

four independent lines. These electrical matters are full of wonders. I never get into a trolley car but I think of how wonderful a thing it is that by mere contact with a slender overhead wire the power of 40 horses can be brought into the motor, as well as current that can be utilized to heat & light the car. It is a wonderful thing that a slender wire strung about the city should be made to burst out into a thousand brilliant lights at different points, wherever required, by the simple insertion of a certain amount of resistance at given points on the wire. It is a marvellous thing that by speaking into a simple little instrument which contains a metal disc which corresponds to the drum of the human ear—the tone, pitch & character of our voices can be carried for 100 or 500 miles, & recognized by our friends at the other end of the wire as distinctly as if they were standing but 10 feet away. These are simply wonders which no man can explain. Can you wonder that such a business should be of sufficient interest to keep me in connection with it for 50 years? If I were to fall heir to a million dollars tomorrow, I would ask leave of absence from my work long enough to visit the Pyramids, but only on the condition that I might return to my work again, and continue in it as long as possible. While the business with which I am connected has had its peculiar worries & anxieties, as all other business has, it still retains for me its attraction, & I hope to be allowed to take an active part in it as long as I am able to be of any use or service.

It has been one of the pleasures of my later years to know that so many operators who learnt their business upon our lines are now filling responsible positions with other companies. Upon one occasion in taking a trip over the line of the C.P.R. to British Columbia, in company with my friend, Mr. Nicholls, when we returned over the Union Pacific, at many of the stations along the route both going & coming I was accosted by operators, station-masters & others, who reminded me that they were once operators on our lines, & had kindly recollections of their Canadian associates. And I have reason to know that Canadian operators are looked upon most favorably by their employers in the United States. During the American war some of the most expert field operators were Canadians, & the celebrated Southern raider, Morgan, had on his staff an operator named Ellsworth, who became celebrated during the war, & who learnt his business in our Whitby office.

Fifty years is a long time to look forward to, & is something which is rarely done. I remember when a boy having a vague idea that a man 50 years of age was pretty well advanced in life. As I grew older I set the date forward, & have been setting it forward ever since. Fifty years, however, is not a very long time to look back upon, & I can hardly realize that I have spent 50 years in the telegraph service; neither can I realize that to-morrow I shall be 69 years of age. I am now confidently of the opinion that a man of 70 years is not to be counted as old. When a man reaches 80 perhaps he may begin to think he is getting old, but certainly not until then. If I were to give my advice as to how a man might best retain his youthful feelings & ambitions, I should say: spend at least a month in the woods every year. If this does not have the desired effect, then I know of nothing that will. Doctors & drugs will not do it.

During the time of early telegraph extensions in various parts of the country I was of course travelling about from place to place, fixing upon routes, opening offices & appointing operators, & during these journeys invariably enquiring as to the location of different trout streams, which I duly noted. Afterwards, whenever I could manage to do so, in company with my friend, Tom Townsend—

who is here to-night, & who has been my companion in fishing & hunting trips for the last 40 years or more—we often visited these streams. As the country became better settled, during the last 20 or 25 years we have had to find other & more remote territory where we can indulge our favorite sport. I am glad to see here to-night so many friends who have first or last been my companions in the north woods, camping on Island Lake, Cedar Lake, Long Lake, Kiaskoka, Manitou, & numberless streams, rivers & waterfalls in Ontario, & on some salmon rivers in New Brunswick, where we have enjoyed holidays with a relish little understood by those who have had no such experience. I challenge my friends here who frequent New York to produce a Delmonico or Waldorf chef the equal of a "smoky Indian that we know," who cooks our bacon & trout freshly taken from the rapids of the Eau Claire or Manitou. There is a poem by Kipling in a recent number of Scribner's Magazine, which I would recommend to any of you who have not yet read it. On first reading you will probably not make head or tail of it, but after reading it carefully over again you will begin to smell the camp fire, and feel moved to take down your trout & salmon rods and reels; examine your Jock Scots & Silver Doctors, & note carefully whether they are ready for earliest possible use in the spring. I have records and memos of these trips of ours for the past 30 years, & I think I would sooner lose all the business records with which I have anything to do than these diaries of my hunting & fishing trips in our north woods. Those of you here to-night who only know something of this Dominion by noting the weekly increase in railway traffic, & other such information, & have not camped in those north woods & along those trout streams & salmon rivers, do not begin to realize what a grand country we live in.

Expansion Allowance in Laying Rails.

