

Economic Geology.

In the Jurassic greywacke in Warepa Survey District, at the south edge of the bush on Dromedary Hill, the grassy slope is littered with large boulders of magnetite and of greywacke containing more or less magnetite. The greywacke is banded dark, grey, and light by the distribution of the magnetite grains more or less abundantly among the quartz grains. The bedrock is not exposed, and it is impossible to say how wide or how long the magnetite layer is. The line of boulders on the hillside runs with the strike of the near-by greywackes. Along the strike in Puerua Stream, a quarter of a mile to the south and on the road half a mile to the north, the magnetite was not found.

Higher in the Jurassic greywackes are claystone bands containing plant-remains and thin seams of coking-coal. In February, 1925, Mr. J. G. Byers, of Awatea, was prospecting on his farm for workable coal in vertical beds of mudstone of this character. Mr. Byers states that two "dowsers," or "diviners," have independently reported that thick coal-seams occur at a depth of about 1,000 ft. As the beds are vertical and well exposed in many places along the strike, and nowhere show more than a few inches of coal, evidently no thick seam occurs. In 1917 Professor Park* reported unfavourably on a similar occurrence in Woodland Survey District, about half a mile from Maclellan Railway-station, which is not far outside the subdivision.

The local schist and schistose greywacke were used by the early settlers in a few buildings, and after standing sixty years the stone is still unweathered. No easily worked stone has, however, been found.

The conglomerate of greywacke and schist that contains the coal-seams at Kaitangata extends over 15 square miles on the west of the hills north of the lower Taieri Gorge, and in several places it has in it thin seams of coal 1 in. to 3 in. thick. Parts of this area have been previously prospected for coal without success. The nearest thick seam known in the conglomerate is some twenty-five miles away to the south; and as in the intervening part no thick seam is known, it is unlikely that one occurs.

Quartz conglomerate correlated with the conglomerate that contains the coal-seams at Taratu occurs at the north end of the Taieri Plain on both sides. On the coastal side, at Green Island and Saddle Hill, coal has long been mined. New mines are now being opened at Mosgiel Colliery and Willowbank Mine, on the north and west of Saddle Hill, in a seam more than 10 ft. thick. On the other side of the plain, near Salisbury Railway-station, a seam from 5 ft. to 8 ft. thick was worked for a few years, but the coal thinned, and about 1893 the mine was closed.

The Milburn limestone, examined in the 1923-24 season, is being quarried at the rate of 250 tons a day. The phosphate in the Ewing Phosphate Company's property is still not being worked; but on the south side of the hill the Dominion Lime and Phosphate Company is grinding together the phosphatic limestone, the glauconitic greensand, and the white limestone. The fertilizer produced is reported to be giving good results.

In Pomahaka Survey District three lignite-pits are being worked in a flat bed 6 ft. to 10 ft. thick. The lignite-beds were found to extend over 36 square miles. At the Burning Plains the lignite has been on fire for many years.

Above the lignite is a bed of fine white clay; where seen it is 1 ft. to 10 ft. thick. Samples were taken for testing.

In the north-west of the subdivision the Pleistocene gravel in the Verter Burn has been worked for gold. Much gravel remains, but can be only slowly worked with the scant water available. Close to the subdivision both the greywacke-schist conglomerate and the quartz conglomerate are worked for gold, and payable patches may yet be found in the Kaitangata Subdivision. A rich specimen of gold-bearing quartz has recently been found in the North Taieri district, but has not yet been traced to its source.

4. NORTH BLACKWATER MINES (LIMITED), REEFTON GOLDFIELD.

Abridged report by P. G. MORGAN.

On the 27th August, 1924, accompanied by Mr. J. F. Downey, Inspector of Mines, I visited the North Blackwater Mine, near Waiuta, Waitahu Survey District.

The claims held by the North Blackwater Mines (Limited) have a total area of 510 acres, and are as follow: Prohibition Special Claim (100 acres), Scott's S.C. (10 acres), Lord Reading S.C. (100 acres), Mills and Fry's S.C. (100 acres), Cameron S.C. (100 acres), and Williams's S.C. (100 acres). Most of the older prospecting-drifts in this area are shown on a plan (No. 13) published in Geological Survey Bulletin No. 18, 1917 (see also page 173).

In 1915 or thereabouts the North Blackwater Development Syndicate began to sink a shaft in Scott's S.C. at a point a few hundred feet north of the Blackwater Mine workings, in the expectation of finding at a depth of 1,000 ft. or less the Birthday or Blackwater lode, and with it a continuation of the northernmost ore-shoot of the Blackwater Mine. The shaft has since been sunk to a depth of 1,360 ft., and at intervals seven chambers for levels have been excavated. From No. 6 (1,200 ft.) and No. 7 (1,350 ft.) level crosscuts have been driven south-eastward, and both have intersected several bodies of gold-bearing quartz, all striking west-south-west. The No. 6 crosscut at 35 ft. from the shaft cuts what is called the "6-in. leader." The quartz is in well-banded bunches of good appearance, and assays well. At 80 ft. there is another small vein, which on the south side appears to be cut off by a fault. At 160 ft. there is a larger vein, which, however, at this point is very close to a fault, if not involved in it. Close to the end of the drift, at 272 ft., is a small lode of well-banded quartz, varying in thickness from a few inches to 15 in. or more. At the time of my visit this had only lately been intersected, and no driving on it or the other veins had been done.

* James Park: "Coal at Maclellan, Catlin's District." Eleventh Annual Report of the New Zealand Geological Survey, C.—2B, p. 18, 1917.