

NORWEGIAN LIGHT RAILWAYS.

TRONDHEIM, Aug. 24, 1864.

DEAR SIR,—Through the kindness of Mr. Pihl, the Engineer of the Government, I have been enabled to carefully inspect the works on the various railways in this country.

The railway from Christiansa to Eidsvold, which was constructed by an English company is of the 4-8½ gauge, and of ordinary construction. Its chief peculiarity is a long incline of 1 in 42 which is worked by the use of a bank, or assistant engine, at the back of the train in ascending. The permanent way on this line consists of bridge rails, fastened by wood screws to inferior longitudinal timbers, kept in gauge by frequent cross sleepers.

The Swedish Government having adopted the 4-8½ gauge, the Norwegian Government has, in the construction of the line from the above mentioned railway to the Swedish frontier, been compelled to make use of a similar gauge. The works on this line are very well executed, but do not call for special remark.

The Norwegian Government have constructed, and have in full operation, two lines of railway of the 3-6 gauge, one of which has been open two years, from Grundsett to Hamar, on the Miosen Lake, a distance of 24 English miles, and one which has been opened for some months from Trondhjem to Støren, on the road to Christiansa, a distance of 20 English miles. Having passed twice over each of these lines on the locomotive, and having examined their details with much care, I would report as follows:—The Grundsett and Hamar line runs through a fairly easy country, has considerable lengths of 1 in 70, with curves of 1,600 feet radius, and has cost including rolling stock and stations, £3,600 per mile. The train on which I was consisted of six carriages and a break van, and we ran, with great ease and perfect steadiness, at the rate of 32 miles per hour; the working speed, however, does not exceed 15 miles per hour, including stoppages. The engines, which are almost identical with those sent out to Queensland, with the exception that they are tank engines, and provided with arrangements for coal burning instead of wood, weigh, in steam, 14 tons. They were constructed by Messrs. R. Stephenson & Co. are without bogies, and run with great ease and steadiness, and with great economy of fuel. They with ease take a gross load of 90 tons upon this line, running at 18 miles per hour, and using 120 lbs steam. The works on the line generally are of a substantial character; the bridges are, however, strongly constructed in timber. The line is kept in a most creditable state of repair, not surpassed by any English railway, and my impression certainly is that the running of the trains is particularly free from any vibration. Two trains each way are run during the summer, and one train each way during the winter, in each case being mixed passenger and goods.

The Trondhjem and Støren line runs through a difficult country, has but very small portions of horizontal, and chiefly gradients of 1 in 100; there are, however, 5 miles of 1 in 52, and in the opposite direction from the summit, 4 miles of 1 in 42 followed by 4 miles of 1 in 65, and 1 in 100. Frequent curves are found throughout the line, but especially on the heavy gradients, where they are chiefly osculating curves, ranging from 700 feet to 1,000 feet radius.

The earthworks on the line are heavy, including several rock cuttings, and some embankments of very bad clay. There are 12 large bridges, on the length of 30 miles, 3 of them of great height and length the largest being the "Sloppen" bridge over the river "Nid," which is 620 feet in length, and has 5 principal spans, of 70 feet each, the piers being 100 feet in height. The piers to high water level are of masonry, to resist the ice, but the rest of the bridge is entirely timber, substantially and securely constructed, and showing but very slight vibration during the highest wind. The timber girders are 10 feet in depth, and 11 feet apart, and are upon Warren's principle.

There are two terminal stations, and six intermediate stations and three stopping places. The stations are well arranged, and are buildings of wood, substantial and carefully constructed. There is also a considerable length of sidings and workshops at the Trondhjem terminus. The rolling stock consists, at present, of 3 locomotives, 2 brake vans, 6 passenger carriages, 40 goods' waggon of several kinds, and 50 ballast waggons. The total cost of the railway, including rolling stock and stations, has been £6,000 per mile. The working speed does not exceed 15 miles an hour, including stoppages, or an average running speed of 12 miles per hour on the steep incline, and 18 miles per hour on the remainder of the line. The train with which I came consisted of 6 goods' waggons full, 1 ditto empty, 1 cattle waggon full, 4 passenger carriages nearly full, and the brake van, or an aggregate load with the engine of 118 tons, which we ran with at sometimes 30 miles per hour with perfect ease. Nothing can exceed the steadiness of both engines and carriages. In ascending the steep incline of 1 in 52, an assistant engine was attached, increasing the gross load to 133 tons, or 66½ tons of gross load per engine, which was taken up with the greatest ease, at from 12 to 15 miles per hour. It is not found necessary to have horizontal portions on the inclines, except where a station occurs, in which case it is advisable, in order to facilitate stopping and starting. Although the curves on these lines are not very sharp, yet in the stations they have curves of 330 feet radius, and these are taken with great ease. The engine on which I rode was made by Messrs Slaughter, Gruning, & Co., and with the exception of being a tank engine, and for coal burning, is made from the same pattern as those for Queensland. It is fitted with a Bissell's bogie, which acts beautifully; when first received on the line, not long since it had considerable swaying movement, and this was found to arise from the driving wheels not having the balance weights properly adjusted; this having been done, the engine has given great satisfaction since, and can, with ease, take gross load of 75 tons up the inclines of 1 in 42, and 1 in 52, at 12 miles per hour. The traffic in winter is very large,

and two trains a day are then run each way, which in the summer are reduced to one mixed passenger and goods.

