

## Manitoba Water Powers

Importance of Hydro-electric Energy in the Province—Development of the Winnipeg River

Owing to the great and ever-increasing cost of good steam coal, the great distance of the province from anthracite coal fields, and the constant growing demand for hydro-electric energy in and around the city of Winnipeg, the development of water powers in Manitoba possesses a peculiar importance.

The main sources of power in commercial quantities are the Winnipeg river, Grand rapids on the Saskatchewan, and the large rivers of the northern hinterland, including the Churchill, Nelson and Berens.

The great strides made in the electrical industry in recent years have brought the present, commercial centres of the province within easy transmission distance of the basins of the Winnipeg and English rivers.

A well-considered and cautious policy of water-power administration has put into force regulations which afford every reasonable protection to the public in the way of limited grants, rentals and controls of rate, subject to periodic revision while at the same time providing sufficiently attractive opportunities for investment to actively interest the capitalist. Moreover the Department of the Interior has issued instructions that all vacant Dominion land contiguous to power sites on rivers shall be reserved and shall be disposed of only under the Water-Power Regulations referred to.

Of the eight possible power sites on the Winnipeg river there are three now under development, representing a total power capacity of 199,000 (twenty-four hour) horse-power. One site is completely developed by the Winnipeg Electric Railway Company on the Pinawa channel, and produces about 26,500 horse-power under favourable conditions. Another site at Point du Bois falls, developed by the city of Winnipeg, produces at the present time about 20,800 horse-power but is capable of extensions to a maximum of 77,000 (twenty-four hour) horse-power. Development at the third power site at Great falls, having a maximum possible development of 95,500 (twenty-four hour) horse-power, is about to be commenced.

There is, therefore, at the present time, about 47,300 horse-power produced on the Winnipeg river, and transmitted for use in and around the city of Winnipeg, which can with the two present plants be increased to 103,500 horse-power.

The five remaining power sites on the Winnipeg river are under the control of the Dominion Government, and can furnish a further amount of twenty-four hour

## Improvident Waste of Water in North American Cities

Needless Consumption Equals a Hundred Gallons per Head per Day—Proposed System of Metering and Inspection

That the *per capita* consumption of water in most cities of North America is inordinately high, can be shown by a comparison with centres of population in Europe. The tables below give figures taken from representative cities on both sides of the Atlantic, and furnish a good basis for such a comparison.

	Imp. gal. per head per day
St. John, N.B.	200
Vancouver	160
Montreal	120
Ottawa	190
Toronto	95
Hamilton	98
New York	100
Buffalo	270
Chicago	190
Philadelphia	175
Average	159.8

Vienna, Austria	14
Ascher, Germany	24
Basel, Switzerland	40
Copenhagen, Denmark	26
Hamburg, Germany	40
London, England	36
Liverpool, England	36
Glasgow, Scotland	72
Newcastle-on-Tyne, England	33
Hull, England	38
Nuneaton, England	18
Stirling, Scotland	53
Riga, Russia	21
Manchester, England	42
Devonport, England	40
Average	35.5

It will be seen from the above that the average consumption per head in America is between three and four times what it is in Europe. This tremendous difference can only be accounted for by assuming that the greater portion of the water consumed in New World cities is simply wasted. A consumption of 50 gallons per head per day ought to be ample for all purposes, and would still be about 43 per cent greater than the European average. Taking the American average as 150 gallons, we see that cities on this side of the Atlantic are using 100 gallons per head per day more than is necessary.

This unnecessary waste increases the cities' financial burdens

power to a maximum extent of 210,700 horse-power.

In addition there are several important power sites on the Winnipeg and English rivers within the province of Ontario, which are within easy transmission distance of Winnipeg.

Surely this abundance of dependable and economically feasible

in many ways. The pumping and filtration plants must be of needlessly large capacity; far more power must be employed to force a large quantity of useless water through the mains; and the distribution pipes and also the sewers that carry the water away, must both be bigger than necessary. Mr. R. O. Wynne-Roberts, M. Inst. C.E., estimates that in a city of 250,000 population, the extra cost of water delivered would amount to \$560,000, or \$2.24 per inhabitant. Further, the difference in cost of sewerage and sewage disposal would be \$420,000, or \$1.67 per inhabitant. This means that the city's water rates are increased by \$3.91 for every man, woman and child of the population, without any appreciable benefit being gained for the extra outlay.

Undoubtedly some of this waste could be eliminated by placing meters on all house services, and, indeed, this is a common practice in England, and has already been adopted by some United States cities. To avoid the cost of installing meters on each service and to detect leaks in the mains, Mr. Wynne-Roberts suggests that meters be placed on the mains in different parts of the city, so that the quantity consumed in various districts could be ascertained. This would localize waste, and, if combined with an efficient system of inspection, would materially reduce useless consumption at a less cost than metering all house services. For a city of 250,000, he considers that about twenty district meters would suffice, and estimates the cost as follows:—

15 per cent. interest and depreciation on meters	\$7,500
20 Inspectors at \$1,200	24,000
1 Superintendent	2,400
2 Clerks	1,920
Rent, light, stationery and miscellaneous	2,000
	\$37,820

Say \$40,000 per annum. Certainly some means should be taken to check the present reckless waste. If some cities would conserve their present water supply, there would be no necessity of new reservoirs and additional water supply for many years to come.

power spells an assured industrial future for the province of Manitoba, and especially for the cities of Winnipeg, Portage la Prairie and Brandon.

Condensed from a letter by J. B. Chalties, Dominion Superintendent of Water-Powers, to His Honour Judge H. A. Robson, of the Public Utilities Commission, Winnipeg.

## Conservation of Lobster Fishery

Money Value Increases but Catch Declines—Conclusions of Shell-fish Commission

The wonderful productiveness of the Canadian sea-shores is still carried on a vast scale, and the total money value of the lobster fishery is greater than ever, but the annual returns are really misleading, because, while the supply of lobsters is declining, the price has so materially advanced that the total value is greater to-day than at any previous period. Thus, in 1880, lobsters brought \$5 a case, whereas last year the price realized was nearly four times that amount.

In the case of the oyster, though the number of barrels annually produced on the Canadian beds is only half what it was ten years ago, the price per barrel has increased in about the same ratio as the price of lobsters, and is now four or five times what it was in 1880.

The following points are worthy of attention in considering the present condition of the lobster industry:—

1. The size of lobsters has materially declined, great catches being of very much smaller average size than in former years, while the fishing operations are carried on over a very much larger area, and with greatly increased number of traps, and in deeper water, and, in most districts, with the assistance of motor boats.

2. The traps used are more effective and destructive than formerly, and the parlour and other forms of trap have replaced the lobster pot used in past years.

3. There is a tendency in some localities to increase the small canneries and, in such canneries, to either pack the fishermen's catches on share or to pack them for the fishermen, charging a rate agreed upon for the cost of cans and the labour.

4. While the size limit has been ignored, and was practically a dead letter when various size limits were in force in the different lobster districts, the fishermen realize that the taking of small lobsters has been detrimental. In such localities as the shores of Grand Manan island, a large size limit seems to have been observed. It is a widespread opinion that, by returning small lobsters to the water and marketing only the large lobsters, the value of the catch has been increased. But, in general, fishermen do not favour a size limit and some canneries would, for a time, be closed were the eight or nine-inch limit enforced generally. All, however, are convinced that the berried lobster—the female lobster carrying eggs—must be protected.—From *Report of Dominion Shell-fish Fishery Commission, 1912-13.*