

some form of Trunk sewer. If there be an alternative plan, it ought now to be put forward. Toronto cannot afford to continue to pollute her bay by running the sewage of the city into it. In all such cases, there are people who prefer to keep their money rather than spend it in a great sanitary work, not thinking that they expose their lives to extra hazard by so doing.

The Knights of Labor in the Province of Quebec have agreed to advocate the revising of the constitution of the order according to the form drawn up by Archbishop Fabre. The revised draft will be offered for adoption in the convention now in session at Richmond, Virginia.

COPPER MINING IN CANADA.

In view of the interest which has been excited by the discovery of the Sudbury copper mine, or more properly by the accounts given of the extent of its deposit laid bare by the workings there, they might perhaps be examined by the Geological Department with advantage to the public. Essays at copper mining, in Canada, are of very old date, some of them going back nearly a century. But the first great movement of note, which the copper mines, real and supposed, on the North Shore, occasioned was in 1847. This proved to be the speculative period. Immense sections of country, north of Lakes Huron and Superior, got into the hands of companies, whose ostensible object was to work the copper mines which they were supposed to contain. Very little was done or attempted, beyond speculation in so-called mining stocks. A few individuals made money, by schemes more or less crooked; others lost; only one or two companies did any work; even the benefit of a thorough examination of the supposed copper region was not obtained. The result was final collapse, and a resumption of the widely extended claims by the government.

At a later period, the Acton copper mine, in what was then Lower Canada, excited extravagant expectations. There were some rich pockets, which self-interest magnified into widely extended treasures. The working of the rich pockets made it possible to float a large amount of stock—some millions—but when the pockets gave out the game was up. Sir Wm. Logan, who had charge of the geological survey, foresaw and predicted the result. Amateur geologists, with personal interests at stake, differed very confidently from Sir William, with what result we know.

That the north shore contains great treasures of mineral wealth is an impression which one is naturally unwilling to part with. This impression may, in time, develop into incontestable fact. The "Sudbury wonder," as it is called, will supply another test. Just now there is not a single copper mine, outside the Sudbury venture, on the north shore. The only mine that was for a long time worked on the north shore of Lake Superior, has, we believe, for some time been abandoned, and another venture, at another point, recently made with the best intentions and adequate appliances, has not been a success. The

Sudbury discovery comes at a time when copper-mining on the north shore, was extinct. On the south side of Lake Superior, copper-mining is very active, and furnishes employment for a large part of the shipping on the lake.

The Sudbury discovery could not have been more opportune than it is. Just how much of what we hear concerning it may safely be believed it would be difficult to say. By one the discovery is described "an immense wall of rock, with an elevation 100 to 150 feet, extending for a quarter of a mile with granite walls on each side of the mineral deposit, a quarter of a mile apart." It is, we believe, unusual to find copper veins of this extent. The face of the deposit is said to have been perforated with test pits, almost the whole distance. The operation must have been comparatively easy, as there is said to be a Gossat or decayed mineral matter, eight to twelve inches wide, from the summit to the base of the lode, exposing "a brilliant band or stripe of mineral from top to bottom," and "indicating the existence of a mass of mineral such as has never before been discovered." In the thirty or forty test pits, this deposit is said to be revealed. When statements such as these are publicly made, it is desirable that their accuracy should be tested by an official examination. For if the reality be found to accord with the glowing description, it is not likely that the Cleveland company, which is acting as pioneer, will be left to play a lone hand. Mr. James Worthington, it appears, owns an adjoining mine, said to be of equal richness. And besides this, there must, if reports be not deplorably exaggerated, be a great deal more.

Too much reliance cannot safely be put on preliminary assays, which are said to show an average of fifteen per cent. against four per cent. obtained in the Calumet and Hecla mine. But any such comparison is probably quite misleading; since to compare a deposit of sulphuret, such as we understand this at Sudbury to be, with the native copper found in the Calumet and Hecla mine, is to compare two things essentially different. The latter requires only crushing and one smelting, while the sulphuret must go through several processes before reaching ingot. Then the assays may be from picked rock, and in that case, they would show an average above the average to be obtained from working of the mine. A better test is shortly to follow: ore, at the rate of 300 tons a day, according to the report, is being shipped to the United States for treatment: the result of the accumulation of some weeks. To some extent, the ores forwarded may be picked, and above the average; but any actual smelting, if on a sufficient scale, will show the real richness of the mine. Whether these preliminary tests be intended to be followed by an issue of mining stock, has not been stated; but it is announced that smelting works will soon be erected on the spot. The Canadian Pacific Railway company shows its faith in the value of the copper deposit, by the resolution taken to build a railway connection with the mines, a distance of three miles.

Mr. D. McIntyre, who has a knowledge

of copper mines, according to the *Montreal Herald*, has expressed the opinion that the mass of copper in sight equals at least 50,000,000 tons. One gets lost in the magnitude of such figures, the use of which must be largely conjectural. But, after all allowance is made, for over-estimate, it is quite clear that this Sudbury find may prove of great extent and value. Still both are at present, to some extent, matter of conjecture. He will not be an unwise man, who, if uninitiated, keeps his head cool and awaits developments by the experienced persons who have the work in hand.

In the United States, copper-mining is in the hands of one of the numerous rings, with which the Republic is blessed or cursed. This ring has been able to get the tariff made according to its liking, and it has reaped monopoly profits at the expense of consumers. So well were prices kept up, in the home market, for a long time, that American copper sold for less abroad than at home, and instances occurred of its being re-shipped from Liverpool to the United States, at a profit. A similar manipulation of the Canadian tariff will probably be attempted, and we can only hope that it will not succeed. If Canada has more valuable copper mines than the States, she can bring down the price of copper by her competition, and yet reap a handsome profit, on this industry. We trust that the Copper Ring of the United States will not be allowed to extend its monopoly practices to Canada; but to prevent this being done the duty on copper must be kept at a moderate figure. That the new "copper interest" will assail the Minister of Finance with demands for increased duties is a matter of course; but assent to these demands ought by no means to follow.

LIFE INSURANCE CHART.

The appearance of the full report of the Superintendent of Insurance, enables us to issue our annual chart, illustrating the Life Assurance business of Canada in 1885, and it will be found on another page of this issue. The figures given, in the case of each company, cover a period of four years, so that the progress or otherwise of each may be seen at a glance. We suppose that nearly every one of our regular readers holds one or more policies in some one or more of these companies, and that therefore this compilation will prove of interest to many.

The Life Association of Canada, formerly the Mutual Life Association, of Hamilton, and the Life Association of Scotland, have both discontinued seeking new business in Canada. The former is winding up its business, having bought up many of its policies at a low rate through agents, who represented that its affairs were in a bad condition, and that it was better to have a little than nothing. In some cases the parties, having found out that the company was quite responsible, and that their policies were worth much more than they received, have talked of bringing the matter into court, and restitution has been obtained. From having \$1,810,212 of in-