head-waters of Albany River and to within 50 mi. of the head of Lake Superior.

Its volume is computed to be 118,400 cu. ft. per sec. at extreme low water, measured just below Sipiwesk Lake and above the inflow of the large tributaries, Clearwater, Grass, and Burntwood rivers. The river is made up, by the union in Lake Winnipeg, of the Saskatchewan, Red, Assiniboine, Winnipeg, Berens, and many smaller rivers, and is augmented in volume after leaving the lake by receiving several large tributaries.

The water of the river is somewhat murky from suspended sediment, but gradually clears as it passes through the numerous lake expansions along its course, thus the amount of matter in suspension is 2.565 gr. per Imp. gal. below Lake Winnipeg and only 0.552 gr. near the mouth. The water of the Saskatchewan, near Cumberland, was found to contain 16.60 gr. of solid matter to the Imp. gal., while that of the Nelson, below Seariver falls, contained 17.1 gr., and at its mouth, 12.528 gr.

The Churchill is 1,000 miles in length and has a drainage basin 115,500 sq. mi. in area. The water along part of the river's course is slightly murky. It contains above the mouth of Reindeer River, 7.96 gr. of dissolved solid matter to the Imp. gal. As is the case with the Nelson, the many lake expansions serve as settling basins, and the water, before reaching Hudson Bay, becomes quite clear. Its largest tributary, Reindeer River, flowing from Reindeer Lake and draining, as it does, part of the Pre-Cambrian peneplain, has very clear water, containing 2.02 gr. of dissolved solid matter to the Imp. gal.

Hayes River, with a length of 180 mi. and a drainage basin about 28,000 sq. mi. in area, drains a belt along the eastern edge of the area mapped; its water is remarkably free from suspended sediment, and carries only 0.878 gr. of solid matter to the Imp. gal.

The tract to the northwest, above referred to, sheds its water westerly into Athabaska Lake, to finally reach the Arctic Ocean by Slave and Mackenzie rivers.

Water-powers.—The total amount of power capable of being developed from the many falls and rapids which occur on the rivers within the area, is almost incalculable. Some of the rivers are of great volume and all, along parts of their courses, have rapid descents.

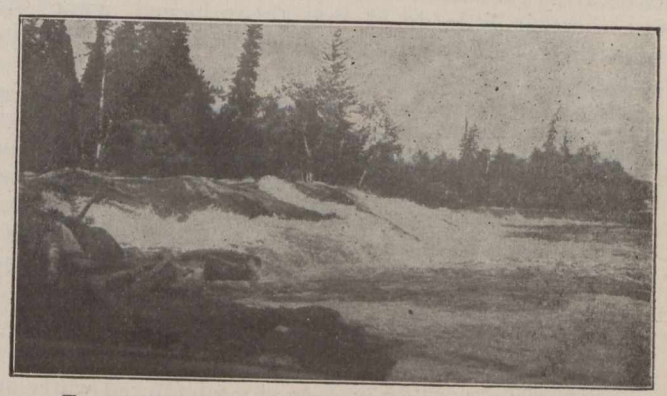
Of the rivers, the Nelson, by reason of its great volume and numerous falls, is the most important from the point of view of power development. Between Lake Winnipeg and Split Lake, a distance of about 230 mi., the river has a descent of 240 ft., and between Split Lake and the sea, 200 mi., a descent of 470 ft. The greatest fall occurs in the portions of the river between Cross and Sipiwesk Lakes, where there is a total descent of over 90 ft. in 28 mi., and between Gull Lake and the foot of Limestone Rapid, where the descent is 396 ft. in about 67 mi. There are a great many lake expansions along the course of the river, and between them, rapids and falls, to the number of fifteen or more, occur. Some of the falls offer excellent sites for water-power plants, and at several the vertical drop is considerable: at Ebb-and-Flow Rapid there is a fall of 11 ft.; at Whitemud Fall, 30 ft.; at Bladder Rapid, where the whole river flows in one channel for the first time after leaving Playgreen Lake, 11 ft.; at Over the Hill Rapid, 10 ft.; at Redrock, 10 ft.; at Grand Rapid, 20 ft.; at lower Gull Rapid, 50 ft. and at Kettle, Long Spruce, and Limestone Rapids, drops of 50 ft. within a mile or so of distance.

When the great volume of the river is taken into consideration, amounting to 118,400 cu. ft. per sec. at low water, or about four times the volume flowing over the Chaudière Falls at Ottawa and one and a half times that at Sault Ste. Marie, it will be seen that the total amount of available power is very great.

Other high falls are Missi Fall on Churchill River, just below Southern Indian Lake, where the vertical descent is in the neighborhood of 20 ft.; Grand Rapids, at the mouth of the Saskatchewan, with a descent of nearly 100 ft.; a fall 30 ft. in height on Rapid River near the Churchill, and Manazo Fall on Burntwood River where the vertical drop is about 30 feet. In addition to these, falls and rapids almost innumerable occur along the courses of all the rivers and streams of the region.

In a report on the water-powers of Canada, published by the Commission of Conservation in 1911, an estimate is made of the horse-power available at a few of the falls and rapids within the district. On the Saskatchewan the estimate is made for only two of the rapids, namely:—

Cole Rapid, minimum h.p.	14,700
Grand Rapid, minimum h.p.	80,000



Trout Fall, Above Knee Lake, Hayes River.

On the Nelson River the horse-power is calculated for eleven rapids, and aggregates 6,859,000, divided as follows:—

	Approximate head, in feet.	Estimated horse-power.
Limestone Rapid	85	1,140,000
Long Spruce Rapid	85	1,140,000
Kettle Rapid	96	1,290,000
Gull Rapid	67	900,000
Birthday Rapid	24	320,000
Grand Rapid	20	270,000
Rapids above Sipiwesk Lake	31	416,000
Whitemud Fall	30	403,000
Whitemud Rapid	30	403,000
Ebb-and-Flow Rapid	11	148,000
Rapids above Cross Lake	45	605,000

The report for 1913 of the B.C.E.R. Company of Vancouver, B.C., shows a construction of 36.07 miles of new line, as follows:—Vancouver and suburban system, 9.66 miles; and Victoria city system and Saanich interurban line, 26.41. The total single track mileage of the system, December 31, 1913, was 370.09. During the last year the company has made the following additions to its rolling stock:—Three closed passenger motor cars, 43 feet 4 inches long; two combination passenger and mail motor cars, 38 feet; 30 freight box cars, 60,000 tons capacity, 40 feet; 30 freight flat cars, 60,000 tons capacity, 41 feet; three sweepers for city service, 28 feet 3 inches; 15 logging cars, 80,000 tons capacity, 42 feet.