

The Tay Bridge Disaster.

EVERY particle of matter in the universe is instinct with force. The measureless volume of inert matter which composes the terraqueous globe and all other globes rolling in boundless space, is, in common language called dead matter. Still, every tiny molecule or atom of all this so called dead matter is endued with immutability, if not eternal, laws and forces of its own. To obtain the full knowledge, control and direction of all these laws and forces, is the highest aim and ambition of every physical and mechanical philosopher. It is only by means of the laws and forces inherent in the elements of Nature that inert matter can be brought fully under the control of man's will. To trace and discover these wonderful properties and attributes of the elements of which the universe is made, is, therefore, a noble and god-like task.

The INFINITE has placed matter with all its incalculable forces and diversified laws before the senses of man, and endowed him with reason and judgment necessary for the investigation and application of these marvellous forces and laws. To this noble work, men, in all corners of the civilized world, have addressed themselves. Hence it is that we have the Iron Horse with his thundering train, careering over almost every section of the habitable globe, defiant of every obstacle that rises in the way. Hence, also, does man speak to his fellow across vast oceans and over towering mountains and broad continents with almost as much ease and familiarity as if the colloquists were conversing cheek by jowl at the same fire-side. All the other thousand and one marvels of steam and electricity will naturally occur to the intelligent reader.

A further knowledge of the elements of the universe, and of the laws and forces inherent in these, and of the effects of one and all of these upon one another,—a further knowledge of these things, we say, will, in the future, immeasurably enlarge man's powers over nature, and enable him to wield forces and produce effects not yet ever dreamed of.

Every work of man's genius, which has resulted, or may yet result in disaster, will serve to urge men of science to further and deeper investigations into the secrets of Nature and the properties and laws of matter. Perfection, in even the best known of the arts and sciences, is infinitely ahead of the scientific world. Only the first faltering, feeble step, even in the best trodden paths of art and skill has been achieved. But men of science are gathering strength and multiplying in number; and the highway to the arts and the sciences is being rapidly opened up and cleared of impediments. Never again, perhaps, will a Tay Bridge disaster, arising from the same, or even similar causes, shock the world. Most of the architects, mechanics and engineers who wrote upon the disaster, seek for its immediate causes in the defects and neglects in the plans and workmanship, and in the absence of unity in the whole structure. The theory of one—Mr. Bell, who is probably a practical architect, possesses considerable plausibility. The gist of his theory is, that the bridge was built in sections, and each section dependent on its own strength alone. In the construction of a bridge—and particularly a railway bridge—such a plan, or rather principle, of building it, would be a serious mistake. A most desirable element in the construction of such a gigantic work as the Tay Railway Bridge, is that each part and each section affords strength to all the other parts and sections, and thus secure a unity of strength and dependence throughout the entire structure. It appears by Mr. Bell's showing, that the section which gave way, and which should be the strongest of the whole structure, was the most isolated—so to speak—as well as the weakest.

But, behind all the theories yet suggested, there was one main cause of the catastrophe of which no notice has yet been taken. To understand this cause thoroughly, preliminary explanation is indispensable to most readers.

It is well known to metallurgists and chemists that several of the metals and minerals assume the crystalline structure; and that when they do so they are easily broken. No sane man would never order glass wheels to be placed under his carriage, however brilliant and beautiful these might appear. Iron is one of the metals which sometimes assumes the crystalline state, but at the same time retains its iron like appearance. There are conditions and circumstances favorable to this crystalline transmutation. When all these meet and act simultaneously, the iron assumes the crystalline state in a comparatively short space of time. To submit the iron to a continuous jar or violent vibration is one of the conditions favorable to its crystallization; a cold and highly electrical state of the atmosphere is another; and, in all probability, the direction in which the iron is placed with regard to the magnetic points of the compass, is a third. When these three influences and many other favorable conditions and circumstances which we need not wait to specify, operate in concert upon the iron, the process of crystallization becomes a certainty. When common iron assumes this molecular arrangement, it is said in common language to have become rotten or brittle. And it is on this account that cannon, axles of cars, mill metal, etc., are condemned after they are in use for a certain length of time, although no flaw may appear.

