

WATER POWER IN NEW YORK.—Initial Step in Great Scheme to Develop Energy for Gotham's Manufacturing and Industrial Plants.—Natural Motive Force to be Only Means of Operation Fifty Years Hence.

WATER POWER for the electrification of New York City, forms the subject of a most interesting article in a recent issue of one of the great newspapers in that city. The writer of the article in question draws a most vivid picture of the American metropolis fifty years hence when coal, as a fuel, will have vanished or at least when it will have become so scarce that its use as a fuel will be impracticable because of its almost prohibitive cost. He further declares that not only New York, but all the other large commercial and industrial centres in the American Union, in the next half century, will be forced to harness their streams for the development of power, light and heat.

Few Canadians realize, fully, what this forced development of the science of the transmission of the force of gravitation into industrial power, heat and light in these great centres, means to Canada. Other countries with their great coal deposits and wealth of petroleum, under the existing methods employed in the development of power, may have an advantage over Canada, but, with our unequalled wealth of streams, lakes and waterfalls, when the new order of things takes place, we shall be enabled to develop power, heat and light more cheaply and expeditiously than any other nation on the globe.

Sheer necessity will force the greater industrial centres of the world to encourage and aid engineering and invention in the solution of the many problems involved in the economical development of water power and every engineering accomplishment, as well as every creation of inventive genius that brings to a higher state of perfection the transmission of power from our streams and waterfalls, to a state where it represents commercial value, places Canada a notch higher, industrially, among the producing nations of the world.

When coal and petroleum cease to be available for industrial purposes, and when the industrial wealth of a nation will be dependent upon the extent of power it can develop from its streams and rivers, then will Canada be the richest spot on the globe.

Nations may burn their coal and consume their petroleum but, with reasonable care and scientifically sound engineering, our streams will run on forever.

The following is, in part, Mr. Rene Bache's article, above referred to, and is highly interesting, not only because of the importance of the subject with which it treats, but because of the graphic manner in which he describes the application of this new power and how it will serve to solve the many heating, lighting and motive problems with which, even now, this great metropolis, New York, is confronted.

The City of New York is to be run before long by water power wholly. The plans are already being made, under authority given by the Legislature of the State, and the work may be said to have fairly begun.

The metropolis as a whole may be likened to a gigantic machine, to run which requires a number of horse-power well-nigh fabulous. All of this vast aggregate of power is produced by steam, but when the work already undertaken has been carried out, practically all of it will be water power.

This water power will be transmitted in the form of electricity from distant sources. The New York of that day will be run by cataracts, mostly artificial, located on suitable rivers, in many cases hundreds of miles away. Not only New York, but Boston, Chicago, and other large cities will be run by water power half a century from now.

The work for New York City has begun with the building—by the Water Supply Commission—of great dams on the Sacandaga, the Genesee and the Racquette Rivers, for the utilization of the power of those streams.

One of these, at Hadley, on the Sacandaga, about 200 miles north of New York City, is to be the greatest power dam in the world. It will be 230 feet high, and 800 feet long, and will store enough water to yield 30,000 horse-power at the dam site.

Most of the power required for running the city will come from the upper Hudson and the streams that drain the Adirondack regions. But much of it, doubtless, will be derived from dams along the Wallkill, Housatonic, Catskill, Hoosick and Susquehanna rivers, and from the Passaic Basin.

The revolution of affairs in respect to the power that runs the metropolis is destined to be brought about through the development of the possibilities of transmitting water power over wires in the form of electricity. New York is the centre of a magnificent circuit of such power, which may readily be converted into electricity; but the sources of it are so far away that no attempt has yet been made to carry it to Manhattan Island and its vicinity.

The reason why this has not been done before is that the cost of transmitting electricity over long distances has been too great. But the efficiency of transmission is being steadily and rapidly increased, and the cost is being proportionately reduced. From this time on it will continue to go lower and lower—and within a very few years it will be practicable to fetch electricity in unlimited quantities to New York from rivers 200 miles and more distant.

When this comes about, the complete electrification of New York will be undertaken. Fifty years from now, or possibly sooner, Manhattan Island and its environs will not be run by steam, as it is to-day, but by water power from dams on the Sacandaga, the Genesee, the Upper Hudson, the Racquette, the Esopus, the Wallkill, the Housatonic and other streams.

A large part of the electricity will be used for driving machinery in the factories of New York. Another considerable factor of the "fluid" will be required for traction—for running the surface, elevated and subway roads.

Gas for illumination will be entirely replaced by electricity. Already the increase in the use of power for the electric lighting of New York is very rapid, owing in part to the growth of the number of dark rooms. This is a matter which most people do not seem to notice. It is a phenomenon incidental to the development of contiguous "sky-scraper" construction.

Almost every tall building has many dark rooms, and, as the city grows, the number of such dark rooms is multiplied. Every tall building that is put up makes the city darker. A tall building on one side of a street shuts out part of the light from a shorter building on the other side.

The development of "skyscraper" construction represents a struggle not only for altitude, but for light. It is interesting to go through some of the tall buildings on lower Broadway, and to notice how many thousands of electric lights are kept burning in them all day long. Then there are the stories below ground, dug and occupied to economize precious space, which must be artificially lighted even in the day-time; and the subway tunnels and the tubes that run under the rivers require electric illumination throughout the twenty-four hours.

All of this illumination consumes a vast amount of power, demand for which is steadily and rapidly increasing. Doubtless, one of the first uses to which the electricity derived from the dams is put will be to supply this power—not only for the lighting of office buildings, subways, theatres and restaurants, but also for the dwellings of the metropolis.

In the electrified city—whether it be New York, Chicago, Boston or other large centre of population—there will be many incidental employments for the currents from the power dams, the running of thousands of elevators in office buildings and apartment houses being not least important. But one of their principal uses will be