

chance of competition. The result of all this is that the "Bell" in the end generally succeeds in retaining undisputed possession of the field. This ought not to be and aldermen with a sincere desire to protect the people's right to control their own property, and secure cheap and efficient service, should give no heed to any arguments which have for their object the postponement of the introduction of competition. In every case such arguments, no matter by whom advanced, if traced to their original source will be found to be creations of the "Bell" monopoly.

Municipalities who fail to encourage the growth of telephone competition, still further strengthen a monopoly which every year will acquire a tighter hold upon the people who will become more and more powerless to get back their rights which have been voted away by the men whom they elected to protect them.

We note with satisfaction that there is an inclination on the part of the Government to acquire the long distance telephone lines, and while we sincerely hope the time is not far distant when this proposition will be an accomplished fact, we are inclined to the belief that the day when the telephone trunk lines will finally pass out of the hands of the Bell Telephone Co., is a long way off. In the meantime there is a danger of municipalities being urged to delay action in dealing with local telephone matters, on the plea that they had better wait until the Government take action in regard to the long-distance system. On the other hand we are convinced that there is no possibility of Government ownership of the telephone trunk lines until the need for such action is made apparent by the establishment of independent local systems in various parts of the Dominion. It is therefore to be desired that the municipalities will unite in a vigorous effort to secure the building up of independent telephone systems, and will give all reasonable encouragement and assistance to bona-fide companies seeking franchises on fair terms, that is, where municipal ownership is not considered desirable.

The people should give no quarter to a company that openly defies the municipalities, under cover of a Dominion Act, and should further refuse to recognize the principle of granting exclusive franchises to a monopoly, in return for a payment, not for the privilege of using the streets, but to enable it to charge telephone users rentals very much in excess of those for which independent companies are willing to furnish a better service.



SMELTING BY ELECTRICITY.

Of the special reports issued by the Dominion Government during the year now closing, the most important is that of the commission sent to Europe to investigate the subject of smelting by electricity. A synopsis of parts of the report appears elsewhere; and we hope to refer to other aspects of the question later on.

We share the optimism of Dr. Haanel as to the utility of the electric furnace in metallurgy, because every week sees some advance made by inventors in overcoming the drawbacks that have been encountered in the various processes that are going through the evolutionary stage. There are situations in Canada that appear to be specially suited for putting the electric furnace into operation, and already some Canadians at Ottawa and Peterboro are ready to go on record as pioneers in this field. They will be leaders in a field that promises great things for a country like

Canada with its colossal water-powers; they may even be financially successful at the start, which is not the good fortune of most pioneers.

If we take the present condition of the iron, steel, and other metal industries, we find that the countries which have been most successful have had good supplies of workable ore and cheap coal as well as cheap transportation between the localities producing the ore and those producing the coal. It is seldom that the ore and coal lie close together as they do in parts of Nova Scotia and British Columbia. Ontario and Quebec, for instance, have various ores of good quality and in good supply, but they have no coal as yet discovered in large veins. Hence these provinces have not developed in smelting as they might have done with cheap supplies of coal. But here nature and science have at last joined to make good the defect, and the success of electric smelting means a new industrial era for these and other provinces. The big water-powers are equivalent to so many coal mines and wherever these water-powers can be developed cheaply and are situated convenient to water transportation or cheap rail transportation, we may expect more or less of these industries to arise in the near future according to the enterprise of the people or their local advantages in other respects. These developments may take unexpected turns in various parts of Canada, especially when combined with the electro-chemical industries, which afford another vast field for the employment of our great water-powers. Looking thus at a large water-power as equivalent to a coal mine we may soon see cities arising in the midst of northern forests where water-falls have been vainly calling throughout the centuries to have their might displayed in harness.

It should be realized, however, that the electric furnace as now being developed cannot do every kind of smelting. It can already do some things better than any other kind of furnace. In the production of ferro-alloys, its success is already undeniable. In Italy, Switzerland and Alpine France, where fuel is dear but water-power abundant, its application has made great progress. In fact the electric furnace has already been the means of flooding the market with these commodities and other uses have to be sought. Diversifying the product of the electric furnace is now the problem there, but as pointed out by writers on the subject, this only follows the history of metallurgy by coal and coke, where the blast furnace is devoted to pig-iron, the puddling furnace to wrought-iron, the crucible furnace to special tool steel and the Bessemer furnace to its particular grades of steel. The refining of blast furnace pig-iron by the electric process has advantages over the present method. Starting with hot metal direct from the blast furnace the temperature is raised and maintained more easily because of the higher electrical resistance of hot iron. The production of steel by the electrical process seems more promising than the direct reduction of iron ores, one difficulty in the latter work being the designing of a furnace of sufficient capacity. Such difficulties may be overcome in time.

In a paper read before the recent Foundrymen's Convention at Philadelphia, P. McN. Bennie draws the following conclusions as to the application of the electric furnace to metallurgy and to foundry practice:—

"It will be seen that the electro-metallurgy of iron and steel has already left the domain of the laboratory and experimental plant, and taken on the serious aspect of an established industry. The electric furnace has its limitations, which it would be well to bear in