A railway superintendent writes us: Although a great deal has been written on the subject of space to be left between ends of rails in track laying, yet in every-day practice this important matter is very little understood, with the result that rails are ruined in track by too great opening at the ends. On many roads elaborate instructions are given as to the allowance for various temperatures, but as a matter of fact the track-laying foreman jams a piece of a spike box between the ends of the rails & lets them go at that. From extensive measurements made of rails at 30° below zero & 100° above, the extreme expansion of a rail was found to be about 3-32", & in designing rails & fastenings the holes in the rails & angle bars & size of the bolts should be such that the maximum expansion could not exceed this.

Many discussions have taken place as to the difference in expansion of light & heavy rails. As an experiment, I had a light & a heavy rail dipped in cold water & a foot cut off each & placed in a furnace, with the result that they both expanded alike, but in practice the heavier section of rail does not expand as much as the lighter section, for the reason that it takes so much longer for the sun's rays to thoroughly heat the heavier section.

I have made exhaustive experiments in laying heavy rails—72 to 80 lb. sections—and now always place them tight when laying in summer, which is the season rails are generally laid, & in the fall when the days are cold leave 3-16" at opening between rails. Rails laid tight show much better wear than those of same make laid open.

Accidents have occurred through rails kicking out, & the average trackman invariably attributes this to lack of expansion, where nine times out of ten the cause is due to creeping track.

The Algoma Central Railway, Etc.

Principal Grant, of Queen's University, Kingston, has contributed to the October Canadian Magazine an article on "The Jason of Algoma," Jason in this case being F. H. Clergue, who is discovering & capturing the Golden Fleece of Algoma. The various industries which Mr. Clergue has & is establishing at Sault Ste. Marie are described in a very interesting way. The railway & steamship branches of Mr. Clergue's enterprises are referred to as follows:—

"Additional industries are gathering round the canals, factories & mines, all contributing to the main object. When the Helen mine of iron ore was discovered near Michipicoton & a short railway brought it to a harbor ready for the market, transportation to the Midland blast furnace & other points became an immediate necessity. But the ship-brokers could not supply steamers or barges. All were pre-engaged. What was to be done? Wait on the pleasure of Mr. Rockefeller, who could put on the screw when it suited & as often as he liked? No. The right men were at once despatched to Britain, to purchase four steamers with the largest carrying capacity compatible with getting through our system of locks. While I was at the Sault in Aug., the last of the four arrived at the dock, near the new offices, with a cargo of 1,500 tons of Portland cement, bricks & other stuff, brought from England right up into the heart of the continent, without breaking bulk! Is there another such system of inland navigation elsewhere in the world? These steamers are to be carriers all the year round. On the approach of winter, they will run down to the ocean & engage in the Atlantic Coast carrying trade. Barges too are under way, for the outfit must be complete.

"We might be sure that railways as well as steamers would be planned. Three main lines, not counting branches, are now being constructed, located or contemplated, by the same intelligence which saw the possibilities of the Lake Superior mill-pond, & has ever since been engaged in turning the possible into the actual. The first is the Algoma Central, to run back to Missanabie on the main line of the C.P.R. The second will extend the Algoma Central to the salt water of James Bay, the pocket of Hudson's Bay which bends down to within 300 miles of Missanabie. The third will connect the Sudbury region with the great Manitoulin Island, crossing the north Channel of the Georgian Bay at Little Current. Each of these promises to impart new life to large & hitherto hermetically sealed districts of the Province. The first 10 miles of the Algoma Central are completed already. I had a run over them in their unballasted condition, on a truck, in company with three or four American gentlemen who had come up from New York & Philadelphia to see the holes in the ground where their money was being sown. May they reap a good harvest! To my astonishment the line ran through a fairly well wooded & well-settled rolling country. I had in my own mind previously given up the whole of that northern shore region as a hopeless barren, & the day before I had been informed by an intelligent person in the Sault that it was simply that & never would be anything more. Most ignorant are we of what we are most assured. Well, settlers had filtered in, men with hearts of oak, & that they had prospered, the fences, fields & buildings all along the line bare testimony. And now the sun had arisen on them. The railway was at their doors to carry their stock & garden stuff, their butter, eggs & chickens to as hungry a market as the heart of farmer could desire. The Co. believes that there are fertile little valleys & patches of good land all the way to Missanabie, & so they have agreed with the Government of the Province to place on their lands, or the lands