

at angles varying from about 50 to 70 degrees. Attaining the rear of the township, a distance of about ten miles, the two bands unite, and are found really to constitute but one, the thickness of which, as far as I can make it out, is from 500 to 1,000 feet. It is plain from this distribution that the limestone is part of the out-crop of an undulating sheet, the ridges of which have been worn down. But in the horizontal section of an undulating surface, similar forms in the distribution of the rim, may be derived from the anticlinal or synclinal part of the undulation, and as the dips on the opposite sides are both one way, it is a question to which part the area belongs. Within a short distance of the eastern side of the limestone,—in fact touching it in one place,—an intrusive syenite makes its appearance belonging to a mass which occupies about thirty square miles in the townships of Grenville and Chatham, and runs to a point in Wentworth. The intrusion of such a mass of igneous rock can scarcely fail to have had a considerable effect in modifying the attitude of the strata which surround it. The crystalline condition of the syenite shews that it was slowly cooled under great pressure, and we cannot now say whether it was a deep-seated part of an outburst which reached the surface, as it was then constituted, or whether it was originally overlaid by masses of gneiss and limestone, which have since been worn away. In either case the probability is, that it would give to the strata, now surrounding it, an anticlinal form. It seems probable, therefore, that the western dip, belonging to the eastern band of limestone, where it approaches the syenite, is a true one, and that the form between the bands is synclinal. This appears to be corroborated by the fact that where transverse valleys occur between them, the wearing down of the intermediate gneiss widens the calcareous bands, particularly the east one, and narrows the interval.

The calcareous sheet having thus the form of a trough, the western dip of the western out-crop must be an overturn; and two spurs of the rock which point out to one another, the one turning south from the western belt, and the other north from the eastern, must constitute a subordinate anticlinal. Without reference to minor corrugations, the general form of the area would be that of two troughs joined together, each about a mile and a half wide, with an overturn dip on the west side, the one trough running north and south, and the other, as far as unconcealed by the superior fossiliferous strata, south-south-west and north-north-east. The opposite sides of this calcareous trough run into two valleys, which unite at its northern extremity. But though the limestone then crops out, the