In the autumn of '58 or '59, the writer, in company with Alex. McNeill, Esq., of Cavendish, was driving along a level, but frozen road. In a moment, and without

any discernable cause, snap went the axle close to the hub, and that side of the carriage fell to the ground. Next day on examining the fracture, it was found to be as smooth and even as if it had been cut through with the sharpest edge. The fact was, altho' we did not then know it, the axle became crystallized by the continuous jarring occasioned by the hard and lumpy road, and the wheel having probably struck a frozen lump somewhat larger than the others, the brittle iron broke like a piece of clear crystal.

Since penning the foregoing I have noticed the following remarks on the fall of the Tay Bridge, taken from the London Builder:

"That the bridge went with the train is now indubitable. That the first fracture took place at the fifth pier almost at the moment that the engine went upon it, is much shone by the mode in which the pillars on that pier are described as having fallen to east and west. On the sixth pier the iron was cut off as if with a knife."

Now this is the very characteristic of the fracture of crystallized iron. If the iron of the bridge, or even a portion of it, assumed the crystalline atomic arrangement, the sudden entrance of the cars upon it under the enormous pressure of the terrific gale of that night, the crystallized metal would most certainly and suddenly snap asunder, and precipitate cars and all into the seething waters below.

The next consideration is, were the circumstances and conditions favorable for crystallizing the metal present? They certainly were. First, the bridge has been constantly jarred by several trains crossing it daily for about eighteen months. Second, every storm which blew against it during that time, especially those which pressed latterly upon it, kept it more or less in motion. Third, the elements on that fatal night were highly electrical. And fourth, the bridge, if I am not mistaken, coincides lengthwise with the magnetic polar current.

ALFRED A. MCKENZIE.

Parliament of Great Britain.

THE QUEEN'S SPEECH.

My Lords and Gentlemen,—

It is with much satisfaction that I again resort to the advice of my Parliament.

My relations with all Powers continue friendly. The course of events since the prorogation has tended to furnish additional security to the maintenance of European peace, and of the principles of the Treaty of Berlin. Much remains to be done to repair the disorder the late war caused in many parts of the Turkish Empire.

A convention for the suppression of the slave trade has been concluded with the Sultan.

At the close of the last session I expressed a hope that the treaty of Gundamak had terminated the war in Afghanistan. My envoy with a retinue was honorably received and entertained by the Ameer at Cabul. While engaged, however, in their duty, he and the Embassy were treacherously attacked by overwhelming numbers, and after a heroic defence, almost all were massacred. An outrage so intolerable called for condign chastisement, and my troops, which were withdrawing, were ordered to return. The skill exhibited in the rapid march on Cabul, and in the advances upon their lines of action, reflects the highest credit upon them, whose bravery shown with mounted lustre in every engagement. The abdication of the Ameer and the unsettled condition of the country render the recall of my troops impossible for the present, but the principle on which my Government hitherto acted remains unchanged, and while determined to make the frontiers of the Indian Empire strong, I desire to be on friendly relations alike with the ruler and people of Afghanistan.

My anticipations as to an early peace in South Africa have been fulfilled. The capture of the position of the Zulu King and the breaking up of the military organization on which his dynasty was based relieved my possessions there from the danger which impeded their advancement and consolidation.

In Basutoland a native outbreak of considerable importance has been effectually quelled by the Colonial forces, while Transvaal has been freed from the depredations of a powerful chief, who, having successfully resisted the former Government of the country, had persistently rejected attempts at conciliation. I have reason to hope that the time is approaching when an important advance may be made towards the establishment of a union or confederation, under which the powers of self-government enjoyed by the inhabitants of the Cape Colony may be extended to my subjects in other parts of South Africa. Papers on these and other matters will be forthwith laid before you.

Gentlemen of the House of Commons:

I have directed the estimates of this year to be prepared and laid before without delay.

