NELSON AND CHURCHILL RIVER BASINS.

REPORT (Memoir No. 30) has recently been issued by the Geological Survey Branch, Department of the Interior, on the basins of the Nelson and Churchill Rivers. The information was compiled by Mr. Wm. McInnis and is largely the result of his own personal investigations. References are made also to the geological work of Bell, Tyrrell, Low, Cochrane, McConnell and Dowling, all of the Geological Survey.

Topography.—The region, broadly considered, forms part of the extensive Pre-Cambrian peneplain of northern Canada, encroached upon, to the northeast, south, and west, by more recent, flat lying, sedimentary rocks. The peneplain surface has an elevation, in the northwestern part of the area, of from 1,300 to 1,500 feet above the sea, but gradually diminishes in height eastward to the broad declivity through which Nelson and Hayes rivers,



Fall on the Rapid River, Near the Churchill.

and, in part, Churchill River, flow to the sea. In the neighborhood of Sipiwesk Lake, which lies about in the middle of the depressed area, the elevation of the surface above sea-level is about 600 feet. There are no high elevations, and the general level of the interstream areas is not more than 100 to 200 feet above the level of the streams.

The plateau has a gently rolling surface characterized by rounded outlines which have resulted from long continued and profound erosion. It is intersected by rivers and streams innumerable and is dotted with lakes of all sizes. The river valleys are moderately depressed, and are made up generally of chains of rock-bound basins which form series of lake-like expansions along the rivers, the water spilling over the lowest part of the rims and flowing from basin to basin with swift current or over a succession of rapids and falls.

The surface is wooded throughout, though, except in the valleys of the larger streams, the forest growth is of small size. North of latitude 59° or thereabouts, the forest is mainly black spruce and tamarack of stunted growth, a growth which characterizes also the muskeg portions of the southern area.

To the northeast, where the horizontal limestones of the Hudson Bay basin overlie the older rocks, the surface is of the nature of a gently sloping, flat plain. The level character is due, in part, to the horizontal attitude of the rocks and, in part, to a covering mantle of boulder clay



Sea-river Fall, Nelson River.

of somewhat uniform thickness. In this, and to some extent in the underlying, solid rock, the rivers have trenched narrow channels, which constitute the only breaks in the surface.

The overlap of the Cretaceous sediments to the south is marked for a hundred miles west of Lake Winnipegosis by the bold escarpments of the Porcupine and Paskwia hills, and farther west by the equally high but gently sloping outlines of the Wapawekka hills.

The country about Montreal Lake and east of it is characterized by heavy accumulations of drift. which form somewhat prominent hills that reach heights of over 2,000 feet above the sea.

Drainage.—The whole of the area under consideration, except a small tract in the northwest corner, is drained by rivers flowing to Hudson Bay; of these, the Nelson and Churchill are the largest, the first named taking rank among the half-dozen largest rivers of the continent.



Sturgeon-wier River, Saskatchewan.

The Nelson, which empties from Lake Winnipeg into Hudson Bay, is 1,660 mi. in length, measured to the head of its longest tributary, the Bow, and drains an area of 370,800 sq. mi., of which about 313,000 sq. mi. are in Canada. Its drainage basin embraces all the country, westward to the mountains, lying between the watersheds of Churchill and Athabaska rivers to the north and the Missouri to the south, and eastward to the