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The Standard.

OR RAILWAY AND COMMERCIAL RECORD.

Excellensimum est optatum.—Cic.

No 23 SAINT ANDREWS, N. B., WEDNESDAY, JUNE 8, 1853. [Vol. 20]

GOVERNMENT DIRECTORS FOR THE SAINT ANDREWS RAILWAY.—We are informed that at the recent sitting of the Executive Council, two Government Directors were appointed for the St. Andrews and Quebec Railway Company, under the provisions of the Act passed at the last session of the General Assembly. These Directors are Benjamin Wolhaupter, Esq., High Sheriff of the County of York, and George Hatheway, Esq., one of the members for that County.

Mr. Wolhaupter has had much experience in the management of private corporations, having been for years a Director of several Companies, and for a long time President of the Central Fire Assurance Company; he also has the reputation of being a thorough accountant.

Mr. Hatheway is young and energetic, and at the last election stood well on the poll. He has a practical knowledge of the business of the Country, and is possessed of much decision of character. As neither of these gentlemen has any connection with the Railway Company, and are believed to be quite free of all local feeling respecting its management, we presume their appointment will be acceptable to the Company.

As there is no salary attached to these appointments, Mr. Hatheway will not vacate his seat by his acceptance of office.—[N. Brunswick.]

REPORT OF THE SAINT JOHN SUSPENSION BRIDGE.

Hon. J. R. PARLEAU, Prov. Secretary.

Sir,—I have the honor to report to you, for the information of the Hon. the Lieutenant Governor and the Government, that according to instructions received from you, bearing date the 21st January, I have carefully examined the St. John Suspension Bridge, erected under the authority and by virtue of the powers granted by an Act of the Legislature, intitled "An Act to Incorporate the Saint John Suspension Bridge," and I hereby certify that the same is constructed in conformity with the requirements of such Act, and that (within the limits and conditions herein specified) it is of sufficient strength and quality in all respects to render it perfectly safe for life and property passing over the same.

The Bridge is of the description generally called "Wire Suspension Bridge," being composed of ten cables, five on each side, each cable containing 300 strands of No. 10 wire, or 3000 in all. These cables pass over massive towers of masonry, and are made fast to the solid rock behind by heavy anchors, as will be hereafter described.

The span of bridge from centre to centre of points of suspension is 630 feet; width of roadway between parapets, 23 feet; with a 15-foot carriage-way in the centre, and four feet each side for footpaths; the whole being suspended 70 feet above extreme high water mark.

I have examined all the component parts of the Bridge, including the foundation, and have subjected the wires, suspending rods and floor timbers to a breaking strain, in order to form a safe calculation of the actual strength of the bridge, upon all which I beg to report in detail.

The towers upon the western side of the river are built upon two different kinds of rock, the northern tower being built upon the limestone, whilst the southern is erected upon a very hard dark-colored trap rock. Between these rocks there is a decided fissure, which, I am informed, (for now that the tower is built, I have no other means of knowing, but ran out under the northern tower, but ran out to nothing, at the southern face of the same. This fissure, Mr. Reynolds, the Contractor, tells me, has been carefully cleaned out and rammed full of concrete and broken stone. On the edge of the fissure, where I had an opportunity of examining it, this is now nearly as hard as the rock itself. This must be watched and kept carefully sealed up, to prevent the water from getting in, which, if allowed to enter, and to freeze, might do serious damage. So long as this is guarded against, I consider the towers perfectly safe, as I am led to believe that all earth has been excavated from under them, they being built up on the solid rock, each of the different descriptions of which stands firmly upon its own base.

The towers upon the eastern side of the river are built upon a shaly slate rock. The north eastern tower has been regularly stepped down with steps cut at right angles to the horizon, until it attains a firm footing at the bottom, from whence it has been built up entirely of strong granite masonry, of a firm and durable character. The southern tower has likewise been cut down to a solid foundation; but whether from economical or other motives, the base of the tower, which should be the strongest, having to carry the superincumbent weight of the whole, has been built of limestone rubble masonry,

of not nearly the same strength as the masonry in the tower erected upon it, which is constructed of granite. This I consider a mistake, for though the work is safe, and will last, I doubt not, for many years, yet it is not by any means of the same durable nature, nor in keeping with the rest of the work.

