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WONDERFUL POWER DEVELOPMENTS STIMULATE ONTARIO | DISTRIALLY

Originally These Were Confined to the Shores of the Great Lakes but in Recent Years the Hydraulic Missionaries Have Branched Out in All Directions Until Scarcely a Section of the Province Has Escaped the

(BY H. G. ACRES, B. Sc.)

Pennsylvania coal. Since that time the Sudbury, Cobalt and Porcupine mining districts have been added to the list of provincial assets. Then came the conmercial utilization of the immense power resources of power plant of the Renfrew Fower Company. To mee Niagara, resulting largely from the rapid development the present and future requirements of the power of the art of high voltage transmission. The develop- agers on the Bonnechere River, and on their behalf, the ment of Niagara power has marked an epoch in the Hydro-Electric Power Commission has constructed a commercial development of the province which will storage dam at Round Lake and has reported as to be referred to in detail hereunder. be referred to in detail hereunder.

drained by the rivers flowing into James Bay, and that special mention. This company supplies power

the rivers forming the arteries of the drainage system. Appended 63.749 to 18.50 leaven June and Decemnaturally possess variant characteristics. The expectation of the strength of the streng tremes are represented on the one hand, by the gently flowing rivers and creeks of the southwestern
peninsula, and on the other by the slack-water posts
and turbulent rapids and falls of the Laurentian rivers
along the north shore of Lake Huren and Lake Su-

Chairman of the Ontario Hydro-Electric Commis-

large rivers which reach tide-water by way of James Bay and the Hudson Sea.

From a hydraulic standpoint the more important rivers tributary to the Ottawa, are the Mississippi, the Montreal. The territory drained by these rivers at one time maintained a great lumbering industry, and while a small amount of merchantable timber is still forest has undoubtedly influenced the regimen of the streams, but the effects of deforestation have been to a certain extent neutralized by the development of second growth timber. This beneficial influence will probably be permanent, owing to the fact that the territory drained by these rivers is for the most ion and the extent of the forest cover is likely to increase rather than diminish. As a matter of fact, the interests of this ter-ritory would be well served if all the Crown lands in the upper basins of the Mississippi, Madawaska, Bonnechere and Petewawa Rivers were withdrawn from settlement and a forest reserve established with white and red pine which is springing up throughout

The hasins of these rivers contain a considerable proportion of lake and marsh and their flow char acteristics are susceptible of material improvemen gh the agency of artificial storage. dient of the streams themselves is generally steep, and ntrated natural heads, ranging from 20 to 100 nerous opportunities for cheap develop The power capacity of these rivers is, how ever, not comparable to that of the Quebec tributaries of the Ottawa, owing to their generally smaller drainage areas. The basin of the Madawaska, the largest Ontario tributary has only about one-third of the area tributary. For this reason, instead of natural capa-cities of 10,000 horse-power and over, such as are on in Quebec, the Ontario tributaries offer facilities for the developm. t of capacities ranging Trom 1,000 to 5,000 horse power only, except in one or two isolated cases. One exception to this rule is the High Falls on the Madawaska, where the natural head can be increased to 150 feet, and 12,000 horse power ped under natural flow conditions, and probably

0,000 horse power with artificial storage.

The status of these water powers as regards possiof development is peculiar and unfortunate the possible exception of sufficient to justify individual capacities are not sufficient to justify are generally too great to permit developseal markets, more or where are slight by existing developments, of small dialety adjacent to the point of con-ch development has taken place on the opi at Carleton Place, Almonte and

The greater industrial centres of the Province of Galetta; on the Rideau at New Edinburgh, Perth. Ontario lie along the shores of the Great Lakes, the nucleus of growth having been supplied by agricultural settlement, subsequent development being development bend development being development being development being developm largely due to the unequalled facilities for inland ments have capacities ranging from 40 to 1,600 hors navigation afforded by these great bodies of water power and supply power to a large number of labo and by the canalization of their connecting rivers. Up using industries which contribute materially to the to 15 years ago the prosperity of the province rested prosperity of the municipalities in which they are upon transportation by water, upon the development located. Renfrew particularly is developing into of the agricultural and lumber industries and upon

be referred to in detail nereunder.

The drainage system of the Province of Ontario same be required.

In connection with the development of power in the drained by the Ottawa River and its tributaries, that of the Ottawa River and its tributaries, that of the Ottawa River and its tributaries of the Ottawa River and its tributaries. drained by the tributaries of the Great Lakes, that Nerthern Ontario Light and Fower Company deserved drained by the Winnipeg River and its tributaries.

