A small creek (unnamed) flows from the south and crosses the road at the well, and, as the coal was too deep to be cut by the stream, the bed was followed up, and the same seam was found half a mile distant (as mentioned above) and on the left bank. At this point it was exposed by a small landslip, and was seen to be dipping at an angle of 10° to the east. In thickness it varied from 2 ft. to 4 ft., and the seam was distinctly laminated. The lignite showed the presence of numerous plant-remains and much wood in process of carbonization, the latter 8 in. and 10 in. long, sometimes more.

A little prospecting had been done at this point, but no hard coal seems to have been found, and the material taken to the creamery furnace refused to burn. Exposed to the weather, its laminated character completely disappears, and the whole disintegrates, becoming a clayey mass. Its colour changed from its normal dark-brown to a dirty grey, leaving only the pieces of wood standing out of the heap.

The plant-remains also penetrate the underlying blue clay, but in the overlying beds they are absent. The upper beds have the same dip and strike, and are composed of clays, sands, and conglomerates of varying thickness.

Examining the strata at the well of the creamery and along the Fitzherbert East Road, the same beds are found as overlie the coal above mentioned. They differ, however, in lying perfectly flat, and in the conglomerates being of much greater thickness, and at places occupying almost the whole of the section. In the opposite direction (south-west from the well) they are much thinner, and are made up of clays, sands, and conglomerates, as in the outcrop in the creek. All these beds pass under the swampy land and more recent river-flats of the Manawatu, on the edge of which the well at the creamery is sunk.

12th November, 1900. W. A. McKay.

Note by the Government Geologist.—The lignite and beds described appear to be a continuation to the south of the pumice sands and lignite beds of the Pohangina Valley, and the sandstone conglomerates overlying are probably separated by an unconformity. As a fuel the material is worthless, and seems decidedly inferior to the Pohangina lignite. The beds extend as far to the south as Shannon, but it is only to the north of the Manawatu Gorge that the lignites are of importance. Along the course of the Pohangina, and in the district adjacent to the west, the deforesting of the country will tend to make these lignites of value for local purposes. Along the Pohangina the beds of lignite are extensive, and often 20 ft. to 30 ft. in thickness.

Alex. McKay.

REPORT ON A COPPER LODE IN THE RUAHINE RANGE, NEAR NORSEWOOD.

By W. A. McKay, Assistant Geologist.

As instructed, I have the honour to report on the outcrop of copper-ore situated in the Ruahine Range, near the source of the Makaretu River, opposite Norsewood :—

The locality of the lode and the associated rocks is at the extreme head of the right-hand branch of the Makaretu River, and on the dividing-ridge which separates it from the left-hand branch of the same river. The height of this spur is 3,900 ft. ; but the main range is still further west, separated from this by the deep gully of the left-hand branch. This secondary range forms a junction with the main range about three-quarters of a mile north of the lode, at the water-parting of the Tukipo River and the left branch of the Makaretu.

The exact position of the copper lode is on a short and precipitous spur on the east slope of this ridge, between two small creeks, tributaries of the right branch. Three great landslips, from 600 ft. to 900 ft. in height, have been the cause of the exposure of the reef and the associated mineral belt. About midway on the length of the precipitous spur above mentioned, the reef crosses at right angles at a height (the lowest point) of 3,100 ft., and rises to 3,250 ft., at which point it becomes covered by the scrub. The total height of the lode exposed is therefore 150 ft.

The strike is 30° west of north, while the dip is to the east at a very high angle—about 85° from the horizontal. As a true reef, with walls containing sulphide of copper and iron-pyrites, the vertical exposure is 50 ft. in height, and on its strike it is seen for about the same distance. Below the slip the lode is obscured, but it has been intercepted by crosscutting at the creek-level 100 ft. below, where it is seen as a pug-vein 14 in. to 15 in. in width. On the other side of the creek, at a distance of about 50 ft. or 60 ft., the same mineralised pug is seen in the face of the big slip, and occurs at the same level, coinciding in strike, dip, and in width. Although the land-slide has laid bare the rocks for several hundred feet above, this vein is not seen to be continuous to the northwards, and on this side it does not rise more than 10 ft. from the creek-level. As mentioned, the pug-vein was cut at the creek-level by trenching; but, previous to doing this, Mr. Thompson put in a small drive for about 12 ft. on the strike of the lode, and about 10 ft. or 12 ft. above the trench, and he tells me that a pug-vein, 15 in. wide, was cut, containing copper. The drive proving unsafe, it was discontinued, and the entrance was walled up with stones. He then drove in a longer tunnel from the hanging-wall side at a distance of some 40 ft. from the lode, at an angle of about 35°, and 5 ft. below level of lode. The total length was 24 ft. ; but at this distance it had not pierced the green rocks which form the wall of the reef at this level.

The width of the ore-body is comparatively regular, averaging about 16 in., excepting at one "blow" on the uppermost part, where it is 5 ft. in width. As a pug-vein the reef gets narrower, and in the creek it ranges between 12 in. and 15 in. The quality of the deposit varies, and, as a lode, is seen to be very bunchy in character. The stripping on the outcrop exposes small pieces