My Lords and Gentlemen:

The commission, which at the close of the session I informed you I had issued, to inquire into the causes of agricultural depression throughout the United Kingdom, is pursuing its labors. In the meantime a serious deficiency in the usual crops in some parts of Ireland has rendered necessary special proceedings on the part of my Government to guard against the calamities with which those districts are threatened. With this view they have called upon the authorities charged with the duty of administering relief to make ample preparation for the distribution of food and fuel, should such a step become necessary, and they have also stimulated employment of labor by advances on terms more liberal than those prescribed by the existing law. I feel assured that you will give your sanction to the course adopted. They may have exceeded the power entrusted by Parliament to the executive of the Government. A proposal will be submitted to you for providing the funds required for these exceptional advances on the security for property administered by the Church Temporalities Commissioners. I trust that you will be able to resume consideration of the Criminal Code, and of improvement of the Law of Bankruptcy.

Bills will be laid before you for enlarging the powers of owners of unsettled land, for consolidating and amending the Lunacy Laws, and for simplifying the Practice of Conveyancing.

I commend to you these and other measures which may be submitted for your consideration, and I trust that the blessing of Almighty God will attend and direct your labors.

NEWS BY TELEGRAPH.

Special dispatch to Examiner.

NEW YORK, Feb. 8.

A London despatch says that it is again announced that Dean Stanley has consented to the erection of a statue of Louis Napoleon in Westminster Abbey.

ROME, Feb. 1.

A despatch has reached the Vatican through a diplomatic source, that the Crown Prince of Germany is not charged with any mission to the Pope.

LONDON, Feb. 7.

The Standard affirms that, after the disposal of the pending Home Rule amendments to the Address, Mr. O'Donnell, Dungarven, will, before the address is consented to, move another amendment generally arraigning the Foreign Policy of the Government, but that it will only be supported by a few of his colleagues.

The Standard's St. Petersburg despatch says that one ship of the Russian volunteer fleet will be sent with a Commissioner to gather information for the development of trade with China, Japan and the United States.

A despatch from Berlin says the intelligence has been received from St. Petersburg that the editors of the Will of the Pope, the nihilist organ, have published a notice that in consequence of the loss of their printing press, the issue of the third number of that paper has been interrupted, but will be resumed shortly.

A despatch from Naples says an eruption of Mount Vesuvius began on Saturday.

OTTAWA, Feb. 8.

Much sympathy is felt in the highest circles on account of the sudden death of Governor Chandler. Speculation is rife as to his successor, but it is too soon to refer to that matter.

The anti-tariff petition published in the Telegraph a few days ago is reproduced and favorably commented on in the Globe and other leading Opposition journals.

The Governor General, through Lieutenant-General Smith, compliments the Military staff in Halifax on their appearance during the recent reception of the Princess.

The Legislative Council.

To correct an error, we again insert the following editorial paragraph published on Saturday:—

It seems that a majority of the people of Lot 8 have yielded to the persuasive influences of Hon. B. Rogers, M. L. C., and desire that "no change shall be made in the Constitution of the Province." We learn that Mr. Rogers excited the property holders' jealousy of the right to vote for members of the Legislative Council. But if a "right" be of no value, and exceedingly costly, what is the use of jealously holding on to it. A well-to-do and intelligent miller in Prince County paid \$2800 for the "right" to a water course; but the water proved insufficient in quantity for his purpose, and the "right" was of little or no value to him. Did he waste his time and money in keeping up the dam because he possessed the "right" to the stream. Not at all. The "right" was of no value; he put on steam, and let the water go. Now, the people of this Island, chiefly the property holders, are paying some \$4,000 a year for a "right" which is of no value to them, and which, as has been proved in the case Ontario and other places, they are just as well without. Will they continue to pay the heavy cost incident to the "right" which is of no value to them, in order to retain it; or will they, like the sensible miller, let the "right" go and apply the money now annually spent in maintaining it, upon something which will be of real service to them? That's the question.

HOTEL ARRIVALS.

ROCKLIN HOUSE.

Feb. 7.—Wm. Sobey, Hampton; Neil McQuarrie, do; D W Palmer, Victoria; Angus McDonald, Bedou; Robert McLeod, Cavendish; Miss McLeod, do; D Simpson, do; Donald McKay, New London.

HANOVER HOUSE.

Feb. 6.—Henry Clarke, Bedouque; John Grady, Summerside; Malcolm Matheson, Bradabane; John Stewart, Red Point; John McGregor, Southport; Isaac Thompson, Suffolk, Henry McGregor, Southport, James Birch, Alberton. Feb. 7.—Henry Morrow, Bothwell, John Morrow, do; Col. Davar, Alberton; Capt. J. McKay, S S "Northern Light."