As the distance between the east and west extremities of the province is 950 miles, and the distance crossed the use of steam to be almost wholly disc as between the north and south extremities 1.050 miles. United for the operation of rances. In 1909 the company

on the Matabitehouan operating under a aim perior. Between these two extremes, each possessing one at Hound Chute on the Montreal River, operating perior. Between these two extrines, each possessing under a head of 33 feet and with 3,800 horse power inthe limestone region of the eastern counties, and the vicinity over wood pole transmission lines, 25 and 17 miles lang respectively the transmission pressure being 44,000 volts in the first case and 11,000 volts in the latter. The distribution of the average load is approximately as follows-electric railways 400 horse power; domestic and commercial light 200 horse power. mining load 10,000 horse power.

The Matalice arm site is now fully developed and any additional power required by the Cobalt camp must be obtained from the Montreal River. The most important undeveloped site on this river is that known as the "Notch." where a head of 100 feet is available and where about 7,000 horse power can be dedoped under ordinary low water conditions. There levelopment of this water-power which merit serious

Concerning the Ottawa River itself, mention has flow, 600,000 horse power will be available to Ontario octween Lake Timiskiming and Carllion, gregate capacity will, however, be capable of commercial development only in the event of the river being canalized, and will depend furthermore upon the creaion of a market for power vastly in excess of that now existing.

Power development on the Ottawa River in Ontario is at present almost wholly confined to the large inustries which operate at the Chaudiere Falls and where under average conditions about \$6,000 horse power is now in use. Of this amount about 17,000 horse power is used in the mills of J. R. Booth, 5,000 horse power by the Ottawa Power Co. 9,000 horse Madawaska, the Bonnechere, the Petewawa and the power by the Ottawa Electric Co., and the balance by the city water works and the street railway.

standing, the lumbering industry does not now, and probably never will again, contribute materially to the amount now developed on both sides of the river. The regimen of the circumpant has 12,300 horse power in excess of the river had the amount now developed on both sides of the river. The regimen of the river had stalled for the operation of its mines and smelters, previously of the district. The removal of the tirgin city of Ottawa has attained through the development of power at the Chaudiere, will be further enhanced by proved. and still better results are to be anticipated stalled for the manufacture of pulp and paper.

to the fact that they produce motive power, either of new industries, especially in the vicinity of Peter-boro, Campbellford and Trenton.

smaller municipalities, certain com assessments for a number of years.

where a company has a fixed afact that if certain water powers were developed and consequenced by the power. large users of labor and consequently contribute great. At the present time the canal water powers are



and Silver Falls, Ont., an important power centre.



MR. W. A. BLACK Managing-Director Kaministiquia Power Company.

plants eltained complete control of the light and power business in the territory served by its trans-

esstood that the Electric Power Company ity, but no information was obtainable with reference those on the French River are the most important in whole area tributary to the lake has fairly uniform same among the various classes of industries.

developed hydraulic resources of the Trent system The remaining undeveloped capacity of the district is north shore of the lake, throughout the greater part of the Trent Canal, which concentrate all of the na-tural head between Trenton and Balsam Lake. In powers must look to the mining and pulp industries,

more or less easy development by reason of the works of the Trent Canal, which is now nearing completion. Of this total quantity about 46,000 heres power ties now developed between Trenton and Balsam Lake, which is the summif level of the canal.

The most finnertuin developments are those of the gard drainage area as the Maitland. The hasin of Electric Power Company, which company has given plants in operation with a rated expactly of \$33,000 horse power installed. The real plants in operation with a rated expactly of \$33,000 horse power installed. The real plants in operation with a rated expactly of \$33,000 horse power installed. The real plants in the same drainage area as the Maitland. The hasin of this river is largely in virgin forcet and second growth horse power installed. The real plants in the company supplies power to a large territory extending along square miles.

Anal from the feeting of the critical company has given the country of the real plants in the company which company has given the four this river is largely in virgin forcet and second growth and is practically unsettled. Its maximum run-off per square miles of Grey and Bruce.

Anal from the benefits which will directly accrue the formation new under way, it is so its minimum run-off about as to to 1, against 400 to 1 for the Maitland. Also its minimum run-off per square miles of drainage basis is about 13 times that of the Maitland. It is only fair to state that the regimen of the power resources of the district as a whole power of cheap power, a result which could never the Lake front from Whitby to Napance and as far on the Mailland. It is only fair to state that the regimen of the Mahnapitae is considerably influenced by nawholesale acquisition of local hydraulic steam and gas tural lake storage, which the Mailland River lacks enthrely, but even after giving due weight to this fact, the contrast is startling.