To remedy this defect, I would recommend the outside of this rubble work, where it is exposed to the weather, to be covered with a good coating of cement, made of the best hydraulic lime; and the outside of this to be weather-boarded. With due attention to this, it may be made to last for an indefinite space of time.

The towers themselves are built of first class granite masonry. They are fifty-one feet nine inches high above the base, fifteen feet square at the bottom, and six feet square at the top of the tower, below the coping. The coping-stone, the saddle rests upon seven feet square, and one and a half feet thick. Each of the other courses is two feet thick. The stone that the outside of the towers is composed of is grey granite, of a fine grain and durable nature. The stones are dressed smooth upon the beds and builds, but the outside is rough, technically called with a quarry face, with an arris or tooled margin one inch wide round the edge of each stone. The filling in the centre of the towers, I am informed, is composed of best class limestone rubble, laid in cement and grouted, each course being levelled off to correspond with the granite face, before the next was laid. So far as I can judge from carefully examining the outside of the work, it seems executed in a faithful and workmanlike manner.

On top of the towers rest the arrangements for compensating the contraction and expansion of the backstays. This consists of a lower plate of cast iron, three by four feet square, bedded in the masonry, and firmly fastened down with copper dowels, to prevent any movement of itself. This plate is perfectly smooth on its upper surface. On it are inserted seven wrought iron cylindrical rollers; on these rollers a saddle is placed, which consists of a plate of cast iron perfectly smooth on its lower surface, to correspond with the upper surface of the lower plate.

The top of the plate is cut out into five grooves, 8 1/2 inches apart from centre to centre, semicircular and 3 1/2 inches diameter at bottom, and formed on a curve of four feet six inches radius in longitudinal direction of the bridge. In these grooves the cables rest. The effect of this arrangement is, that in the event of contraction or expansion of the cables from variations of temperature, the saddle moves along upon the rollers, without racking the masonry of the towers. I consider this an excellent plan, and well adapted to answer the purpose intended.

The cables are ten in number, five on each side of the bridge, laid parallel to each other, and composed of 300 strands of No. 10 wire, about one eighth of an inch in diameter in each cable, or 3000 in all. Before these cables were made, the wire was boiled in linseed oil and frankincense, which prevents corrosion. I am informed there were six barrels of oil used in their preparation. These cables are hung over the tops of the towers on each side, in catenary curves, the droop from the tops of the towers to the apex of the curve being about forty five feet.

The cables on the land sides are carried back over the tops of the towers as nearly as possible on the same angle as on the bridge side of the towers. This causes a pressure upon each side of the tower to be the same, the resultant of which is a vertical pressure. The cables are carried back on this angle until they meet the surface of the rock, where they are fastened by a suitable arrangement of shackles and links of sufficient strength to anchors of wrought iron. These anchors are straight bars of best refined round iron, 4 1/2 inches in diameter. There are two of them to each cable, the one set six feet behind the other, in holes drilled by machinery eight feet into the solid rock, at right angles to the tangent of the curvature of the backstays, and these secured by filling round them with iron wedges and lead. From the unfinished state of the anchor pits (the masonry proposed to be built over them not being yet commenced,) the earth had washed in, partially covering them so that I could not examine them thoroughly. The parts exposed, however, were securely fastened. I would recommend that these anchors be housed over either with a brick or stone arch, or wooden house, extending the whole length of the shackles, and the drainage from the same, which is not by any means perfect now, be made thoroughly complete.

Five of the cables on the western side of the bridge have been spliced. I do not anticipate any danger from this, as it is made in what is technically called the return, after the cable has been passed around the frog of the anchor, which is well and securely clamped; moreover from experiments that I have made on wire spliced in this manner, the wire broke at the perfect joint, and not at the splice,

Suspension Bridges in Europe are generally made of wires of prominent lengths, splicing them whenever the coil was run out. In the Firthburgh Bridge—the largest bridge of the kind in Europe—the cables were made in this manner.

