

Technical.....571, 572
 The Scrap Heap.....572
 Locomotive Building.....572
 Car Building.....572
 Bridge Building.....572
 Meetings and Announcements.....573
 Personal.....573
 Elections and Appointments.....573
 Railroad Construction.....574
 General Railroad News.....574

Contributions

Brake-Beam Pressure.

Chicago, Ill., Aug. 14, 1900.

TO THE EDITOR OF THE RAILROAD GAZETTE.

In your issue of July 27, 1900, under the caption "Brake-Beam Pressure," appears a series of brake-beam tests, conducted under supervision of the department of railroad engineering of the University of Illinois. I desire to call attention to Table 1 of this article. In this table, the column headed "Increase of pressure due to rise of shoes—Per cent." has been computed from the data given in the other columns, using the final pressure as 100 per cent., an untrue basis, since it is the increase of the initial pressure which is under consideration. It will be noted that tables 2 and 3 are computed on the true basis of the initial pressure as 100 per cent. Column, "Increase of pressure due to rise of shoes—Per cent." as published, and again as corrected, follows:

Table No. 1.—Increase of Pressure Due to Rise of Shoes.

No. of trial.	Incorrect. (Final press. 100%) Per cent.	Correct (Initial press. 100%) Per cent.
8	35.0	53.8
9	42.0	72.4
10	35.0	53.3
11	32.0	28.6
14	28.0	40.0
15	47.0	87.9
Mean	34.8	56.0

An inspection of Table No. 1, as corrected, and Table 3, both of which were tests made when brakes were set by hand, will now show the mean increased pressure as follows: Table 1, 56 per cent.; Table 3, 67.7 per cent. These tests therefore harmonize and show more uniform results than appeared from the article as published.

G. P. RITTER.

Y. M. C. A. Night Schools.

3 West Twenty-Ninth Street,
 New York, Aug. 18, 1900.

TO THE EDITOR OF THE RAILROAD GAZETTE.

You and the readers of your valuable periodical are interested in all that improves the character and intelligence of young men.

Aside from the libraries, reading rooms, etc., etc., in hundreds of organizations, the Young Men's Christian Associations maintain a movement for evening schools in which definite standard courses of study are provided and followed. Last year in 350 associations, 26,000 different young men received instruction through the winter season from 1,215 teachers. The Annual Report gives in detail the record of the year's work, including that of the 134 evening schools taking the recent International examinations, the list of 1,498 successful students, and the names of the 108 colleges and universities which are encouraging this work to the degree that they give official recognition to our International certificates. The Prospectus contains a brief outline of the movement, its objects, the list of examiners, the outlined courses of study in twenty-six

fundamental subjects, also the regulations governing the examinations, and the complete sets of questions used last year.

The more we can unitedly lead young men to be interested in all good educational facilities, the more will the public schools and colleges profit and all valuable periodicals, like your own, prosper.

GEO. B. HODGE, Secretary.

The "St. Paul" and the Northwestern Elevated.

On Aug. 13, the Chicago, Milwaukee & St. Paul changed the train schedule of its Evanston Branch so that all but seven trains a day each way are turned at Wilson avenue (Sheridan Park Station) and run back and forth between that station and the end of the Branch. Sheridan Park Station is the terminus of the Northwestern Elevated and at that point the Elevated has on one side the St. Paul Branch and on the other an electric trolley line, both of which form feeders for the Elevated. The St. Paul trains during the morning and evening hours are run every 20 minutes, while the Elevated express trains are run on a 4-minute headway from 6 a. m. to 9:10 a. m., and from 4:35 p. m. to 7:00 p. m. Passengers on the trains which are turned at Sheridan Park Station alight on a platform about 20 ft. from the Elevated stairs and pay a 5-cent fare into the city, the same as other passengers.

The St. Paul Company has no agreement with the Elevated Company and does not sell tickets for the Elevated trains. The tickets sold for the St. Paul trains are the usual commutation tickets and the rate from Wilson avenue to Evanston is \$1 for ten rides, or 10 cents a trip. This, with the 5 cents Elevated fare, makes the rate 15 cents from the center of the city to Evanston. The old 25-ride rate from the St. Paul station to Evanston is \$3.55, which is 14.2 cents per trip.

The new schedule of the St. Paul provides for 50 trains each way, of which only seven run down to the Chicago station. Under the old schedule there were but 27 trains each way, so that by the new arrangement the service is nearly doubled. The average time from Evanston to Wilson avenue by the trains making all the stops is 16 minutes, and by the express trains 12 minutes. The Elevated trains leave 2 minutes after the arrival and require 18 minutes to reach the first station on the Union Loop. The time in transit is about 10 minutes more than to go all the way by the steam roads, but on the other hand the Union Loop stations are in the heart of the business center whereas both the St. Paul and Chicago & Northwestern stations are at some distance and not nearly so accessible. For many the extra time in transit will be more than offset by the time to walk from trains to places of business; this and the greater convenience will doubtless result in an important traffic going by the new route. The new arrangement would appear to be preliminary to the more important scheme for bringing the St. Paul suburban trains down town over the Northwestern Elevated which is held up indefinitely by the refusal of the City Council to permit the Evanston Branch to be operated by electricity.

Rail Steel.

At the recent congress in Paris, on international tests of materials Mr. W. R. Webster spoke briefly on the matter of the composition of rail steel and his remarks are printed below. The English report to which he refers is that of which we made a short review Aug. 3, p. 526.

