Japanese Water Power Survey

Progress in Hydro-electric Undertakings in Nippon—Comparison with Canada

The value of water power as an indispensable adjunct to industrial development is being universally recognized. Japan has lately set aside a sum equivalent to over $400,000 or the investigation of sites for hydro-electric power plants and for the collection of reliable data for use in connection with future hydro-electric undertakings in that country. The programme of work includes the selection of 635 power sites; the only sites to be surveyed at present are those where more than 1,000 h.p. can be obtained by economical exploitation. There is also provision for the establishment of numerous stream-gauging stations and of new meteorological observatories. This work is to be completed by the end of next September.

Canada is justly proud of her water power resources, both latent and developed, and, in this connection, it is of interest to note the progress made in Japan. Hydro-electric plants in that country already utilize more than 1,000,000 horse power and a further 2,000,000 horse power is under lease for development. Construction work for about one-half of the latter quantity is now being proceeded with and it is estimated that some 5,000,000 horse power is capable of development on commercial lines.

In Canada, the total hydro-electric power developed is over 1,800,000 h.p. A single plant now under construction to utilize Niagara power will have a capacity of 300,000 h.p. It has been estimated that the total possible water power, capable of development in Canada, is more than 18,000,000 h.p.—*L G.D.*

Hay-box Used as Fireless Cooker

Cheaply Made Article which will Economize Time and Heat

A convenient aid for summer cookery, which economizes both time and heat, may be cheaply made in the following manner:

Obtain a box of a suitable size from the grocer or the fruit store, line the inner surfaces and lid with felt, flannel, or sacking and newspaper, then place enough hay inside to form a nest for a saucepan. This completes the apparatus.

It is used by partly cooking the dish in course of preparation over a gas stove, then immediately placing the saucepan in the hollow in the hay, putting some hay over it and fastening down the lid tightly with a weight or strap. After a little experimenting, a woman may prepare her dinner, before engaging in other household work, or before going out, and find it hot and ready some hours later.

It is possible to cook more than one dish at a time, but on no account must the box be opened until the food which requires the most cooking is ready. All meat dishes require a good start.

A calculation should be made as to the length of time they would take in the ordinary way; they should then be cooked for half that time on the gas or fire, and finished in the box. After a little experience many things can be left on the gas one-third or even less of the time required in the ordinary way.

The following are some of the things which may be cooked in the hay-box:

Boiled Chickens—Half the usual time on the fire, three hours in the box.

Stew—Prepare in the usual way, stew gently for forty-five minutes on the gas or fire, leave in the box for three or four hours.

Boiled Beef—Half the usual time on the gas or fire, and in the box as long as possible.

Potatoes—Put into cold water, boil one minute. Leave in the box for two or two and a half hours.

Dried peas, beans and porridge, etc.—May be boiled and put in the box over night and be ready for use in the morning.

Problems of the Lumber Industry

Factors Causing State of Instability —Effects of Reckless Forest Destruction

The fundamental economic situation that has heretofore kept the lumber industry in a state of unstable equilibrium still exists. Labour problems, in considerable part due to the unsound industrial situation, loom up with no permanent adjustment in sight. The dissipation of our forests goes on with no let-up, and still for the most part without any provision for the continuance of the forests after lumbering. Exhaustion of local forest supplies, the closing of industries dependent on them, the embarrassment for supplies of the pulp mills and other consumers using special classes of forest products, the generally mounting prices to consumers, are other factors which are calling sharp attention to the effect of forest destruction, and are causing increasing public uneasiness.

Lumbermen are giving thoughtful study to the needs of the industry; and they recognize that many things of a helpful and constructive character can be done within the industry itself in the way of cost accounting, adaptation of manufacture to the needs of the trade, scientific merchandizing, economies in manufacture, conservatism in finance, diffusion of information about production, markets, price movements, existing stocks and shipments, and so on. I judge that progressive steps are very generally under way in such matters, and that lumbermen are going as far as they can to improve the internal situation. There are other things that can be accomplished through co-operation with existing public agencies, as in economic, industrial, and technical research, and in demonstration of technical methods. I believe that a great many valuable things for the lumber industry can thus be brought about.

