

AMERICAN AND ENGLISH RAILWAYS.

IN this country, as nowhere else, the railway underlies the whole fabric of social economy. The food we eat in the East is brought to us a distance of 1,000 miles. Over the same or a much greater distance are transported the merchandise and manufacturers which the agriculturist takes in return.

Were there no railroads the distance over which corn and wheat and most kinds of provisions could be transported would be limited to a few scores of miles. Railroads, consequently, are more important to our people than to any other; without them our internal commerce could not, to any considerable extent, exist; with them such commerce measures annually 100,000,000 tons. It has been ascertained from official returns that the tonnage of the 40,000 miles of line in operation in the United States, for the past year was 2,000 tons to the mile. The tonnage of the railroads of Massachusetts, New York and Pennsylvania exceeded 60,000,000 tons. The mileage of their lines equaled 8,765 miles; their tonnage consequently exceeded twice the estimated average. The low valuation of \$100 per ton for this immense mass of freight would give an aggregate value of fully \$10,000,000,000—a sum four times greater than the total amount of the national debt! By far the greater part of this vast sum is the creation of railways. It only measures the savings which they have effected in the cost of transportation.

It could not have been expected that agents so potent as these in the creation of wealth would escape the designs of the selfish and unscrupulous. There are two classes of enemies to which they are peculiarly exposed; the Wall Street stockholder who seeks to monopolize all the advantages they offer by increasing their nominal capital as they increase their earnings, so that such advantages may go, in the form of enlarged dividends, wholly into his own pockets. Of such tricks as these we have just had a splendid illustration in the case of the New York Central. The other class embrace those who, under the pretence of protecting American industry, seek to wring out of railroads in the form of onerous and oppressive duties every dollar they can of their net earnings. The two together have so contrived that when two dollars are paid in transportation, one-half at least of this sum goes to parties or to objects that return no equivalent whatever.

The total number of miles run by all the trains upon the railroads of the United States the last year was fully 100,000,000 miles. The average cost, per mile, of these trains was \$1.75. The total cost of transportation on all the roads consequently was \$250,000,000. The average receipts per mile were about \$2.50; or say \$400,000,000. The net earnings consequently were 750 per mile, or \$120,000,000.

The cost, on the other hand, of running a train on English railways does not exceed 550 per mile. The earnings per mile are about \$1.20; the proportion of net to gross earnings, consequently, is as 52½ to 100.

In this country, if we could run our trains at a similar relative cost, the net earnings of our roads would be \$210,000,000 instead of \$120,000,000. The last named sum represents their full net earnings at the present time.

The difference in the cost of operating the roads of the two countries is to be found, very largely in the difference in the cost of material used. The cost of rails used in repairs upon the railroads of the State of New York for 1887 exceeded 15½c. per mile run. The total cost of maintenance of way in England is only 12½c. per mile run. The average cost of "maintenance of way" of the railroads of New York was 54½ cents per mile. It is thus shown that in this country the cost of rails used in repairs equals the total cost of maintenance of way of the English railroads. The cost of repairs of machinery on English railways is only 6½ cents per mile. In this state it is 15 cents per mile. The cost of repairs of cars on the English roads is 6.74 cents per mile; upon the roads of New York about 19c. per mile.

With the same cost of material upon American as upon English roads, the cost of operating the former should not certainly be more than one-half greater, or say 8½c. per mile. Adding the present premium on gold the total should not exceed \$1.10 per mile. Our railroad companies are paying annually in expenses of transportation at least \$90,000,000 more than under a legitimate system they should pay.

A small portion of this vast sum—a mere pittance compared with the whole—goes into the national treasury. There were used upon all our roads the past year about 700,000 tons of rails, of which about 175,000 were imported. The customs duties on these quantities were \$2,744,000. The domestic mills supplied about 225,000. The protection they enjoyed, \$15.68 per ton, consequently amounted to \$3,222,000 in gold, or \$11,123,000 in currency, which was pocketed by the iron makers.

Here is one item going to make up the exclusive cost of transportation in this country. But the loss to railroads by no means ends with the bounty directly paid by them to the iron makers. The high price of rails is such that none but the cheapest, in other words, the most worthless iron is as a rule used. The consequence is a series of disasters from a worn-out track and broken rails, with constant interruption of traffic by repairs. There is a loss of not less than \$11,123,000 in currency, in the cost of maintaining way due to defective material, to the use of which railroad companies are forced by the excessive price of a good article.

A similar analysis of other items of the cost of operating our roads would show similar results. While Government collects a revenue only on a mere fraction of the materials used, the cost to the railroad companies is the same as if the whole of these immense sums were paid to the Government. The effect of the revenue laws consequently is to enable one class

to tax most outrageously and unjustly an interest infinitely more important and useful to the public than their own. Enormous fortunes are thus yearly made by the manufacturers, while the roads themselves, as has been shown by H. V. Poor, in his Manual, do not under the most favorable conditions, pay more than 5 per cent on the investment.

