

ment is fairly uniform, being 3,500 to 4,000 feet above the river. About halfway up the slope the coal-measures are found outcropping with dips of 30° to 40° eastward.

A search for fossils in the limestones underlying the Cretaceous rocks, resulted in the discovery of several specimens of the genus *Productus*. These rocks have been classed as Devonian-Carboniferous, and for the greater part of their extent such classification must remain. The discovery of *Productus* is, however, fairly good evidence that in this part the upper member of the limestone series is definitely Carboniferous.

Notwithstanding the great lapse of time between the Carboniferous and Cretaceous deposits, wherever their relation to each other could be seen they appear to be conformable. The general attitude of the Cretaceous rocks is that of a wide flat-bottomed syncline, or rather basin, for the beds are upturned at the north and south ends of the area, as well as at each side. On the south and west borders of the area, the upturning has been accomplished without much faulting of the coal-measures and overlying beds, but the lower members of the series, consisting of the black shales and soft calcareous shales, have been badly crushed and folded. It is along or near the eastern edge of the area that the greatest dislocation has taken place. The greatest erosion, however, did not here follow the line of contact with the limestones, but is marked by a depression in the hills, running parallel to the contact, and about four miles inside the border. In some places here at the actual contact, the Cretaceous measures appear to have been tilted up bodily, without crushing, and it may be hoped that further work will discover a section where the thickness of the lower beds of the series may be obtained. Such a section could not be found on the western edge, on account of the crushed and folded state of the rocks previously mentioned.

Although in general the Cretaceous rocks are said to have assumed the form of a flat-bottomed basin, there are many places where local faults have destroyed the symmetry of this arrangement. Some of these faults are of considerable dimensions and will form an important factor to be reckoned with in the problem of systematically mining the coal.