From a hydraulic standpoint the most important of the Lake Huron tributaries are the Mississaga, the Spanish, the Sturgeon, the French, the Maganetewan the Muskoka, the Severn, the Sangeen and the Bea-

The total low water capacity of all the Lake Huron tributaries is about 166,000 horse power, this figure being reasonably conservative as it does not fully take into account the affect of artificial storage. Of the above total about 56,000 horse power is at present developed, leaving an undeveloped surplus of 110,000

As to industrial opportunities in this district, various quantities of power are, or will shortly be, available for purchase as follows:-

The Simcoe Railway and Power Company has some 3,000 horse power of surplus capacity available at the Big Chute on the Severn River. When the new plant at Swift Rapids, on the Severn

River, is built, there will be 3,000 to 3,500 horse power available. When the High Falls development on the Muskoka River is completed the Town of Bracebridge will have

bout 1,000 horse power for sale. The Wahnapitae Power Company has about 2,000 orse power of surplus capacity for sale in Sudbury and the vicinity.

Within the next nine months the Hydro-Electric Power Commission will have in operation a 1,200 horse power plant at Wasdell's Falls on the Severn River the agency of private initiative. stood that the Electric Power Company and a 4,000 horse power plant at Engenia Falls on the greater pertion of its developed capathe Beaver River. As to wholly undeveloped powers, actual loads carried, or the distribution of the this district, there being three sites capable of de-

power of cheap power, a result which could never



President, Deminion Power and Transmission Company of Hamilton.

under any circumstances have come to pass through

The watershed characteristics of the Lake Superior tributaries are generally similar throughout, as the topographical features, and is generally forested with a the various classes of Industries.

The above figures it appears that the uncert to the extent of about 10,000 horse power power of Lake Nipissing storage. almost 20,000 herse power. The import- distributed in blocks of 1,000 to 5,000 herse power, the of its length, most of its tributaries are short and furthese undeveloped resources is largely due smaller capacities being predominant and in many bulent and all have the high natural heads which clart that they are capable of cheap and easy cases not sufficiently accessible for commercial de-through the existance of the locks and dams velopment at the present time. For the possibility shore, on large and small rivers, natural falls 50 to tically unexplored and it necessarily follows that ne large proportion of its hydraulic resources will be developed in the very near future. At the present time about 20,000 horse power is developed out of a total potential capacity of about 195,000 herse pow

Of the developed power about 4,500 horse power is used in the Michipicoton District for the operation of mines, 1,500 horse power being supplied by the Miel picoton Power Co. and 3,000 herse power by the Alcoma Steel Corporation. It is understool that the Michipicoton Power Co. can increase its capacity considerably by the development of artificial storage

The remaining 15,500 horse power is used in the sities of Port Arthur and Fort William, and is mainly derived from the plant of the Kaministiquia Power This company has an extrasion development at Kakabeka Ealls operating under a 180-foot heaand is said to have about 15,000 horse power of sur plus capacity capable of development.

These two cities have also within easy transmi distance the large water-power at Silver Falls on the Kaministiquia River, at which point about 20,000 horse power minimum can be developed under a 310-foot

Concerning the Nipigon, the largest of the Lake Superior tributaries, the following facts may be se

The river proper is about 40 miles long and drops At the head of the river is Lake Nipigon, with 129

square miles of water surface, receiving the muself from about 9.500 square miles of crainage area.

ALL COMPANIES TO BE MADE TO CONTRIBUTE TO THE WAR TAX.

Toronto, Ont., March 6 .- It is understood that the Hon, T. W. McGarry, Provincial Treasurer, has under ensideration at the present time legislation which, if introduced in the Ontario Legislature and passed, will result in municipalities being given the power to collect the Provincial war tax on all companies now

Since Mr. McGarry introduced his war tax mea

fact that if certain water powers were developed and 000 for ten years or more, it is only possible to ch. But the real value of the assessment of \$50,000. company's property and business might be easily two or three hundred thousand dollars.

Therefore it has been thought advisable to devise collect a mill on the dollar on the true value of the property and business of such companies and concerns regardless of the provisions made in the fixed assess-

ment to the Municipal Act, but something of this kind will likely be done.