But neither the lumber industry nor the public can ignore the fact that the great fundamental problems, which not only involve the permanence and stability of the interests dependent on our forests but also gravely affect the national welfare, are not being solved. These problems fall into four general groups: those relating to the causes of over-production, those that concern the supply, character, well-being, and stability of labour, the problem of the continuance of private forests and of stumpage supply, and certain questions relating to our public forests.—*H. S. Graves, Chief, U.S. Forest Service.*

Canada's Dependence on Electric Power

Many Resources can Only be Developed through Use of Hydro-electric Energy

Few realize the important relation which Canada's wealth in water power bears towards reaping the full benefit from her numerous other natural resources. It is true that these other resources would not otherwise be entirely lost to the country, but they would have to be exported as raw material in its most primary state with a minimum return to us. The presence of cheap power which is almost invariably found side by side with these other resources, facilitates their development, while their full industrial value is retained in being able to deliver them as a fully manufactured product.

It may be even permitted to predict that this cheap power will soon attract raw material from other countries. For instance, the large aluminium plant on the United States side of Niagara Falls is operating largely from hydro-electric energy exported from Canada. Had it been physically or economically impossible to export this energy, as the question of power is of utmost importance, these works would have doubtless been attracted to use it on the Canadian side.

In Canada, the pulp and paper industry has been greatly expanded through the proximity of abundant water power to our forest resources. A recent census bulletin on this industry shows that there is a total of 524,252 h.p. installed to operate pulp and paper mills in Canada. From other figures given it is fair to estimate that at least 475,000 h.p. of this is derived directly or indirectly from water power.

If we consider pulp mills alone the figures from the bulletin also demonstrate the important part which power holds in connection with this industry. The Canadian mills producing pulp exclusively are stated to have a yearly output of 490,615 tons, for which it is necessary to use 95,463 h.p. In other words one horse-power will produce approximately five tons of pulp yearly. This one horse-power usually costs from $8 to $10 with water power, while if other sources of energy had to be used, the corresponding cost might be from $30 to $50. This would mean an increase in cost of at least $4 per ton, or, in all probability, if the water power had not been available, the pulp would not have been manufactured.—*L G.D.*

Regeneration of Waste Paper

How the Saving of Paper can Relieve the Heavy Drain upon our Forests

During the war, in many places in Canada, organizations of patriotic workers undertook the collection of waste-paper, with a two-fold object, namely, the revenue derived therefrom and relieving the shortage of raw material.

It would be difficult to secure an estimate of the value of the waste paper collected but it amounted to many thousands of tons.

As a forest conservation measure, this work was a tremendous success. Every ton of waste paper sold relieved the forest of supplying raw material to take its place. Eight trees of 9-inch butt are required to make one cord of pulpwood, and one cord of pulpwood makes one ton of pulp. We are proud of our rapidly growing pulp and paper industry, but few realize what a drain this means to the forest.

Dr. C. D. Howe, in reporting on the Commission survey of forest regeneration at the last annual meeting of the Commission of Conservation, said:

"The studies of the past summer corroborate the results of the previous summer, namely, that the young balsam and spruce under the cover of the hardwoods grow very slowly. For example, the average 4-inch balsam was found to be 55 years old, the average 8-inch tree 70 years old, and it was 80 years old at 10 inches in diameter breast-high. This statement is based on the growth analysis of about 300 trees. The spruce grows even more slowly. At 4 inches in diameter breast-high, the average tree was found to be 80 years old, at 8 inches in diameter, 120 years old, and at 12 inches in diameter, 165 years old."

Thus, to supply the raw material for one ton of pulp will require eight balsam trees of 75 years growth, or eight spruce trees of 130 years growth, or 600 and 1,040 years, respectively, of tree growth.

To-day, the market price of waste paper is somewhat lower than during the war, but there is a steady demand for it, and by organized gathering, a good revenue may be derived, the drain on our forests may be partially relieved, and, in a measure, the reputation of Canadians as a nation of wasters, may be discredited.—*J.D.*