

upper Bonnechère outliers is seen with a breadth of more than a mile resting upon the Laurentian gneiss.

Owing, however, to the very considerable extent of the drift deposits over much of this country, it is obviously very difficult to determine with accuracy the limits of these outcrops, since large areas are covered with blocks of the Black River formation, which rest presumably in many cases upon the underlying gneiss and granite.

On the line of the Ottawa, Arnprior and Parry Sound railway, about three miles west of the station of Killaloe, which is near the southwest angle of Golden Lake, a small outlier of grayish sandy-looking limestone, possibly a part of the Chazy formation, has been cut through. The exposed outcrop is only a few hundred yards in extent lying among the hills of gneiss and granite. The elevation of the spot on the railway was not ascertained, but is not far from 750 feet.

To the south of this, on the southwest portion of Clear Lake, deposits of Trenton limestone are overlaid near the shore by typical Utica shales containing fossils characteristic of that formation. The elevation of Clear Lake is 745 feet above the sea, and this is the only observed outcrop of the Utica west of the city of Ottawa. Its elevation above the lake is about one hundred feet, but on the road which extends along the mountain at a further height of 500 feet or about 1,350 feet above the sea, great quantities of large blocks of the Black River limestone are scattered about. These do not, however, represent an outlier in place, the present position of the blocks being evidently due to ice action in some form. On the Opeongo road, however, about five miles east of this place, a large outlier of the Black River formation is seen.

In the vicinity of Calabogie Lake, which has an elevation of 503 feet, outliers of Chazy and Black River rocks occur, both on the north and south side. The exposed outcrops are but small, much of the area being drift covered. Chazy blocks are also numerous on the Opeongo road about eight miles west of Renfrew, indicating a possible outlier of the formation in this direction. To the southwest of Clear Lake in the township of Lyndoch, an outlier of Silurian rock was also discovered by Dr. F. D. Adams in 1894. This is not far from the Madawaska River, but in the absence of fossils from this locality, its exact horizon cannot yet be stated.

On the upper Ottawa an interesting outlier is seen on both sides of the river, at Deux Rivières, about twenty miles below the mouth of the Mattawa. The exposure is seen along the stream for about three miles and consists for the most part of an impure limestone, which becomes more sandy in its lower portion. It is a buff gray in colour, and sufficiently siliceous to be used for grindstones. Throughout the entire thickness of the outlier orthoceratites and other fossils occur which fix its horizon as that of the Black River formation, though in lithological char-