Mountains, Cretaceous or Tertiary beds everywhere underlie the post-Tertiary or recent deposits. The character of most of these beds, which consist of sandstones, marls, and clay-shales, is perfectly well known, but I wish to draw your attention for a moment to the occurrence of conglomerates of Miocene and Pliocene age, the existence of which has been pointed out of late years, since they furnish sources of supply for a large amount of drift which was formerly supposed to have been derived directly from the Rocky Mountains at the same time that the other associated portions of the drift were derived from the Archean and Paleozoic rocks to the east.

The Miocene is at present known as a fresh-water formation of sands, silts, and gravel, or conglomerate, lying on the eroded surface of the Cretaceous and Laramie rocks on the more elevated portions of the Hand and Cypress hills, and on the higher plateaus stretching east from these as far as long. 107° 15′. The pebbles in this conglomerate are all well rounded and waterworn, and consist of a white quartzite similar to that in the Rocky Mountains described by Mr. McConnell as belonging to his "Bow River group," or lower portion of the Cambrian system. This material has been carried eastward by rapid streams during Miocene times, and deposited either in lakes or on the flood-plains of rivers. The gravel has in many places been indurated by the infiltration of a calcareous cement into a hard conglomerate, much harder than the underlying shales and sandstones, and has preserved the hills that it now covers from degradation by atmospheric and fluviatile agencies to the same extent as the surrounding country, and at the same time has furnished a scale by which to measure the thickness of the rocks washed away since Miocene times.

The Pliocene, here called by Mr. McConnell the "South Saskatchewan group," is also composed of rounded quartzite gravel; but it now occupies the bottoms of valleys or other depressions, and has been derived in part from the pre-existing Miocene deposits, and also in part directly from the quartzite areas of the mountains.

The district under consideration, extending from the boundary between the United States and Canada northward to the North-Saskatchewan river, is largely overlain by a series of heterogeneous deposits which are commonly embraced under the term "drift." This consists of bowlder clay or till, morainic detritus including erratics, drumlins, kames, alluvial sands, clays, and silts, beach-ridges, terraces, etc.

The Glacial Deposits.

Till.—The bowlder clay or till rests irregularly on all the pre-glacial formations down to the fundamental gneisses and schists, and in the Archean area itself fills many protected depressions and recesses. It does not, however, reach the base of the Rocky Mountains, but extends westward to within