On the 26th May water was issuing in great quantity from the sides, roof, and face of the crosscut through the formation.

Since my visit, a round, or part of a round, of holes has been fired in the face. The result was a great inrush of water, which drove the workmen out, and in a few hours filled the low-level workings, notwithstanding the efforts of the pumps. The water rose high in the shaft, and reached the bottom of No. 3 winze, which was then 202 ft. deep. This inflow of water is possibly due to further lode formation ahead of the face of the Muir crosscut, or the water, more likely, may have issued from fissures in the country.

The lode formation is of great size, being between 130 ft. and 140 ft. in width. The quartz is of various colours, yellowish to brownish "oxidized" material probably predominating. Some is bluish and contains small specks of pyrite. The quartz throughout does not look promising, and assays show that it is low-grade.

The lode formation is no doubt the Muir lode, dislocated a few feet above the crosscut by the flatly dipping slide or fault seen to the west in the crosscut. The upper part of the lode, and of course the enclosing rock, have been moved as a whole a good many feet to the west.

Massey Lode Crosscut.—The crosscut to the south-south-west toward the Massey lode in May had a length of 1,150 ft. At 535 ft. it entered heavy swelling ground—a fault-zone—nearly parallel to the Massey lode, and at 800 ft., being still in the fault-zone, was turned westward. Firmer ground was then soon reached. At 1,000–1,050 ft. the crosscut was near the line of the Massey lode, but no sign of the lode was seen. At the face the rock is a mottled greyish-green and reddish andesite, somewhat disturbed. There is, however, no indication of any lode being near. The rock is free from moisture, shows no quartz veinlets, and no parallel jointing or sheeting. A little slickensiding is visible, indicative of slight fault movement. In the latter part of the crosscut two very small veinlets containing quartz were seen, and films of calcite fill some of the rock-joints. Something abnormal has happened to the Massey lode in depth, and probably the explanation is to be found in faulting.

No. 3 Winze (below No. 3 Adit Level).—Lately, as the water drained away through pumping from the low level, this winze has been considerably deepened. At the time of my visit it was 180 ft. deep, and it has since been sunk to 202 ft. The lode is wider than the winze, and the quartz is of a good description. The average of seven assays from 155 ft. to 176 ft. is 12s. 10d. per ton, and the average of seven more assays from 179 ft. to 197 ft. is £1 2s. 10d. per ton. At 200 ft. the lode was crosscut and found to be at least 15 ft. wide, but the assays are all below £1 per ton.

Water.—For many weeks prior to my visit the pumps, when a full supply of electric power was available, were raising about 750 gallons per minute. Evidently the stored water in the Muir lode was being pumped, for the sinking of No. 3 winze, as mentioned above, was able to proceed without hindrance from water.

Future Exploration.—The continued sinking of No. 3 winze (for which a mechanical hoist of some kind is necessary), and driving at the 500 ft. level southward in the Muir lode formation toward the point where this winze will reach the 500 ft. level, are clearly advisable. Some difficulty may be experienced in making the connection between the winze and the low level, owing to the complication caused by the slide previously described, which dislocates the lode. Other exploratory work is necessary, but what this should be depends partly upon the result of the prospecting now being done and partly upon the amount of money available to the company.

Faults.—Geological and mining conditions at Muir's Reefs are strongly controlled by faulting. Three important faults striking a little east of north and dipping steeply are now known to exist. One of these is about 30 chains west of the Massey lode (see Mr. J. A. Bartrum's report and map of 1913); another is between the Massey and Muir lodes, as shown by the low-level workings (it is also indicated by the gully between the outcrops of these two lodes); and the third is on the east side of the Muir lode. As already stated, it seems to have been reached, or all but reached, by the low-level crosscut through the Muir lode. In addition two flatly dipping faults or slides have been intersected in the Muir lode crosscut. One of these dips at 20° to 25° eastward, the other, that near the lode, dips westward at 15°, more or less. The non-appearance of the Massey lode in the crosscut driven first south-south-west and then westward from the shaft is most probably due to faulting. In the absence of any data the possible fault could be given various directions and dips.

7. Limestone (Calcareous Sinter), North of Opunake, Egmont County.

(Slightly abridged report by P. G. Morgan).

On the 30th April, 1925, accompanied by several farmers in the Opunake district, I visited various deposits of calcareous sinter or travertine near Wiremu Road, seven or eight miles north of Opunake (not four miles, as stated in Geological Survey Bulletin No. 22, page 127, 1917).

Some of the calcareous sinter deposits in this locality were inspected by Mr. M. Ongley, Assistant Geologist, in March, 1917. The substance of the report made by him is quoted in Bulletin No. 22, pages 127–128. My inspection enables some additions to Mr. Ongley's report to be made.

General Description of Deposits.—The known deposits are situated on both sides of Wiremu Road, west of Ihaia Road, and for the most part, but not wholly, east of Arawhata Road. In Mr. G. Looney's land, on the south side of Wiremu Road, three mounds of calcareous sinter, deposited on the surface by springs, occur on the north bank of a small swampy stream, draining, I believe, to Heimama Stream. The mound farthest to the north appears to be over 40 yd. long and 15 yd. wide. The average thickness of the deposit is probably 6 ft. Since Mr. Ongley's visit Mr. Looney has quarried and calcined or "burnt" some of the material in a little kiln near Wiremu Road. A few chains down the little stream, at a barometric height of 670 ft. above sea-level, is another travertine mound, not quite so large. I estimated its length at nearly 40 yd., its breadth at 15 yd., and its average thickness as probably 6 ft. The third mound still lower down the creek I did not see, but I was assured that it is as large as the one where quarrying has been done.