The suspension rods are three-eighths of an inch by six eighths, and are in different lengths, to suit the curve of the cables. There are 147 on each side of the bridge, or 294 in all. They are suspended from the cables at every four feet, alternating regularly from one cable to the other, beginning with the outside one again. These suspending rods have a stirrup at their lower extremities, into which the transverse beams of the roadway are fitted, and are there nailed fast to prevent their slipping off. They are each of them provided with one or two turnbuckles, according to their length. These are for the purpose of adjusting them by, to bring them all into the same degree of tension. These suspension rods are amply strong enough, as will be shown in the appendix, where the strength of the bridge and its individual parts are explained.

The roadway is composed entirely of wood. The breadth of the same between the handrail on each side is 23 feet, there being 15 feet in the middle occupied by the carriage way and four feet each side for the footpaths. Between the carriage way and the footpaths there is a scabbling spiked as a line of demarcation.

The transverse beams of the road are 3x11 inches in the middle, and 3x12 at the sides where they fit into the stirrups. This gives a slight curvature to the cross section of the roadway, and allows the water to run off the sides, where it passes through cast iron scuppers. The transverse beams are placed four feet apart from centre to centre.

The planing for the carriage way is placed longitudinally, and rests upon the transverse beams. The planks composing it are three inches in thickness; and from six inches to a foot and upwards in width, and from twenty feet to forty feet in length. On each side of the bridge, above and below the transverse beams, are the top and bottom chords of a section of 8x8 inches and 5x8 inches. These are procured in long lengths of not less than thirty feet, and spliced, bolted and banded together, so as to make them equal to one continuous timber extending from one end of the bridge to the other. Ten bolts of an inch section pass through these top and bottom chords, and through the intervening transverse beam; at every crossing of the same.

These chords have the effect of stiffening the bridge, and distribute any passing load over three or four of the suspending rods. The timbers of the hand rail on the outside of the bridge are 5x5 inches. The posts are morticed into the upper chords, and are braced with diagonal braces of a similar section, extending from the foot of one post to the head of another, forming a series of St. Andrew's crosses. The tops of the posts are morticed into a hand rail, the top of which is capped with a moulding extending one inch over each side of the same. The whole is crisscrossed up tight by 3 bolts passing through the hand rail and by the bolts of the vertical post; and screw-tight up tight with a nut underneath the top chord.

The platform of the bridge has a slight curvature across the river, of nine inches, the same being inverted to the curve of the chains of the bridge, and distribute any passing load over three or four of the suspending rods. The timbers of the hand rail on the outside of the bridge are 5x5 inches. The posts are morticed into the upper chords, and are braced with diagonal braces of a similar section, extending from the foot of one post to the head of another, forming a series of St. Andrew's crosses. The tops of the posts are morticed into a hand rail, the top of which is capped with a moulding extending one inch over each side of the same. The whole is crisscrossed up tight by 3 bolts passing through the hand rail and by the bolts of the vertical post; and screw-tight up tight with a nut underneath the top chord.

At each end of the bridge there are six guys, three on one side, and the same number on the other. These guys are small cables of wire, one inch in diameter, extending from the rock on either side of the Bridge, where they are fastened to the Bridge itself, the guys upon one side pulling against the guys on the other, in such a manner as greatly to neutralise the effects of the wind. These guys however, are very imperfectly put in, being badly made, indifferently fastened, and by no means in a proper state of tension. I would recommend these guys to be immediately attended to, and made as perfect as it is possible to make them, as I consider that there is more to be feared from the effects of the violent gusts of wind which sweep through the gorge, than from almost any other disturbing cause.

The approaches to the Bridge are only completed for about 150 feet on each side. The roads leading thereto are bad; on the eastern side there is a steep hill within 300 feet of the Bridge, which should be cut down to a grade of 1 in 25, before heavy loads can be taken up it with any degree of facility. In fact, when the hill is covered with ice, as it was when I made the survey, it is almost impassable for loaded teams. The rest of this road passes through the Portland Town shipyards, and is more or less blocked up with timber.

