it is, I think, probable that the flow of gas could easily be carried by a 1 in. pipe without much pressure." It was described by Morgan in 1915 as follows: "The well-known Blairlogie gas-spring occurs on Mr. H. Morrison's Awatoitoi Estate, between Carswell's and Blairlogie. The spring is on the eastern slope of a ridge known as Kerosene Ridge, at a barometric height of 910 ft. above sea-level. At the time of the writer's visit, which took place during heavy rain, gas was bubbling vigorously through the water in a small hole about 6 in. in diameter, whilst over an area of several square yards there were numerous small escapes. The gas ignited readily and burnt with a bluish-yellow flame. The water in the hole tasted strongly of kerosene. . . ." These accounts indicate a spring more vigorous than it was in 1935, when no gas bubbled out, but only a smell of petroleum could be detected. It was this spring that attracted attention as a possible indication of a gas or oil field and so led to the survey being made to see if the geology was favourable. As a result of the examination it has been found that there is very slight chance of either gas or oil occurring there in quantity. The evidence for the conclusion is set out in this report.

Topography.

The watershed between the Taueru River on the west and Mangapokia Stream runs north through Cameron's Lookout (1,280 ft.) and Mangapakeha (1,050 ft.) to Mount Clyde (1,630 ft.). The heads of the westward-flowing streams are senile, weak streams of low grade draining low gentle slopes with many marshes. In sharp contrast with the low features of this cycle are the fresh narrow gorges and steep bare cliffs of the rejuvenated headwaters of Mangapokia Stream, which are cutting 500 ft. below the old wide flats.

Stratigraphy.

The rocks that crop out in this district are the same as in the adjoining Eketahuna Subdivision and belong to the formations classed in last year's annual report as Taitai (Jurassic), Tinui (Lower Tertiary and Upper Cretaceous), and Tutamoe (Miocene).

Taitai Series.—The beds here classed as Taitai are continuous with the Taitai of Mangapaheka Survey District, and like them consist of greywacke, argillite, and sandstone, dark, indurated and shattered, with some belts crushed and polished. From their different resistance to erosion they fall into one set that forms pinnacles, the so-called "taipos," and another set that forms the surrounding low country; but, as no fossils at all were found, all these beds that lie below the possible oil-bearing beds are put into the one set. Red- and green-banded tuff and coarse igneous rock, too, crop out in the greywacke, but all are here included in the Taitai. All are too indurated, slickensided, shattered, and crushed to be worth consideration as part of an oil-field.

The attitude and distribution of the "taipos," jagged hills of hard rock towering above the surrounding even upland, recalls the Taitai, Aorangi, and other pinnacles of Waiapu Subdivision, explained by Ongley and Macpherson in N.Z. Geological Survey Bulletin No. 30 as erosion remnants of a younger harder formation overlying a softer older one, and by Ongley in the N.Z. *Journal of Science and Technology*, Vol. XI, April, 1930, following the suggestion of Washburne, as remnants of an overthrust sheet. In Wairarapa these similar features are seen to be inliers in complexly folded and faulted country. This suggests that further examination is needed in Waiapu Subdivision.

Tinui Series.—The beds classed as Tinui Series in Eketahuna Subdivision extend south for two miles in a strip a quarter of a mile wide into Rewa Survey District, but afford only a few good outcrops. The work on Blairlogie Road has exposed the conglomerate at their base resting on the underlying greywacke and made up of pebbles from it. It contains rare Belemnites. The matrix is argillaceous, dark, and in many places slickensided and polished. The conglomerate stands vertical in contact with vertical greywacke and extends horizontally 100 yards along the road. It grades up into pebbly blue-grey mudstone with fragments of *Inoceramus*, which is fairly soft and slips readily. Above this, on the hill-face with the relations obscured, occur boulders of green sandstone and hard white siltstone with flint. These are the rocks nearest to the gas-vent.

Tutamoe Series.—Capping the watershed from Cameron's Lookout to Mangapakeha and away north and south is a hard gently dipping thick bed of coarse sandstone, generally with a bed of pebbly shell-rock at the base marking an unconformable contact. This rises into finer sandstone and into a very thick fine mudstone, which extends miles along the road near the road junction. These beds overlie the beds from which the gas escapes, unconformably, and have no connection with the gas.

Structure.

The structure of the country near Blairlogie gas-vent is not simple, but enough has been found out to show its main features. Two blocks of Jurassic (?) greywacke three miles apart trend west of south in Mangapakeha Survey District and extend into Rewa Survey District. Each has a fault along the east and is tilted to the west. Between them is a strip of Tertiary dipping gently west and lying on the toe of the eastern block, and between the Tertiary and the eastern greywacke is a narrow strip of Cretaceous conglomerate, argillite, green sandstone, and white siltstone a quarter of a mile wide and two miles long, in Rewa Survey District. This is shown on the road to have its base vertical in contact with the greywacke; but its outline, with both its margins the same shape, indicates that it dips, like the overlying Tertiary, gently westward. This is not established, for no good outcrops can be seen; but the evidence indicates a narrow Cretaceous homocline dipping westward.