But oppressed as the railways are, a new conspiracy is now formed against them. The stronger railroad companies are now endeavoring to substitute steel for iron rails, impelled as they are by considerations of safety for the traveller as profit to themselves. As if to meet and defeat such a salutary measure of reform, a new tariff bill has been framed and is now pending before Congress, in which among other things an additional duty of \$33.69 in gold is to be put upon steel rails, besides the present duty of 45 per cent ad valorem, and to all this are added the charges of importation. The increase is intended to make the duty prohibitory, so as to prevent wholly the use of steel rails, under the plea that such prohibition will stimulate the manufacture of them at home. In such a movement the makers of iron rails heartily join.—Evening Post.

THE PRODUCTION OF OIL FROM COAL.

WHEN shale or coal is submitted to distillatory treatment, the most volatile portions at first escape, leaving behind substances of continually decreasing volatility. As the operation proceeds, and on an increase of temperature, these are evolved in a gaseous form unchanged, or resolved into more volatile matters and residual products possessing a still greater fixity. These products vary in nature with the temperature to which the coal is exposed, and when it is distilled at a red heat it yields a large quantity of gaseous, and but a small amount of liquid hydrocarbons. The proportion of liquor products is much greater than at a lower temperature. Coal tar obtained from the distillation of coal contains various basic substances including ammonia, aniline, indoline, chromoline, pyridine, colidine, and others possessing less importance. The acids include acetic and resacetic, among others, but the principal acid is carbonic or phenic.

The first products from the distillation of the tar are gases, then follow water and ammoniacal salts, with black oily matter. As the process continues, the proportion of watery products decreases and that of oil increases. The products become heavier than water when from 5 per cent to 10 per cent of the original quantity has passed over in the form of light oil. It must be remembered that as the light oils disappear from the still, the remaining substances become more fixed, and a higher temperature is required for heavier oils. As the products increase in density, cresote, or "dead oil," appears, naphthalene and other solid products then become abundant, and the oil assumes a viscid state; the final residue constitutes asphaltum if the distillation be carried to a sufficient extent.

The light oils on rectification can be made to produce a still greater portion of heavy oil and crude naphtha. The heavy oils contain a number of hydrocarbons of high boiling point. If the crude naphtha be agitated, the supernatant liquid on rectification gives rise to highly rectified naphtha, containing at least 4 or 5 oils, with specific gravities ranging from .860 to .890, and with boiling points from 140° to 392° Fahr. The watery liquids produced in the condenser during the manufacture of gas are employed for the production of sulphate and chloride of ammonium by a process of concentrating, crystallizing, and sublimating the crystals.

At the Ardley Works, the retorts are 60 in number, and of an oval form. They are arranged in two sets of 25 each. Each retort weighs about 2½ or 3 tons, and contains from 10 to 15 cwt. of coal. The crude oil from the retorts is pumped into the stills, 8 in number, each having a capacity of 1,600 gallons. A small fire is placed under the stills, but the chief part of the heat is communicated to the body of the oil by means of superheated steam in a wrought-iron pipe entering the top of the still and carried nearly to the bottom, where it forms a coil, which is perforated with small holes; steam is thus blown into the body of the oil. The amount of water introduced into the oil by the condensation of steam is inconsiderable, and is readily separated. The distilled oil is collected in a tank from a coil laid in a cistern of cold water in the usual way.—Mechanics' Magazine.

GREAT WESTERN RAILWAY.

Traffic for the week ending Jan. 8, 1893.

Passengers.....\$23,713.63
Freight and live stock.....49,638.79
Mails and sundries.....3,519.13

Total receipts for week.....\$76,851.69
Corresponding week, 1892.....63,327.68

Increase.....\$12,523.72

NORTHERN RAILWAY.

Traffic receipts for week ending Jan. 16, 1893.

Passengers.....\$2,532.79
Freight.....5,416.47
Mails and sundries.....251.02

Total.....\$8,200.28
Corresponding week, 1892.....7,581.94

Increase.....\$618.34

ASSIGNEES APPOINTED.

NAME OF INSOLVENT.	RESIDENCE.	NAME OF ASSIGNEE.
Brown, Theodore.....	Hillier.....	W. McL. Bockus.
Burke, Joseph Y.....	Paris.....	W. Sanderson.
Cox & Stinson.....	Montreal.....	A. B. Stewart.
Coughlin, Geo. Wilson.....	Kingston.....	Hy. Chas. Voigt.
Dav, Erasmus H.....	Director.....	R. M. Hoy.
Dewar, James.....	Quebec.....	John Hadden.
Dodds, James.....	Quebec.....	W. H. McAllister.
Ferguson, James.....	Charlottenberg.....	Duncan McLellan.
Flynn, James.....	Orangeville.....	Wm. Parsons.
Frank, G. C. & Co.....	Montreal.....	John White.
Genes, Horatio Nelson.....	Montreal.....	T. T. Brown.
Kilmer, James P.....	Montreal.....	A. B. Stewart.
Migneron, Ede.....	A. Adole.....	T. Sauvageau.
May, Joseph.....	Montreal.....	T. Sauvageau.
McGee, Charles Darius.....	St. Thomas de P.....	T. Sauvageau.
Mason, Stephen Blund.....	Victor.....	N. McL. Bockus.
Morgan, Cornelius.....	Victor.....	N. McL. Bockus.
McDonald, Donald.....	Orangeville.....	P. McCanary.
Nichol, Marilee Yenker.....	Quebec.....	Wm. Walker.
Palmer, Joseph Hildreth.....	Williamsburg.....	T. S. Brown.
Rice, Geo. Fletcher.....	Portage du Fort.....	A. B. Stewart.
Rever, David Jacob.....	Portage du Fort.....	James Court.
Spence, David.....	Mont Forest.....	Thos. Sanderson.
Walton, Chas. Wyman.....	Mont Forest.....	Thos. Sanderson.
		T. S. Brown.