From the end of the 150 feet approach at the western side of the Bridge to the junction with the main road near the Asylum, the road creeps round the base of sloping ground,

and is decidedly unsafe at any pace beyond a walk, when there is ice upon it.

The Act with regard to the road and approaches is indefinite as to how far they are to be completed. I estimate that it will require two hundred pounds to make a good road, in keeping with the rest of the work, from a point leaving the main road by the Asylum, west of the Bridge, to the same distance on the eastern side of the river.

The amount of work still remaining to be done to render the work perfect, and which if neglected, will considerably lessen the ultimate durability of the bridge, but which, at the same time, does not interfere with its being used for the present, are—

First,—repairing the spiral winding of the cables, technically called the sewing where it has been broken in many places in taking them over the towers. If this is not done, the water will get into these places, and do serious mischief. Second, painting all the iron work of the Bridge a white colour, with white lead and oil. The white colour materially weakens the action of the sun, and allows any symptoms of incipient oxidation immediately to manifest itself. Third, coating the limestone rubble masonry on the south eastern foundation with hydraulic cement, and weather boarding the same; likewise pointing joints of the masonry in all the towers with cement. Fourth, finishing and re-fastening guys. Fifth, cleaning out, thoroughly draining and housing over anchors. Sixth, completing the roads to and from the Bridge.

I have estimated that five hundred pounds is a sufficient amount to complete these items.

Speaking generally, with the exception of the above mentioned items, consider the workmanship well executed, and creditable to all concerned.

I cannot conclude this Report without respectfully recommending that the wise intention of the Government with regard to it being periodically inspected should be carried out. Suspension Bridges, in particular, require to be carefully watched, the stability of the whole depending in a great measure upon the perfection of its parts. It is no use if the cables are strong and equally strained, if the suspending rods are not in adjustment and in *vice versa*.

In conclusion, I would merely add, that in the survey nothing has been taken for granted where there was the least possibility of applying a test; and where the least doubt could be entertained, the fullest practical experiments have been made, with a deep sense of the responsibility incurred.

All of which is respectfully submitted by
Your obedient servant,
ALEXANDER L. LIGHT,
St. Andrews, 25th February, 1853.

THREE DAYS LATER FROM ENGLAND.

The steamship Arabia at New York, brings Liverpool dates to the 21st May, 3 days later.

The Exhibition at Dublin was very prosperous, there being 5000 visitors daily. The French Assembly is manifesting hostility in various ways to Government dictation. A great inundation has occurred in Central France. It is contradicted that France has sent a hostile fleet to the Sandwich Islands.

Admiral Turkey are less promising. The English and French Ambassadors have sent couriers in haste to their Governments, Russia demanding a speedy answer from the Porte.

Cotton has advanced 1-16d, with a fair demand. Breadstuffs were firm, without change in prices. White Corn was 6d dearer.

BRIEF TIMES FOR WORKING MEN.—The Halifax Recorder contains the following remarks under the above head, by which it will be seen that in that City, as well as in Saint John, labour is at present receiving a good reward:

So much employment for labor has not occurred for many years in this city as exists at present. The new Market House, the new Barracks and other Government Works undertaken by civilians, and the alteration and improvement of the streets, besides the erection and repairing of private dwellings, have created an active demand for a large number of mechanics and labourers. In addition to the employment thus already set on foot, the Richmond Mills are to be rebuilt forthwith; and contractors are invited to tender for building new Stables and a Coach House for the Lieut. Governor. By these means industrious working men will be able to get along pretty comfortably in Halifax this summer; and then, should operations not be commenced on the long promised Railway previous to the setting in of winter, the reports of the Surveyors now employed in tracing the route, will doubtless assure the country that the work will not be delayed beyond the opening of the succeeding season. Once the Railway is begun the times in Nova Scotia must be brighter than ever known before.

LAW RESPECTING NEWSPAPER

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SEED SOWING.