Upon both of these lines I would remark as follows: The permanent way consists of rails of almost exactly Queensland section, weighing 37 lbs. per yard on the level portions, and 40 lbs. on the inclines, fixed at every 21 feet with fishes 11 inches long, and secured to transverse sleepers 2 feet 6 inches apart from centre to centre by dog spike; only, no bolts or joint plates being used. The sleepers are of pine, 6 feet 6 inches long, uncreosoted, 9 inches by 4½ inches, half round, laid round side up, and this is added so as to increase the bearing of the rail to from 4 inches to 5 inches, and an inward cant of 1 in 20 is given to the rail. The ballast, which is of good quality, is 8 feet 6 inches wide, and 1 foot 8 inches thick. The crossings are reversible, and the switches self-acting. The fencing is a very substantial post and 4 rail fence of ordinary design. The line is 14 feet wide at formation level; semaphore signals are only used at important stations, flags sufficing for every purpose in other places. The engines are very nearly all alike, with the exception of the bogie, which is only fixed on that made by Messrs. Slaughter, Gruning & Co. They make ample steam for the tractive and adhesive power of their driving wheels. The rolling stock very much resembles the Queensland stock. The passengers' carriages are 19 feet long, on 4 wheels, without bogies, 6 feet 6 inches wide, and 9 feet 3 inches high outside. The goods' waggons are 21 feet long and 6 feet 6 inches wide, but are found to be less convenient than waggons 14 feet long. The stock is only provided with one buffer in the centre, forming also the drawbar, but I still think the usual double buffers are preferable. The under frames of the stock are of wood, that being so cheap here.

The general repairs on the line only employ one man to every mile, and I would again testify to the excellent condition of all the works on the line. The permanent way some of which has stood the test of two Norwegian winters, is, without exception, the smoothest road I have been on, and though the dog spikes seem insecure, when compared with the bracket chair, yet they have never been known to fail, and I should recommend their being used, except on very steep inclines.

These lines, which run through a thinly populated district, already more than pay their expenses, a result far beyond what was anticipated for the present.

The Government are now busily engaged in the construction of a further length of 56 miles of these railways, and I have the assurance of Mr. Pihl that so thoroughly satisfactory have the results proved, that nothing but the 3 feet 6 inches gauge will be used in this country on any lines which may be independent of the Swedish gauge. The Government have just ordered two more engines of similar design from Messrs. Slaughter, Gruning & Co.

I have pleasure, in conclusion, in recording my opinion that these lines are capable of carrying a very considerable traffic with economy and safety, at speeds exceeding 12 miles per hour, and that these light railways are fully equal to the necessities of this or any other rising country, such as Greece or Honduras.

I have the honour to be,

Dear Sir, Your obedient servant,

CHARLES DOUGLAS FOX.

E. HASLEWOOD, Esq.,

Founders' Court, Lothbury, London.

FARNWORTH AND JARDINE'S TIMBER CIRCULAR.

Liverpool and London Chambers,
And 9, Canada Dock,
Liverpool, 26th April, 1867.

THE arrivals from British North America during the past month have been 9 vessels, 8,333 tons.

In spruce deals there is a little improvement, but the advance is very slow. We have rarely known the trade to be so bare of stock, particularly of dimension deals, and at the same time show so little desire to purchase. Under ordinary circumstances, many things just now would be favourable for higher price—the stocks are low and little coming forward, and prices moderate; but, on the other hand, the demand is limited, and the low prices at which Baltic deals are ruling on the East coast prevent any material advance in price here.

CANADIAN WOODS—Holders are becoming more anxious to realise as the import season approaches and several parcels of Quebec pine have been sold at declining prices. Red pine is very low in stock, but its value is kept in check by the extremely low prices of pitch pine. For elm prices are firm, owing to the light stocks, but there is little demand. For oak there has been less inquiry, and the market is very dull. In pine deals transactions have only been by retail. Staves are in very little demand, and prices are declining.

The aggregate tonnage from the British colonies to this date in 1865, 1866 and 1867, is respectively 14,194, 14,558, and 16,552.

COLONIAL WOOD.

Pine Timber—The prices have not transpired of some parcels sold during the month, but they are understood to be at a considerable decline on previous rates.

Red Pine, Oak, Elm and Ash—Sales have only been by retail.

Hardwood—Of Quebec, 112 logs, ex Michigan at 15½d per foot.

