

the load to three tons on each wheel, as recommended by Mr. F. C. he cannot then advantageously apply the power from the cylinders to the axles, and he loses probably more than one half of the available power of his engine. The power of an engine to draw a load is directly as the adhesion upon the rails which again is derived solely from the weight upon the driving wheels, and as this tractive power is only one-sixth of the whole adhesion it is extremely important to utilize as much as possible of the weight of the engine. This can only be done in the case under review, by increasing the limit weight of three tons on each wheel to nearly twice that weight, and when this is done then rails of at least 60 lbs per yard must be used, which of course, abolishes the light and cheap nature altogether. As regards passenger trains on a narrow gauge railway there are two serious objections. 1st. The oscillation must necessarily be very great, unless the body of the car is greatly reduced in width as compared with those in use on the existing railways of the country, or the speed must be reduced at least one-half.

In any case the width of the body of the car must be reduced to the very least by two, if not three feet, and the result must be to alter altogether the present internal arrangements of our passenger cars. Instead of a row of double seats along each side, there is a passage way for the conductor between them, it will be necessary to return to the style of cars in use on the street railway, where the passengers sit along the sides, face to face, leaving a passage for the conductor between them, an exceedingly uncomfortable mode of making a long journey.

The whole question resolves itself into this:—If the saving of ten per cent in first cost is all important, and if the prospect is very unpromising, then a cheap light narrow gauge railway may be adopted. But if there is every reason to expect a moderate or large amount of business, such as the districts of Grey and Bruce will undoubtedly yield, then the saving in cost of working will repay the extra outlay of ten per cent in first cost within two years time. In such a case (and this will apply to almost any district in Western Canada) it would be absolutely folly to lay down a narrow gauge railway merely to save ten per cent in first cost, and it is to be borne in mind that as the traffic increases so does the cost of hauling per ton diminish on the broad gauge system, whereas the opposite is the case on the narrow gauge track. As the business of a railway increases it is found advantageous to concentrate the loads as much as possible, and we find that the Great Western Company are now using cars for the transportation of lumber and bulky materials which carry loads of thirty and forty tons—one-half of the net load of a whole narrow gauge train.

The English broad gauge of seven feet is not about to be abandoned on account of its costliness of working, as alleged by Mr. Fox, but it is in contemplation gradually to bring it down to the 4 ft. 8½ in. gauge, solely on account of the inconvenience arising from its being hemmed in on all sides by lines of the gauge. The Irish gauge is 6 ft 3 in. and it was decided upon by the English Government after very careful and long deliberation.

The broad gauge of America is six feet, and within the past three years it has been extended from Erie to Cincinnati, a distance of 600 miles.

GEO. LOWE REID

Hamilton, 10th Feb., 1868

NATIONAL BOARD OF FIRE INSURANCE.

THE New York Bulletin says.—The meeting of the National Board of Fire Insurance Companies, now in session in this city, is especially worthy of public attention. All classes in the community have an interest in the welfare and stability of fire insurance companies. The risks and the principles upon which they are conducted are far from being matters of limited importance. The standing and position of business men and the interests of property holders generally are intimately connected with the stability of fire insurance. If the premiums do not cover all the risks or if the business of the underwriters is not conducted upon sound economical principles, the community must sooner or later experience the most injurious consequences.

In the view of the meeting of the National Board of Fire Underwriters should certainly be attended with beneficial results. It ought to lead to collection of facts from a variety of sources that may tend to remove any defects in the present system of insurance. The heavy losses of the past few years have seriously affected even the most prosperous companies, and the time has arrived for determining whether a reform or at least a modification of existing rules may not be expedient. Upon this subject the report presented yesterday throws considerable light. It seems to authorize the conclusion that the risks of insurance are not covered by an adequate capital, or, in other words, that the present rates of premium are not sufficient. The report states:—

"The insured may find matter for grave consideration in the fact that, in 1859, \$19,809,620 at risk, had, for its protection, capital and assets to the amount of \$20,823,844, while at the end of 1865, \$153,695,596 had \$45,360,867. The per centage of protection in 1859 was 86 per cent., in 1865 28 per cent., and at the end of 1866 22 per cent., showing a decrease of 1.63 per cent. of protection to the insured—an alarming decrease when applied to a sum nearly as large as our national debt."