APPLICATIONS FOR DISCHARGE.

NAME.	RESIDENCE.	DATE.
Abbott, Richard.....	London.....	March 15
Bond, John.....	Berlin.....	" 31
Berger, Thomas.....	Toronto.....	" 15
Barber, Wm. H.....	London.....	" 15
Christie, Wm.....	Toronto.....	" 25
Dodds, John.....	Downsville.....	" 25
Earl, Wm.....	North Williamsburg.....	" 25
Hogg, J. & W.....	Township of York.....	April 2
Hurl, & Leigh.....	Toronto.....	March 25
Kelly, James.....	Orangeville.....	" 25
Lemait, Fred A.....	Quebec.....	" 15
Marguerite & Papin Jelle.....	Montreal.....	April 17
Mulr, James.....	St. Michael.....	March 24
McClendon, Gilbert.....	Windsor.....	" 25
McClendon & Brown.....	Montreal.....	" 25
McClendon, Howard Thos.....	Quebec.....	March 20
McDonald, Donald.....	Kingston.....	" 18
Prudhomme, J. T.....	Co. of Carleton.....	" 30
Peters, Wm.....	Hamilton.....	April 1
Reford, Wm.....	Toronto.....	" 1
Roberts, Chas.....	Quebec.....	March 26
Sauve, Hilar.....	Montreal.....	April 17
Strickland, Richd. P.....	Quebec.....	March 27
Watson, David.....	Woodstock.....	" 27

WRITS OF ATTACHMENT ISSUED.

DEFENDANT'S NAME AND RESIDENCE.	PLAINTIFF'S NAME.	DATE.
Beard, J. G. & Sons, Toronto.....	Bank B. N. America.....	Jan. 16
Bridley & Co.....	Bank of America.....	Feb. 6
Brown, J. H., Brampton.....	Boyd & Co.....	Jan. 9
Palmer & Martin, Toronto.....	Robertson, B. & Co.....	" 15
Thom, James, Chatham.....	Van Allan, Daniel Ross.....	" 15
Wilson, John W. Wentworth.....	McInnes, Calder & Co.....	Feb. 1

NEW YORK MARKETS.

NEW YORK, Feb. 8.

Cotton firm at 29½c to 30c.
Flour dull and lower; receipts 380 bbls; sales 4 600 bbls, at \$5.65 to \$5.15 for Super State and Western; \$5.80 to \$7.10 for Common to Choice Extra State.
Rye flour quiet at \$5.25 to \$7.37.
Wheat dull and declining; sales 1,000 bushels No 1 and 2 Spring Mixed at \$1.62½; Amber Canada \$1.50.
Rye quiet; sales 2,200 bush Choice Western at \$1.63.
Corn declining; receipts 40,000 bush; sales 27,000 bush, at \$2.30 to \$2.10 for new mixed Western; \$2.30 for Southern Yellow.
Barley dull; sales of State at \$2.10.
Oats dull; receipts 600 bushels; sales 25,000 do., at 7½c for Western in store, and 7½c for do. afloat.
Pork firmer, at \$22.25 to \$23.10 for new mess; \$21.25 to \$21.50 for old do.
Lard firmer, at 20c to 22½c for steam, and 21c to 21½c for kettle rendered.

LONDON MARKETS.

LONDON, February 3rd, P.M.

Consols 93½ for both; bonds 76½; Erie 52½; Illinois Central shares 53½; A. & G. W. 42.

LIVERPOOL MARKETS.

LIVERPOOL, Feb 3rd, P.M.

Cotton dull; Uplands 12½; Orleans 12½d.
Flour 2½s. Red Wheat 8d 9d to 9½d; White do 11½d to 11½d. Peas 4½s. Corn 3½s for old; 3½d to 3½s for new. Barley 6s. Oats 3½d. Pork 9½s 6d. Lard 7½s.

It has been estimated that only about one-fifth of the cotton crop of 1893 has yet been sold by the producers. This one-fifth has produced about 50 millions of dollars, and Southern writers upon the cotton interest argue that the balance or four-fifths may be made to yield 200 millions.