

southern portion, the general inclination of this uneven floor, is possibly about parallel to the bedding of the overlying series, but farther north it is more abrupt, as at Dog Head, where a narrow channel has been eroded, and is kept free by currents in the lake, through the soft underlying sandstone, a depth of 112 feet has been reached at a little over one half mile from the Archean rocks of the east shore.

THE WINNIPEG SANDSTONE.

The basal beds of this series of Cambro-Silurian rocks, is, on its eastern outcrop, a sandstone, which is probably a shore deposit of an advancing sea, and therefore, not altogether similar in age, to those to the south, at the base of the Cambro-Silurian in Minnesota, but may possibly be a trifle later. The fossils found, so far, are rather indefinite, and would seem to be much the same as species in the next overlying series of limestones. Mr. Whiteaves, the paleontologist of the Geological Survey, intends making a study of these in the near future. The exposures on the lake show a thickness of about 100 feet of friable fine grained sandstone with a few feet of dark grey green shales toward the upper part of the section. The lower half resting on the Archean, is seen on the eastern end of Punk Island as a pure, clean fine grained sandstone, lightly cemented, and very friable. In several places it is somewhat harder, and of a reddish colour, from a staining of iron oxide, derived from the Huronian beds immediately underlying portions of the island. On Deer Island, to the west of this, the upper part of the sandstone is seen, overlaid by limestone. The sand is interbedded with shaly bands, and the sections exposed at several points, show an irregularity in the deposition of this dark material. The sections of this sandstone and shale at the several localities on the lake are all near the eastern edge of this deposit, and probably near the ancient shore line.

Comparisons with sections elsewhere made in Manitoba in drill holes, show an increasing deposit of the shaly beds in the upper part of the sandstone. For example, at Selkirk, the drilling extended 36 feet below the limestone, through shales and soft rocks, before striking a porous layer of pebbles and sand. Again at Rosenfeld,* a much greater

*On certain borings in Manitoba and the Northwest Territories by Dr. G. M. Dawson, Trans. Royal Society of Canada, Vol. IV, Pt. IV, 1886.