DIED.

At Greenock, Scotland, on 3rd ult., Rufus S. DesBrisay, of Richibucto, aged 37 years.

In Charlottetown, on Friday, January 23rd, of inflammation of the lungs, Catherine, wife of Pierce Lacy, blacksmith, in the 31st year of her age. She leaves a husband and three children to mourn their loss. The deceased was a daughter of Mr. Patrick Mooney, of Lot 37.

On the 1st inst., at Souris West, Margaret Ann, beloved wife of Richard J. Lacy, aged 23 years. The deceased was a native of Pirate Cove, Strait of Canso, and leaves a husband and three small children to mourn their loss. (Nova Scotia papers please copy.)

At Murray Harbor, on the 23rd ult., after a severe and protracted illness, which she bore with Christian resignation to the divine will, Sarah M. Senebaugh, beloved wife of David Crichton, Esq., in the 49th year of her age, leaving a husband, one son and three daughters to mourn their loss.

At the residence of James McPherson, his brother-in-law, West Point, Lot 8, after a lingering illness, of bronchitis, Alex., son of the late Murdoch McDonald Lot 62, in the 24th year of his age.

SUBSCRIBE for the DAILY EXAMINER, the Cheapest and most Newsy Paper published in the Province.

MASONIC.

GRAND MASONIC ENTERTAINMENT

—AT THE—

MARKET HALL,

On Monday Evening, February 9th, 1880,

UNDER THE AUSPICES OF KING SOLOMON LODGE, A. F., A. M.,

And Under the Patronage of His Honor the Lieutenant Governor.

The Quintette Club, with the best Vocal and Instrumental talent in the City, will provide the Musical part of this Entertainment, and a rare treat may be expected.

Admission 25 cents; reserved seats 35 cents. Tickets to be had at the different Drug Stores in the city and at Bremner Bros. Doors open at 7.30. Chair taken at 8 o'clock.

Feb. 3, 1880—pat 2i, h ii

D. R. McLENNAN, Secretary.

NOTICE!

Merchants Marine Ins. Co'y OF PRINCE EDWARD ISLAND.

THE ANNUAL GENERAL MEETING of the Shareholders of the Company will be held in the

Y. M. C. A. HALL,

—ON—

Wednesday, 10th March Next,

AT 3 O'CLOCK.

for the election of Directors for the ensuing year, and the transaction of other business.

FENTON T. NEWBERRY,

Feb. 9, 1880—2aw

Sabbath School

CONCERT.

THE SABBATH SCHOOL in connection with the SECOND METHODIST CHURCH will give a

Concert and Literary Entertainment,

—IN—

UPPER PRINCE STREET CHURCH,

—ON—

Friday, 13th Feb.,

Assisted by the Choir and several Musical Instruments. We intend this to be a first-class entertainment.

General admission, 15 cents; children, 10 cents.

Concert to commence at 8 o'clock.

M. N. WRIGHT,

Sec'y Com.

The Insolvent Act of 1875 and Amending Acts.

In the Matter of John Sellar, an Insolvent.

BY AUCTION, will be sold at the Subscriber's office, on FRIDAY NEXT, the 13th inst., at Two o'clock in the afternoon, the following Stock, being part of the Estate of above Insolvent:—

- 5 Horses, 1 Cow, 2 Wood Sleighs, 1 Jaunting Sleigh, 1 Box Sleigh, 1 Cart, 1 Express Wagon, 1 Sulky, 1 Buggy, 1 Cultivator, 1 sett Harness, 1 Wood Plough, 1 Mowing Machine, 2 Cart Harnesses, 1 Sulky Rake, etc., etc.

Terms at Sale.

B. WILSON HIGGS, Assignee.

Charlottetown, P. E. I., Feb. 9, 1880—2i

Readings and Musicales,

THE LAST OF THE SEASON,

—IN—

ST. PETER'S SCHOOLROOM,

—ON—

Tuesday Next, 10th inst

PROGRAMME.