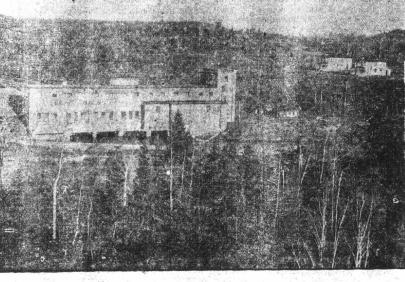
SALES IN CANADA MADE ON SHORTER CREDIT DATINGS.

New York, March 6.—Bradstreets reports trade Canada is somewhat better, the presence of country buyers having resulted in larger house orders Country trade, due to high prices for farm product is more active than city business. Sales are being

made on the basis of shorter credit datings. Spring-like weather is credited with helping tail trade at the larger north-western centres, but in the east distribution is light.

Collections, fair in the East, are slow in the West American eggs, cheese, and corn sell freely. On the on lines built with 41/2 per cent, money and other hand, Canadian steel rails for shipment to the Winnipeg reports the receipt of an order for 200.

lovernment to build a 1,200 herse power plant at Was- gain of 14.4 per cent, over last week, but a loss of 11.



KAMINISTIQUIA POWER, CO. AT FORT WILLIAM, ONT.

the Great Lakes are now, and will probably continue to be the most important of the rivers lying wholly within the boundaries of the province. This is due having capacities ranging from 1.000 to 10,000 to 1

ly to the population and general prosperity of the developed under a form of lease issued by the Department of Railways and Canals. Latterly these Of the rivers flowing into Lake Ontario, the Trent leases have called for a rental of \$2 per horse power

is the most important. On this river and its main tri-butaries there is about 75,000 horse power capable of The Grand River is the largest of the Lake Brie tributaries, and the possession of 2,500 square miles of drainage area should properly class it among the more important rivers of the province from a power standpoint. At the time of Confederation and for ome years thereafter, the Grand River supplied all he water used for power and navigation purposes on he Welland Canal. Since that time there has developed in the Grand River Basin one of the greatest sericultural districts in Canada, and an urban popuation supported by industries of national importan The combined effects of deforestation, drainage and extensive cultivation which attended this industrial growth have transformed the Grand River into a disructive torrential stream and largely destroyed its usefulness as a source of power.

Through similar causes the Thames, the Maitland and most of the smaller streams in the southwestern peninsula also suffer seriously from lack of patoral An investigation is now being carried on by he Hydro-Electric Power Commission with a view to determining some feasible method of improving the egimen of these rivers, but for the time being, at any ate, they must be regarded only as sources of inter- transmi nittent power for purely local purposes.

faitland, with its natural flow characteristics almost in the Counties of Grey and Bruce. etely destroyed, and the Sangeen, which still reains to a certain degree its natural regimen, to the dan rivers of the North Shore, flowing from

With complete flow regulation it is anticipated that the minimum capacity of the Chambers will be \$4,965 herse power or about 25,000 horse power in excess of the company how developed or both of the second of the company how developed or both of the second of the company how developed or both of the second of the results how developed or both of the second of the results have the second of t

of power at the Chaudiere will be further enhanced by the future development of the surplus capacity thus provided by regulation.

From an economic standpoint the fivers tributary to the Great Lakes are now, and will probably continue.

The author of the storage system, and the development of the storage system, and the development of the storage system. The natural conditions and market prospects in the district immediately south of Georgia Bay are such that hydro-electric development and transmission of the Great Lakes are now, and will probably continue are now fairly met by the existing developments, but the hydro-electric development for private enterprise and for this reason the hydraulic resources of the district immediately south of Georgia Bay are such that hydro-electric development and transmission of fixed or partial assessments.

Since Mr. McGarry introduced his war tax m for this reason the hydraulic resources of the district immediately south of Georgia Bay are such that hydro-electric development and transmission of the storage system, and the development of the storage system.

The natural conditions and market prospects in the district immediately south of Georgia Bay are such that hydro-electric development and transmission of the storage system.

The natural conditions and market prospects in the district immediately south of Georgia Bay are such that hydro-electric development and transmission of the provincial war tax on all companies that hydro-electric development and transmission of the provincial war tax on all companies that hydro-electric development and transmission of the provincial war tax on all companies that hydro-electric development and transmission of the provincial war tax on all companies that hydro-electric development and transmission of the provincial war tax on all companies that the manulactural conditions and market prospects in the district immediately south of Georgia Bay are such that hydro-electric development and transmission of the transmission of the companies



SIR WILLIAM MACKENZIE. President, Toronto Power Company

all consideration of selling profit eliminated, it would United States undersell the American producer. The rivers flowing into Lake Huron possess varying be commercially feasible to supply power to a number winning reports the receipt of an order for 200 baracteristics as regards regimen, sanging from the

is the Counties of Grey and Bruce.