Pine Deals—Have been sold at £7 7s 6d, per standard.

Boards and Scantling—The former have been sold at from £7 10s to £7 12s 6d, and the latter at from about £7 to £7 5s per standard.

Quebec Deals, Lathwood, and Quebec Staves—No sales reported.

PRICES OF QUEBEC PRODUCE.

Timber—Yellow pine, per cubic foot, 1s 3d to 1s 7d; Waney board, 1s 9d to 2s; Red pine, 1s 2d to 1s 7d; Oak, 2s to 2s 1d; Elm, 1s 4d to 1s 8d; Ash, 1s 3d to 1s 6d; Birch, 1s 3d to 1s 7d.
Masts—Red, 1s 5d to 1s 9d; Yellow, 1s 6d to 2s.
Spars—Spruce, 10d to 1s.
Deals—Yellow, 1st quality, per standard, £16 10s to £17; 2nd quality, £11 10s to £12 10s; 3rd quality, 8 to £8 10s.
Boards—Spruce, &c., per standard hundred, £7 5s to £7 10s.
Staves—Quebec standard, per M, 1st quality, £67 10s to £70; do 2nd do, £60; do W O P uncheon, per M, 1st quality, £21 to £23; do 2nd do, £17 to £18.
Oars—Ash, per running foot, 3d to 4d.
Handspikes—Hickory, per doz. at 16s to 18s. Ash and Birch per doz. 7s 6d.
Lathwood, per fathom 4 feet, at £2 to £5 10s.

FARNWORTH & JARDINE.

Never in the history of the "commercial metropolis" of New Brunswick have "shavers" done as large and lucrative a business as during the last twelve months. Almost fabulous rates have been paid for money on the street. There is little doubt that many persons engaged in business have paid 15 to 20 per cent. per annum for the use of funds, while not a few, rather than allow their names to be dishonoured, have not hesitated to borrow at short dates paying interest rates equal to 30 or 40 per cent. a year. At present the money market is extremely tight, although the Banks are doing all they possibly can to meet the wants of traders. But the trouble is, that their capital is entirely inadequate to the demands of trade. Perhaps relief will come when, under Union, the commercial and banking systems of the several Provinces are assimilated, and branches of the larger Canadian banks are established in New Brunswick. In the meantime, however, we would hope in case application be made to our present Legislature by the local Banks for power to increase their capital, or other reasonable facilities in aid of their operations, that their wishes may be complied with.—*St. John Telegraph.*

A BRIDGE FROM DOVER TO CALAIS—How to cross the Channel ferry without sea-sickness is still a problem engaging French attention. In America they manage these things better; and there is no doubt that were the Channel near the shores of that country, we should soon see flying bridges traversing it. A bolder, though not novel plan is, however, engaging attention here. M. C. Boutet, favourably known for his mechanical abilities, has designed a fixed bridge between Blanc Nez, near Calais, and the Shakespeare cliff, at Dover. All the drawings have been made and the cost, estimated at 400,000,000 francs, it is considered, would be more than met by the enormous traffic which such a bridge would monopolise. But while the design looks feasible on paper, its practicability is very dubious; and, although M. Boutet has provided for accidental shocks occasioned by heavy seas, or ships being driven against the piles, by protecting them with buffers, thirty feet thick, it is by no means probable that such protection would prove sufficient during fierce storms. Fame and fortune await the enterprising individual who succeeds in bridging over these angry waters; and although the difficulties of a flying bridge may be great, they are not absolutely insuperable.—*Athenaeum.*

ST. JOHN TRADE REPORT.

St. John, N.B. May 11, 1867.

WE have no change of importance to notice in the general business of the week, every branch is much duller than is usual at this time of the year, and the backwardness of the season contributes very much to this result. The freshet on the river is unusually high, and we hear of considerable damage being done in various parts of the Province. No lumber has yet come to market, and until the river subsides very considerably, the lumbermen cannot attempt to raft. One good will probably result from the heavy freshet, it will enable the small streams to be cleared out, and the whole of the winter's work will be available, whereas in some former seasons large quantities of logs have been "hung up" so long that they might almost as well have been reckoned from the first as a total loss. No sensible relief has yet been experienced in the money market, and the heavy drain to our resources caused by the continued high price of bread-stuffs is felt to be quite a serious matter.

The shipping arrivals of the week have been comparatively unimportant. The barque "Dr Kane," arrived from Londonderry, after a fine run of 29 days with 370 tons of pig iron, she also brought 38 Irish and Scotch emigrants, consisting of mechanics and farm laborers, who were all landed in good health. There have been four vessels from Portland, with flour; one from Rotterdam, with guano, &c.; and a few others in ballast.

LUMBER.—The clearances for the week of this staple have been very light. There have been one vessel for Liverpool, with timber and deals; one for Havana, with shooks; one for Tenerife, with boards