

of the escarpment lying to the west of the present Manitoba lake basin, the north-eastern edge being formed by the mass of ice both to the east and north. This lake, of which the present lake basins are small remnants, is described in our reports as Glacial Lake Agassiz.* In the district here mapped, the accumulation of lacustrine material deposited by the waters of this temporary lake, are found in the eastern part to aggregate in some cases as much as one hundred feet in thickness of a fine clay and clayey silt. The discussion of the characters of the deposit will be found in Mr. Tyrrell's report, as well as a combined list of all the observations for the whole district relating to the directions of glacial markings. Many of the observed directions are also indicated on the accompanying map.

The western limit of these stratified clays is found to run southward from the outlet of Burntwood lake and enter the basin of Reed lake. To the north of this latter lake instead of a deposit of clay, a sand plain was found, on which were numerous beach ridges formed no doubt at a stage of this temporary lake. Another series of sand and gravel beach ridges were also noted at Cranberry portage. As these ridges are at a much lower elevation than those marking the maximum height of this lake, it must be supposed that the accumulation of lacustrine material was either added to the basin at a late and lower stage, or that during the high and early period this country was still ice covered, and the lake existed only in this locality at a lower level. Over the western portion the rocks are but thinly covered by a glacial till, and on the higher parts, mainly around Cold lake and in the hills near the Churchill river, there is very little covering over the rocky surface. Boulders are in evidence, but mainly of gneiss and granite of nearly the same character as the underlying rocks.

Recent.

Evidence of the recent action of the rivers in forming valleys, is not well shown in the western part of the district, as the mantle of clay, or other covering over the harder rocks is there very thin and valleys consequently follow old courses, but in the eastern part many of the valleys of minor streams have formed new channels. Recent deposits in the valleys are of small amount, with the exception of the delta of the Saskatchewan river above Cedar lake. Part of this deposit may have been formed before the recession of the glacial Lake Agassiz, but it is clear that there is an enormous amount of sediment still being brought

*Annual Report, Geol. Surv. Can., vol. IV., (N.S.) part E.