At the request of the municipalities interested, the commission obtained the consent of the Proyincial ending with Thursday last aggregate \$13,38,000. nesttled and forested basins.

The contrasted characteristics of these Lake Fluror rivers illustrates in a most emphatic manner the effect supply the towns and villages on the cust shore of agricultural development on atream-flow. The will derive immense benefit from the utilization of its part of 14.4 per cent, from the like week in 1914.

Business failures for the week ending Thursday number 56, which contrasts with 53 last week, and of agricultural development on atream-flow.

Each Shot Fired Into Dare Drop in Wheat Values

--- Russia Will MAY TERMINATE S

May Wheat Has Declined 311/4 Co Mark of \$1.67 Resched a Sho July Has Declined 33/4 Co Period—Farmers Still

(Exclusive Leased Wire to The Jou Chicago, ills., March 6.—The cou-also quotations for the coarse grat-erned by the progress of the Allier danelles. The nearer the approach Constantinople, the lower the pri reals, as each day progress either the time when Russian cereals car Allied nations, which means the t ing of American grains and proba

nerican buyers. From the high prices of \$1.67 a b May wheat has declined 31% cents while July wheat in the same period cents to \$1.10% a bushel.

Even on the break in prices the

has not been disturbed into forci the market, and he is still holding for the \$2-mark, making it diffic large supplies of cash wheat, either erican mill consumption. At the m can farmer is more interested in tax return to the government than ket for his valuable product. In spite of the successes of the A

ing that there has been diminution mand, but the foreign buying con chases of from 1,000,000 bushels to wheat daily. It is interesting t of the 240,000,000 bushels of America hipped since last July has gone. pal destinations has been Belgium 000 tons of food of all kinds hav bruary 3, of which over 50,000 een wheat and flour. There still r 000 000 bushels of wheat, which can the United States, but lack of tons its sale on any larger scale for ships reason advanced for the scarcity of many ships are now being used for

WEAKNESS IN AMERICAN New York, March 6 .- Consideral increased activity was displayed i markets this week, there being 88 326 quotations received by Dun's 39 were advances against 49 declin wheat was the most notable feature, of that cereal showing a loss of me as compared with last week. Subs were also established in oats, rye, an developed marked strength, and sc advance. The markets for dairy p cidedly irregular, chavy receipts caully sharp contraction in all grades of creased firmness in fancy quality with weakness in the inferior offer tended upward. In live meats, beef somewhat firmer and hogs steady, w nes in provisions about offset

The easy feeling that has been no the past few weeks, became quite there was more or less contraction all varieties, but though leather was here was little or no change in quot portant changes have appeared in ir while sentiment continues to improv disposition to ask advances on futur ossible that moderate concession c n certain lines on desirable busines delivery. The minor metals were no strength, higher prices being named antimony and tin. Cotton, burlaps, and turpentine were slightly firmer with a downward movement in rub and some kinds of vegetables.

PULP-WOOD CONGEST

Cochrane, Ont., March 6 .- It is estis now piled in Cochrane T. & N. C thousand cords of pulp-wood. ! Owing using to take the wood at once, qu has been caused, The T. & N. O. sup cars a day. Estimating the piled between Cochrane and Porquo amount would run into the neighborho and cords at least. Settlers are anxio returns, but it is apparent that it wi pefore this wood can be moved, and r The pulpwood being rossed by the mill located here by the T. & N. O. is ed outright by the T. & N. O. commi the amount rossed is not large, the b ng of eight cords daily from the sett mmediate need of funds is quite a l is being rushed to the railway while

DECLINING PRICES FOR COTTON SHORTS PREVENTED FU

New York, March 6.- A depression luring the past week was a natural embargo placed on cotton exports t Great Britain and the establishment rate of 30 per cent on commodity car Exporters having charters engaged w have cancelled sailings and to have re was the recent action of the government delivery on contract blue and tinged ec ance with the types recently promulgs.

That prices did break further than due to the heavy short interest which cotton market which covered to a ce tent. Another influence checking the the favorable report from the Lowell, A operations were on full time, this burs eing due not to heavy foreign orders, mestic business. Mail orders are coming into drygoo

houses on an unusually large scale a particularly from western and southe the belief is general that the America cotton goods will be of sufficient size cotton goods will be of sufficient size loss of buying of raw cotton by the (fer thus check any serious break in cotton