We have most of us seen the sower in the field, striding along the furrow ground, and scattering the ruddy grain from his well-filled hopper; while the rooks and crows waiting on the neighboring high elms seemed to say "Our turn will come by and by." The sower unconsciously performs an act of faith, fearlessly committing his seed to the ground, nothing doubting, that it will bring forth fifty and a hundred fold. This act of faith we should do well to imitate in other things.

When a man sows wheat he never expects barley to spring up. Whatever may be the grain he flings into the furrows he looks for a crop of the same kind. This is a little fact that may be turned to very great advantage, for every man is a sower. Oh, ye thistle sowers of the earth! ye oppressors of your fellow-men! ye scrapers after wealth, renown, and selfish pleasures! would that ye were within hearing, that I might speak a word to you out of the fullness of my heart.

Yes, every man is a sower! Hear it, ye careless ones, and hear too, on the authority of God's holy word, that "whatsoever a man sows, that shall he also reap" (Gal. vi. 7). You may doubt it, you may not believe it; you may deny it, but that will not alter it. Cain, Gehazi, and Judas were sowers; evil was the seed that they sowed, and evil was the crop that sprang from it. Though for a season sin may appear to prosper—

Ere long, each evil deed and black intent, Springs up and blossoms into punishment. Abram, Joseph, and Paul, were sowers. Like them—

Sow faith, and love, and duty, and your eyes shall see a goodly, glorious, harvest rise.

It is a profitable employment to look back on the seeds we have sown; for if we have been gladdened with a crop that has ministered to our joy, we are sure to be encouraged in pursuing the same course. While on the other hand, if we see around us thorns and briars of our own procuring, we shall be feelingly persuaded of the folly, as well as of the wickedness, of wandering in by-path meadows, and mazes of error.

How many seeds of bitterness have I seen by others; nay, in the course of a long life, how many have I seen sown myself, that have blanched my cheek, thrown a shadow on my path, and given sorrow to my heart!

One of the saddest delusions into which any one can fall, is that of being led to believe that his transgressions will not be known. Yet sad as is this delusion, it is almost as common as the air we breathe. "If I could once deeply impress on the minds of readers, the conviction that our thoughts, words, and deeds, whether good or evil, are seeds that will be sure to spring up again in the shape of joy or sorrow, hardly could I do them a greater service."

Though there are many seeds which ought not to be sown, there are some that are indispensable. Sow them at all hazards. If I mention a few of them, you will very likely give a shrewd guess at the remainder. Sow the seed of humility with a liberal hand, for you will never have occasion to regret it. The crop may not be showy to the eye, nothing of the gaudiness of the tulip and the peony will appear, but never mind that. Humility is more like the violet, that springs up under a hedge unseen, or the magnolia, who a flower is very small, but whose perfume is very delightful; and then it is excellent preservation from many stubborn distempers, such as pride, envy, hatred, malice, and uncharitableness. Let the seed of humility be freely sown.

If you have not already sown the seeds of Meekness and forgiveness, it is high time that you had, for they ought to be in full blossom very early in the year. He that neglects to sow this necessary sort of seed must needs bring a heavy penalty on himself, for

"Thus speaks the righteous Lord of earth and heaven: 'Forgive or thou shalt never be forgiven.'"

The earlier good seed is sown the better, and patience, zeal, and perseverance, are all of this kind. Get them into your hearts at once if possible, for when they spring up, which they soon will do, your griefs will become lighter, your joys brighter, and you will wonder how any one in his right mind can neglect the great advantages they bestow upon their possessor.

The very name of one of the seeds that I shall mention, will I hope, recommend itself at once to your notice; it is content. Sow it for its produce has a wonderful virtue in making the bitter sweet, the hard easy, the crooked straight, and the rough plain. "Let your conversation be without covetousness; and be content with such things as ye have" (Heb. xiii. 5).

Faith is one of the most valuable of all seeds; use no opportunity of adding it to your stock, for often when most needed it cannot be had. Sow it though it be no bigger than a mustard seed, for if well watched and watered, and prayed over, it will spring up into a large tree the shadow of which will be pleasant to your soul.