The two most notable breaks in the continuity of the foothill belt and the Porcupine Hills plateau are those of the Bow valley and the valley occupied by the Oldman and its tributaries. The latter especially, which is not merely a wide river valley, but occurs in conjunction with the breaking off to the south of the highlands of the Porcupine hills, is an important and wide opening in the approaches to the mountains, and may be regarded as an irregular southwestern embayment of the plains, in which Laurentian erratics had already been found at an elevation of 5,280 feet above sealevel and upon the very margin of the mountains themselves. It was therefore chiefly in this region and in that of the Bow valley, taken in conjunction with the elevated tracts in their vicinity, that further information respecting the conditions of glaciation and the character of the western edge of the Laurentian drift seemed likely to be obtained. The southern high portion of the Porcupine hills in particular, it appeared, might be of peculiar importance in relation to such questions, for here it was probable that either moraines or terraces might characterize the farthest and highest limits of the drift of eastern origin.

Summary of previous Observations.

Before stating the results of the late investigation it will, however, be useful to give, in the form of a summary, the facts connected with the superficial deposits previously recorded in the report of 1882–'84.

In the region of the Great plains of southern Alberta, to the east of the Porcupine hills and their representatives, an approximate estimate of the drift deposits as a whole makes these to average about 100 feet in thickness. In a few places on the line of section afforded by the Beliy river all the recognized members of these deposits are together present, but in others only two or three of them are seen at a single locality. A complete section shows in descending order the following succession:

1. Stratified sands, gravels or silts.
2. Upper boulder-clay.
3. Stratified interglacial deposits, sometimes including lignite.
4. Lower boulder-clay.
5. Quartzite shingle, sometimes with stratified sands and silts.

The absolute and relative thickness of each of these deposits varies much, and along Bow river, somewhat farther to the north, the interglacial beds were not noted, and no line of separation as between an upper and lower boulder-clay was in consequence determined.* The under-

*This may, however, in part result from the fact that the importance of such a separation was not recognized at the time these sections were examined, but it is certain that there is here no such striking plane of division as on Belly river. Still further north, on Rosebud creek, Mr J. B. Tyrrell again found two boulder-clays separated by a thin layer of lignite. Geol. Survey of Canada' vol. ii, new series, p. 143 E.