I would like to call attention to the report of the English committee appointed by the Board of Trade to inquire into The Loss of Strength in Steel Rails Through Use, as their work has been in the same lines as that of the American committee referred to by Mr. Colby. The following is quoted from Appendix VII of the English report: It is probable that the Board of Trade will expect or desire the committee to recommend an analysis for the guidance of engineers and manufacturers, which shall, in the judgment and experience of the committee, be the composition of the steel to insure a good and safe wearing rail. I therefore suggest, after careful consideration from the points of view of the manufacturer and user, that, exclusive of the iron, a steel rail should have the following range of composition:

	Minimum.	Maximum.
Carbon.....	.35	.5
Silicon.....	.05	.1
Sulphur.....	.04	.08
Phosphorus.....	.08	.10
Manganese.....	.75	1.00

Mr. Edward P. Martin, of Dowlais, considered the suggested figures with me and approves them.

(Signed) E. WINDSOR RICHARDS.

Thirty-five to fifty carbon was recommended by the American committee of the International Association for Testing Materials for rails of from 50 lbs. to 75 lbs. per yard. The full requirements are given below:

	Minimum.	Maximum.
Carbon.....	.35	.50
Silicon.....	Not over	.20
Sulphur.....	Not over	.10
Phosphorus.....	Not over	.10
Manganese.....	.70	1.05

These recommendations are remarkably close, especially when one stops to consider that the work was done in different countries by these committees entirely independently of each other, and that in America only acid Bessemer steel is used for rails; while in England both the acid and basic Bessemer steel are used.

The results compared above indicate that the suggestions

which I have made in my paper as to each country preparing standard or representative specifications for each class of material can be easily carried out. It is not too much to expect that at the General Congress of the International Association for Testing Materials to be held in 1901 each country will present representative specifications and that the international specifications will be agreed upon. I take this occasion to state that Sir William Roberts-Austen, President of the Iron and Steel Institute, and the Secretary, Mr. Brough, are very anxious that the Congress should be held in connection with the Iron & Steel Institute, 1901. I know of no institution better fitted to assist us in this work than the Iron and Steel Institute, and trust that our next Congress will be held with them.

The English committee have been working at a great disadvantage, as in all cases of the broken rails examined they knew nothing whatever of the previous heat treatment of these rails in rolling, and this has had a great influence on the final structure of the rail that has been known it would have accounted for many of the abnormal results referred to in the report. It is to be hoped that the work of the committee of the Board of Trade will be continued and that rails will be rolled under known conditions, and that rails from the same heat of steel will be finished hot, medium and cold, in order to get at the true value of the mechanical work of rolling at different temperatures. This will give much valuable information in one of the most important lines of research that has been too much neglected up to the present time.

In this connection I would suggest that a record be kept of the amount of shrinkage of the rails from the finishing temperature in rolling to the normal temperature. This would give an accurate check on the finishing temperature of rolling and after sufficient data has been collected these results could be introduced to great advantage in our specifications by merely stating that the shrinkage shall not be more than — per cent. Of course manufacturers would object at first, but they would soon see that the good and simple check on the finishing temperature is something that is most required in order to produce satisfactory rails, even from the very best of steel chemically. I have said so much on the importance of the finishing temperature in rolling in my various papers during the past seven years that I will not take up any more of your time at this meeting.

The Water Supply of the City of New York.

Extracts from the Report of the Committee on Water Supply.

In August, 1899, the Board of Public Improvements of the City of New York proposed to make a long term contract with the Ramapo Water Company to furnish the city with water, and this alarmed a great many citizens and led to much public discussion. . . . The Merchants' Association requested the Board of Public Improvements to suspend action upon the proposed contract with the Ramapo Water Company, pending the result of an investigation to be made by a committee appointed by the Association. The request was acceded to and this committee was accordingly appointed by your president to investigate whether the need of the city for an additional supply was urgent; what was the best available source for an additional supply; whether the city's financial condition permitted municipal construction; whether the Ramapo contract, or any contract with a private company, was advisable; and, finally, whether there were legal or constitutional difficulties in the way of the city's acquiring and owning an additional water supply adequate to its needs, and, if any such difficulties were found, how they should be removed.

The work of the committee, which has extended over a period of more than seven months, has been divided among four sub-committees, viz., an Engineering Committee, which has considered the present supply and the available sources of future supply, with their cost; also the use of salt water for fire protection and sanitary purposes; a committee on Municipal Finance and Public Policy; a Committee on Fire Protection and Insurance; and a Committee on Legislation.

The reports published, notably from the Engineering and the Municipal Finance Committees, contain much valuable information which has never before been published.

It has been an exceedingly laborious matter to ascertain fully the city's investment in its water supply; but the work done has laid a foundation for a more scientific and accurate system of bookkeeping. The official reports of the Department of Water Supply are very incomplete and lack data necessary to any real knowledge of the management and finance of that important department. The data collected and analyzed under the direction of this committee demonstrate that the water works of the former City of New York have been and are a source of profit and not a financial burden.

The committee reaches the following conclusions from the data analyzed:

1. The maximum cost of water per million gallons by the Croton system was \$54.20 in 1849.
2. The average cost per million gallons from 1866 to 1898, both inclusive, was \$35.06.
3. The approximate average cost per million gallons in the year 1898 was \$29.07, and in the period of 1898 to 1910 (the latest date when the present system and the works now being constructed will be able to supply the city with sufficient water even if recourse be had to meters and other means of reducing waste), it will be under \$25, and probably in the neighborhood of \$20, owing to the great relative