- 1. Glee—"There is Music by the River"—Mrs. McNab, Miss DesBrisay, Major Freeland and Mr. Williams
- 2. Reading—Rev. R. D. Bambrick
- 3. Song—"The Gambler's Wife," Herr Hermans
- 4. Reading—Mr. W. C. DesBrisay
- 5. Song—"Flowers, only Flowers," Miss Palmer
- 6. Reading—Miss Wright
- 7. Song—"Wearing o' the Green," Major Freeland
- 8. Reading—Mr. E. J. Hodgson
- 9. Duett—Mrs. Strickland and Miss DesBrisay
- 10. Reading—Mr. Morson
- 11. Inst. Trio—"Meditation," (by request), Messrs. Vinnicombe, Wilson and Watson
- 12. Reading—Mr. Cotton
- 13. Song—"Thady O'Flinn," Mrs. MacNab
- 14. Reading—Miss Smith
- 15. Piano solo—"The War March of the Priests," Mr. L. W. Watson
- 16. Reading—Mr. J. E. Haszard
- 17. Song—Mrs. Strickland
- 18. Reading—Rev. G. W. Hodgson
- 19. Song—"Madolen," Mr. Williams
- 20. Reading—Mr. F. S. Longworth

God Save the Queen.

Doors open at 7.30. Admission 10 cents. Feb. 7, 1880.

EXTENSIVE SALE OF STAPLE GOODS! AT AUCTION.

I AM instructed to sell at PUBLIC AUCTION, an extensive Stock of

Tea, Liquor and Tobacco,

—AT THE—

Bonded Warehouse,

—ON—

Thursday, 12th Feb'y, inst.,

AT 11 O'CLOCK, A. M.

Will be sold in lots to suit purchase, Duty paid or in Bond.

TEA.

50 chests } Warranted good.

25 half-chests }

LIQUORS

- 3 hhds Gin, 19 qr. casks Gin, 110 cases Gin, Red and Green Seal, 70 cases Brandy, Quart Flasks and Barrels, 116 cases Whiskey, Quarts and Flasks, 10 cases "Old Tom," 3 casks Port Wine, 1 cask Brandy (dark) } Duty paid.

TOBACCO.

- 12 boxes "Pride of Quebec," 15 butts "Cable Twist," 10 boxes "Beaver."

The above Goods are ordered for positive Sale, and afford a chance that will not occur again this season. The Stocks held of these classes of Goods is very light, and will be much wanted before new Spring arrivals come in.

W. D. STEWART,

Auctioneer.

Feb. 5, 1880—cod

Herring. Codfish.

CHEAP FOR CASH,—

- 50 bbls. Herring; 100 qtls Codfish, 200 bags Salt.

D. SMALL

Head Queen's Wharf, opposite I. C. Hall's.

To Fisheries and Factories.

ONE TON AMERICAN MANILLA MARLIN (Tanned and White), Cotton Lines, Twines, Leads, Hooks, Bait Mills, Fishing Anchors, Cotton Ducks (light and heavy), 100 coils Manila Rope, Hemp Rope, Wire Rope, Paints, Oils, Tar, Oakum, Ships Chandlery, Sail Making, Light, Ducks for Boats' Sails.

D. SMALL

Jan. 21, 1880—tf

S. S. "NORTHERN LIGHT,"

WILL MAKE DAILY TRIPS between Georgetown and Picton, until further notice, (Sundays excepted) leaving Georgetown at 6 a. m., and Picton at 1.40 p. m., weather permitting.

WM. MITCHELL,

Agent & Dep't

Ch'town, Dec. 19, 1879.

Valuable Property for Sale.

THAT FARM lately owned by John and Peter Meikle, situate on Lot 23, in Queen's County.

For further particulars apply at the office of Messrs. Hodgson & McLeod, Charlottetown.

Jan. 9, 1880—eod

NOTICE.

PARTIES having SCHOONERS from 35 to 65 Tons for Sale, may hear of a purchaser by applying to

JOHN H. CATHRAE.

Ch'town, 2nd Feb., 1880—1w

GOLDEN SYRUP.

Very Choice.

8 CTS. PER POUND,

—AT—

BEER & GOFF'S.

Jan. 13, 1880.

THE place to get your Printing done is at the EXAMINER PRINTING ROOMS.