mining could conscientiously recommend the sinking of a shaft in this locality, or indeed any kind of prospecting-work other than mere inspection of the ground. A short distance north of the shaft is an old adit driven from high-water mark for a short distance in mica-schist. If this adit was driven in search of coal it was a singularly ill-advised undertaking. According to an old manuscript map by Mr. Alexander McKay it was 66 ft. in length, with a borehole 40 ft. deep at the inner end.

Next a visit was paid to the prospecting-cuts near the head of Laymont Creek, at a point about a mile south-west of the shaft mentioned above. These cuts are about 400 ft. above sea-level; they show carbonaceous shale polished by fault-movement, some lighter-coloured shale, and thin irregular lenticular bands of coaly matter. These beds dip very steeply to the north of west. Superficially the dip is much flatter, owing to the creeping of the beds down the hillside. Prospecting here is justifiable, but so far the results have not been encouraging.

In the afternoon I went to Webster's old shaft, situated on Section 23 (probably), Block XII, Linkwater Survey District, about three-quarters of a mile south of the head of Laymont Creek, at a point about 400 ft. above sea-level. The shaft is said to have been sunk by Mr. Webster, sen., about twenty-five years ago. The dump consists of greywacke, much of which has been crushed by faulting. The shaft is stated to have passed through a 3 in. seam of coal. The greywacke undoubtedly belongs to a series of rocks much older than any of the proved coal-measures in New Zealand—namely, the great Trias-Jura system of this country, which in places contains thin unworkable seams of coal.

From Webster's shaft I went to an excavation made at a barometric height of 490 ft. on the right bank of a small stream a few chains to the westward or south-westward of the shaft. The rock here is bluish shattered greywacke, the joints of which show innumerable lustrous black surfaces polished (slickensided) by fault-movements. The rock is traversed by numerous minute white veins, probably of calcite. When scratched the black polished joint-surfaces yield a white or nearly white powder. There may be a trace of carbonaceous matter in the rock, but there is absolutely no indication of coal.

Still accompanied by Messrs. Allport and Webster, I next proceeded to a locality north-west of Mount Pleasant Railway-station (not far from Weston's). Here, on the saddle at the head of Speed's Valley (probably on Section 120, Block XI, Linkwater Survey District), is an old adit in schistose white-veined greywacke. The barometric height is about 370 ft. It is said that a small seam of coal was intersected in the adit. In a gully on the east side of the saddle is a prospecting cut and pit in brown schistose greywacke, which at the bottom of the pit is changing to a bluish colour. Concerning this locality Mr. G. J. Binns, Inspector of Mines, wrote in 1883: "Queen Charlotte Sound Coal-mine: This is another prospecting-drive, belonging to the Queen Charlotte Sound Coal-mining Company (Limited), of which Mr. R. Reeves is secretary. The site of present operations is on the other side of the saddle, west of Mr. Weston's house, and at my visit in December (1882) there was no coal, though a seam has, it is said, been found on the east side." At that time Mr. T. Adams was mine-manager. (Parl. Paper H.–11, p. 8, 1883.) On the hillside to the south of the prospecting-pit there are some hard boulders of conglomerate. This consists of pebbles, nearly all small, of argillite, greywacke, and perhaps other rocks, set in a fine groundmass. One boulder showed some fairly large quartzose and flinty pebbles, up to 2½ in. in diameter. A sample broken from one of the boulders did not show any effervescence with nitric acid, but a test with ammonium molybdate showed that it was slightly phosphatic. These boulders may have come from a bed of the same age as the conglomerate at Shakespeare Bay; on the other hand, they may be, as I believe they are, of much older age. In any case, there is no evidence whatever of the presence of workable coal at Mount Pleasant. The prospecting operations have been carried on in the Trias-Jura rocks, which are not known anywhere in New Zealand to contain workable coal-seams.

I also inspected the bed of the creek running north from The Elevation Railway-station. Here, a short distance north of the station, a band of dark-coloured shaly argillite, bordered by greywacke, outcrops. These rocks belong to the Trias-Jura series, and cannot be considered as possible coal-measures. Some masses of Tertiary limestone (not in place) are visible along the banks of the stream, and fault-involved coal-measures may possibly occur in a narrow band not far away.

Reported Coal-occurrences.

The 3 in. seam of coal in or near the shaft sunk by Mr. Webster, sen., many years ago has already been mentioned. In a gully west of the railway-station coal 18 in. thick is said to have been worked many years ago, and used for blacksmithing. On the other side of the valley (head of Tuamarina), south-west of the last-mentioned occurrence, lumps of carbonaceous shale with adhering coal of good quality have been found. A small lenticular seam of coal is said to have been found during the working of the quarry in the Trias-Jura rocks on the south side of The Elevation Railway-station.

North of Picton the track beside the baths exposes a small layer of dark shaly argillite, which appears to contain some carbonaceous matter. The outcrop is small, and much disturbed.

Although personally I saw nothing more than slightly carbonaceous bands in the Trias-Jura rocks of the Picton district, it is possible that, as in several other parts of New Zealand, they do contain small lenticular coal-seams of no value.* As the Trias-Jura rocks are everywhere highly inclined, any workable coal-seam they might contain must almost inevitably outcrop, and in that case would be easily detected by surface examinations. Only complicated faulting could altogether prevent the coal-seams from outcropping. In that case the seams would be so deep and so broken that they could not well be worked, even if their existence could be predicted. A very good reason for not searching for coal in the Trias-Jura rocks of New Zealand is that such rocks outcrop over great areas both in the North and South Islands, and, as already stated, are nowhere known to contain workable coal.

* See also references to graphite on a later page.