

may be expected to share in the resulting benefits. Sir John had also hopeful news from Brazil to communicate. The Empire of Brazil covers nearly one-half the surface of South America, having an area of 3,288,000 square miles. It will be a decided advantage to obtain suitable arrangements with this great empire, of which the population is over 10,000,000. The Legislature of Brazil, having special reference to Canada, has passed a general law laying down the basis for reciprocal trade; and our Government expects to receive intelligence almost immediately that arrangements are completed for a line of steamers between Canada and Brazil. An offer has been made by a Japanese to put on a line of steamers between that country and British Columbia, on condition of getting from Canada, in Sir John's words, "a reasonable subsidy." Whether, till the Pacific Railway is completed, there will be trade enough to warrant the granting of even a moderate subsidy for this purpose is doubtful. The prospect of extending our trade with countries with which we have now little or no commercial intercourse is cheering, and we may expect that it will be measurably realized.

BET ROOT, SORGHUM AND MAIZE SUGAR.

Sugar-beet culture is being persistently agitated in the Eastern Townships of Quebec, and quite a number of farmers have been induced to promise their co operation in the effort to establish the industry of beet-sugar making. Coaticooke, we are told, can now boast of a Beet-Root Sugar Company, called the Pioneer, existing in its midst with a capital of \$150,000. The Town Council of Farnham has voted a bonus of \$15,000 towards erecting a beet-sugar factory. It was last week resolved to call a meeting of both town and parish councils to appoint a committee to visit sugar factories in the State of Maine and report thereon. It is not long since we took occasion to notice the agitation in Northern New Brunswick in a like direction. And the experiments made in Waterloo and other counties in Ontario having in view the establishment of the industry, will not have been forgotten.

It is interesting to observe what was said on this subject in 1878 by the U. S. Commissioner of Agriculture. That gentleman declares that disappointment had been the invariable result of the factories equipped for beet-sugar making in California, at Chatsworth, Ill., and in Sauk County, Wis.; "the belief of many that the beet could be made to yield here, as in

France and Germany, good sugar at a cost low enough to replace sugar from the tropical cane, has not been realized." While still deeming the subject worthy of further consideration, Mr. LeDuc admits that "something may remain to be learned from our Canadian neighbors, who claim to have attained to a higher degree of success than ourselves in this industry—a success which is the less to be wondered at when we know that the Local Legislature of one province so well understood the importance of the matter, as far back as 1873, as to pass a law at that time offering \$25,000 as premium to the first successful manufactory of beet sugar in the province; and afterward, in 1875 to increase the premium to \$7,000 annually for ten years, or a total of \$70,000. Who can say that success in our own country would not have been greater under a like stimulus?" We are not aware, however, that any successful factory has yet come forward to claim that reward.

A much more successful attempt has been made in the United States to produce sugar from maize and from sorghum. From the Minnesota Early Amber Sorghum, 15,000 gallons of syrup were produced in 1877; and from experiments it is estimated by the growers of Rice County in that State that one-half the product can be crystallized into sugar. The analysis gives 88.9 cane sugar, 5.6 grape sugar, 5.8 water. Experiments in making maize sugar, conducted by Mr. F. L. Stewart, of Murrysville, Penn., convince that gentleman that three pounds of stem to the hill of Kansas corn will yield 21,700 pounds to the acre, giving 180 gallons of dense syrup, or 1,800 pounds of crystallizable sugar; while 14 pounds to the hill, an easy average with *proper culture* of good soil, will give 2,400 pounds of sugar and also 55 gallons of drainage molasses to the acre of corn. The average yield of the beet per acre in France has fallen to 1.071 pounds sugar, while its maximum yield in Europe has reached 500 pounds. The lowest remunerative yield of sorghum, 100 gallons of syrup per acre, will produce the same amount. The great obstacle to beet sugar manufacture in America, says the Commissioner, is the dearness of labor by which to cultivate the raw material. Added to this is the obstacle of expensiveness of machinery.

HAMILTON WATER WORKS.

A good deal of interest continues to be taken, and properly, since the McInnes fire, in the question of increased water pressure for fire purposes. The growth of the city during the twenty years since the water system—then considered a very complete

and adequate one—was inaugurated, has outstripped the capacity of the reservoirs and mains, and renders the question of increasing their power a pressing one. A committee of engineers, Messrs. Kennedy, of Montreal, and Keefer, were requested to investigate the system and prepare a report, which they did, and at a recent meeting of the Hamilton City Council this report was read. It favors the system of reservoirs and pumping, but with largely increased mains. The total expense of alterations suggested by the engineers is \$175,000, exclusive of what might be required for the purchase of land for reservoirs.

In addition to this report, and suggestions and estimates made by the engineers named, Major Tomassek of that city, who has considerable experience as an engineer, has laid a communication before the Council favoring the "Holly" system, largely in use in American cities, and gives estimates showing a much less expenditure than that required by the reservoir system. His views command a share of attention.

It is of course only recently that the "works" have been found inadequate to the additional service required for fire purposes by the extension of pipes in every direction, while the diameter of the mains has not been increased. But it required only a calamity such as the late disastrous fire, at a much earlier date to demonstrate the inadequacy which it ought not to have been left to a conflagration to prove. A Committee is now testing the relative merits of the "Silsby" and "Ronald" steam fire engines with a view of purchasing.

The large amount already expended upon the Hamilton water works—we are told that that cost was between \$800,000 and \$1,000,000 while the capital account now amounts to over a million dollars—doubtless renders the authorities anxious that this past expenditure shall not be rendered useless by a change of system that may prevent the utilizing of the former appliances in whole or in part. The views of the gentlemen we have named are before the Council, and no conclusion has yet been reached. We are told, however, that there is likelihood of work being begun this winter whenever the Council can decide which recommendation to adopt.

MAILS TO THE WEST.

The Toronto Board of Trade recently memorialized the Government with respect to matters coming within the ken of the Postmaster-General. These were, the