The drainage area is 56,000 sq. miles and for the same 10 years the average yearly mean discharge was 56,641 c.f.s. The maximum high water discharge 3 times the mean discharge, and the minimum low water discharge 65/100 of the mean discharge.The results obtained from this discharge area are that the mean discharge is 1 c.f.s. per sq. mile area and the minimum low discharge is .65 c.f.s. per sq. mile area.

The Spanish River has been estimated to have a minimum discharge of 1,800 c.f.s. and 3,500 sq. miles area = .51 per sq. mile.

Mississagua River	1,050 c.f.s.	and	3,500 sq.	miles area	=.30
Sturgeon River	900 "	"	2,000 "	"	=.45
English River	8,000 "	"	20,000 "	"	=.40
Winnipeg River	20,000 "	"	50,000 "	"	=.40
Montreal River	750 "	"	1,500 "	"	=.50
Trent River	1,600 "	"	4,000 "	"	=.40

The average minimum low discharge of these rivers is .45 c.f.s. per square mile and for the purpose of this paper it will be well within the limits to assume 4/10 c.f.s. per square mile.

On the western part of the slope, the total precipitation is less than in the Ottawa River basin, but the percentage of run-off is greater. The average yearly precipitation during 10 years preceding 1907 in the Winnipeg River basin has been 23 inches and the run-off 70% of the precipitation or 16.1 inches, practically the same as the Ottawa River Basin.

In these rivers of our northern slope, the high water run-off is more gradual than on the southern slope. In such rivers as the Nepigon, Magpie, Pigeon, Spanish, French and others emptying at the north shores of Lakes Superior and Huron, the spring freshets are heavier and of shorter duration, because of the large amount of rock-exposed territory and the more broken and steep hills therein. The maximum discharge is not reached on the northern slope until late in the month of May or early in June, and owing to the gentler slopes of the land and the forest-covered area, the run-off is more gradual. Taking this into consideration the annual discharge can be more easily and uniformly controlled and requires less storage than such rivers as mentioned above.

On the Abitibi River, for example, we have a storage basin of 460 sq. miles in the Abitibi, Night Hawk and Frederick House Lakes; with a rise of 10 feet above low water mark (one square mile 1 foot deep = .88 c.f.s.) a storage of 4,000 c.f.s. could be obtained to maintain a mean discharge during the low water months, this is quite sufficient after allowing a reasonable percentage for evaporation.

A cross section of the Abitibi River, near the National Transcontinental Railway crossing, gives an area of 5,000 square feet below normal water level and 10,000 square feet in mean high water. The water from an area of 6,500 sq. miles discharges through this sectional area, in low water at the rate of ⅓ of a mile per hour, in high water at the rate of 1¼ miles per hour, a calculation based on the principal that the low flow is .4 c.f.s. per square mile and the mean high water 3 c.f.s. per square mile.

From this cross sectional point which is 800 feet above sea level, after deducting 280 feet in the falls and rapids, which are noted and 200 feet for the lower reach of the river where a uniform fall of probably 2 feet per mile exists, there remains a fall of 320 feet in a distance of 200 miles, or about 1 6/10 feet to the mile. This of course includes many minor rapids, which when estimated, would reduce the uniform river velocity to probably what is deduced from the above sectional discharge.

It has been ascertained that on the Winnipeg River in the Province of Manitoba, an aggregate head of 247 feet is available for horse power development, with a minimum efficiency of 486,000 h.p. which is equal to ¼ that of the great Canadian falls at Niagara. It may be of provincial interest to state that 75 per cent. of the drainage basin of this grand river, lies within the province, and 95 per cent. of the total discharge passes through the province before reaching the outlet into Lake Winnipeg. With control dams at Lake of the Woods, Rainy Lake, Lac Seul and other large lakes on this river and its tributary the English, the minimum efficiency of all powers on this river both within and without the province could be doubled.

The large water powers in Ontario on this river are enumerated herein, giving the same minimum low water flow per mile, as those on the more eastern end of the slope. The White Dog Falls and Rapids about 15 miles below the N.T.C. railway crossing is the 3rd largest waterpower in the province. Niagara being the largest and Sault Ste. Marie Rapids the second largest.

Aggregate of the water power on the larger falls and rapids of the more important rivers on the northern slope:

River.	Total Height in falls.	Possible Horse Power D'v'l'pment.
Abitibi, Black and Frederick House.....	451 ft.	359,300
Mattagami, Kapuskasing & Ground Hog.	830 ft.	393,800
Missinabi and Opazatika	534 ft.	292,100
Kabinakagami and Kenogami	486 ft.	98,800
Ogoke	170 ft.	216,600
Winnipeg and English	91 ft.	370,000
Total aggregate		2,030,600

In compiling this aggregate estimate the error is a minus quantity. Many rapids on these large rivers are not noted and many falls on the smaller tributaries such as the French, Little Abitibi, Muskego and Wabigoon rivers, which will develop from 500 to 5,000 h.p. do not figure in this total, neither is the water power on the River Albany—which at the present time forms a portion of the northern boundary of the province and has a drainage basin of about 50,000 square miles—included. The margin will be quite sufficient to balance the loss in converting from theoretical to practical horse power; the loss in transmission of energy to points within reasonable distance, and all other losses which accrue between the water power in its natural state and the manufactured article by means of that power.

As to the ultimate development and disposal of this great amount of water power, it is not within the limits of this brief paper to conjecture, suffice to say that upon the completion of the railways at present under construction it will all be within a distance of 100 miles from railway facilities, and thus can be transmitted without too great a loss even at this date—to meet the raw material at shipping points; and in years to come when these water powers have been harnessed and put under man's control, subjective to the will of Providence, I believe the results will fully substantiate these figures.