The report states that the risks involved in the management of fire insurance companies warrant the expectation of an interest of twelve per cent. upon the capital. But an average of five years establishes the fact that less than nine and a half per cent. per year has been realized. Over one per cent. of the profits have been absorbed by losses during that period. It is also found that while the total amount of premiums in

1865 was three times larger than in 1859, the losses of the former year were five times larger. The per centage of losses on net premiums has increased from 42.57 per cent. in 1859 to 71.33 per cent. in 1865. In 1865 the aggregate losses of the various companies amounted to thirty-four per cent. of the net cash premium. It is probable that this disproportion has been increased during the last two years.

This statement of the position of the companies in relation to the heavy losses which they have recently suffered should, and probably will, lead to well concerted uniform action for the establishment of a closer equilibrium between the amounts of premiums and actual risks involved. The recent heavy fire in Chicago led the underwriters to advance the rates twenty-four per cent., but this action produced remonstrances from the merchants that may probably cause a modification of the new rates. Without presuming to decide whether this increase is or is not justified by the peculiar circumstances attending fire in derelicting in Chicago, it is at least desirable that a larger inquiry should be instituted covering all the new interests introduced by the change of commerce during the last decade, so as to establish the business on a basis that would be equally safe to underwriters and to the public at large.

THE GODERICH BRINE SPRINGS.

(From the London Grocer.)

THE manufacture of salt will probably become an important branch of industry in the Province of Ontario and give employment to a considerable amount of capital. Amid the excitement incident to the opening up of gold, silver, and iron mines, we are apt to overlook brine springs, which are likely to contribute in a large degree to our national wealth. The Onondaga formation, which is the source of the New York brine springs, is salt-bearing in the vicinity of Goderich. Evaporated newspaper paragraphs now and again, make us aware that salt is produced there and wells are being sunk, but of the operations we know little or nothing. Of the region referred to, Dr. Sterry first speaks in his report (1866) as follows:—"Recent investigations have shown that this formation, in its course north-westward, in Canada, becomes greatly augmented in thickness and includes beds of salt which bids fair to surpass in importance those of Central New York."

One well is mentioned in which, at a depth of 964 feet from the surface rock, salt was met with in layers of a foot or more in thickness; the whole volume of the salt-bearing mass being 41 feet, of which the salt itself formed about 30 feet. The salt brought up is described as beautifully white crystalline grains. The brine is remarkable for its purity, the solid matters from its evaporation containing over 99 per cent. of salt, while those from Onondaga, New York, have on an average, over three per cent. of impurities. It results from this that the salt manufactured from Goderich brine must be of exceptional purity. No draining or other mode of purification is needed with the brine to from make it salt surpassing in purity the finest hitherto known. Some of the Onondaga brines are almost saturated with gypsum, of which they hold nearly six parts in 1,000, while the Goderich brine contains less than two parts. The Onondaga brines also contain, on an average, about 15 per cent. of salt, while the Goderich brine has nearly 28 per cent. The well spoken of yielded 500 to 700 gallons of saturated brine per hour, the former quantity being equal to about 560 bushels in twenty-four hours.

The salt springs in and about Lake Onondaga are the property of the State of New York. In 1825 the State took possession of them and began to furnish brine to manufacturers. Every encouragement was given to the trade. A bounty of three cents per bushel was paid for all coarse or solar salt that should be sent to the Hudson's River or to Lake Erie, or that should be sent from Oswego to Canada, and a bounty was paid for the transportation of salt barrels on the canals. During the last twenty years the State of New York has received a revenue from the salt manufactured at these springs, in the way of duty, of \$124,133. The quantity sent to Canada via Oswego, in 1866, was 510,330 bushels at \$2.03 per bushel net. The average net price which the company realized for the production of 1865 was \$2.03 per bushel, the net profit of that year being \$272,237. The company paid for boiled salt 15¢ and for solar salt 8¢ per bushel, the cost for a barrel containing five bushels is placed as follows, in American currency:—

FOR FINE SALT.

Fuel, boiling, and repairs. 19 cents per bush	95 c
State duty, 1 cent per bush	05
Taxes and office expenses.	10
Rent of block at 12½ per cent.	25
Packing	06
For the barrel	45

Total cost per bbl. \$1.85

FOR SOLAR SALT

For manufacturing at 8 cents	40 c
For State duty	05
For taxes and office expenses.	10
For rent of vat, &c., at 12½ per cent.	65
For barrel	45

\$1.65

It is said that the introduction of coal in the manufacture of fine salt has been attended with highly beneficial results. Its superiority over wood is declared to be evidenced in the superior quality of the salt, which can be produced at a largely reduced cost. The quality of salt by solar evaporation is far many purposes superior to that produced by artificial heat.

COMMERCE OF NEW YORK.

(From the N. Y. Journal of Commerce.)

AT the close of last year we noted the falling off in the receipts of foreign goods, and anticipated a continued reduction through the season upon which we have entered. Some days ago we gave a comparison of the imports of dry goods for the month of January, and renewed the reference to this declining trade. A correspondent, who examined our statistics, addressed us in a humorous vein, asserting that one of our contemporaries was disposed to attribute this falling off in the imports to the wicked tariff, while others blamed the radical politicians for it, and asked our opinion of the cause of this change. We have already stated explicitly that a protective tariff is not itself a restraint upon the arrival of foreign goods. Frequent and vexatious changes in the tariff operate to discourage imports, but a tariff may be "wickedly" high and oppressive, while it operates to encourage the sale of foreign merchandise. Nor is the falling off due altogether to political causes. The unsettled condition of affairs has undoubtedly depressed trade in every department, and so far has induced a moderate demand for both foreign and domestic fabrics. The reason of this falling off in the imports may be found in the want (from whatever cause) of paying consumers for the products offered, thus making a poor return to the importer, and discouraging his enterprise. But this applies as well to the trade in domestic as in foreign goods. Indeed, the former is the first to feel its influence, so that a high tariff like political complications, only injure trade through a general disinclination to engage in any sort of business venture while affairs are so unsettled.

All of our figures referring to the imports express only their foreign gold value, freight and duty unpaid. The total for January, it will be seen, is a little over fifteen millions against about twenty-one millions for the same month of last year, and thirty millions for January, 1866. It will be interesting to note the changes in this trade, in successive years, and we therefore bring forward the comparative imports in each January since 1850.

Foreign Imports at New York in January.

Year	Imports of specie	Total Imports
1850	\$433,952	\$12,363,424
1851	210,455	15,463,470
1852	104,706	11,014,097
1853	83,048	13,440,970
1854	283,585	13,607,819
1855	90,284	12,046,827
1856	61,894	15,678,064
1857	838,650	19,006,733
1858	800,572	8,105,702
1859	71,308	19,447,962
1860	223,060	21,758,273
1861	7,261,229	26,827,411
1862	163,658	12,620,849
1863	101,906	15,793,676
1864	141,700	18,977,394
1865	62,208	10,620,117
1866	72,771	30,109,830
1867	126,719	20,979,087
1868	138,574	15,418,671

The stock of goods in bond has not increased since January last, the withdrawals being a trifle in excess of the entries for warehousing. The following are the particulars for the last month as compared with the previous two years.

Foreign Imports at New York for January.

	1864	1867	1868
Entered for cons m.	\$18,650,726	\$11,016,858	\$7,855,830
Ent'd for wareh'g	10,241,578	9,087,702	6,647,871
Free goods	1,238,767	71,810	778,296
Specie and bullion	72,771	126,719	138,574

Total ent'd at port	\$30,109,830	\$20,979,087	\$15,418,671
With'd'n from wh'eo	7,424,386	9,330,484	6,781,625

We have now passed through seven months of the fiscal year, and as many of our readers keep their record in even date with the government returns, we present a table showing the total from July last.

Foreign Imports at New York for the Seven Months ending January 31st.

	1866	1867	1868
Ent'd for cons m.	\$108,488,483	\$84,687,723	\$77,424,231
Ent'd for wareh'g	68,171,603	62,894,178	53,333,519
Free goods	6,625,682	6,682,782	6,818,786
Specie and bullion	1,144,229	6,624,562	1,886,217

Total ent'd at port	\$172,840,197	\$161,189,240	\$181,459,763
With'd'n from wh'eo	46,321,906	59,627,912	54,019,789

The above shows that the stock of all kinds of merchandise now in bonded warehouse is about the same as it was at the close of last June. Before calling attention to the receipts for duties we wish to correct a popular error which is continually repeated in paragraphs going the rounds of the press. Many persons take the total value of foreign imports landed at the ports upon which to estimate the customs; and thus they often make the most serious mistakes in the computation. The duties in this district are collected only upon the dutiable imports actually marketed here. The total cash thus paid here in seven months was only a fraction less than sixty-two millions, upon a dutiable value of \$14,444,020, or an average of about fifty per cent. ad valorem upon the entire amount of merchandise subject to duty. The following are the official returns:

Received for Customs at New York.

Six months ending	1866	1867	1868
Jan. 1st.	\$65,077,623	\$77,660,571	\$82,564,741
Jan. 1st.	\$27,574,191	\$4,742,248	\$7,183,423

Total 7 months \$92,651,814 vs \$72,000,820 vs \$89,748,164

Our friend Peter Cooper, and his associates in the "Protective League," still keep up the fire against