

Fireclays, about 20 ft. thick and dipping gently north, outcrop along Maungati Stream, which flows at the base of the cliff. Occasional thin bands of inferior coal and coaly material are interbedded. Above the slips and loose debris, which obscure the section for about 50 ft., the white sands are exposed and, if, as is probable, they rest on the fireclays, they are about 100 ft. thick. Soft brown sandstone 75 ft. thick and capped with limestone overlies.

The white and light-coloured sands, which occur in lenticular beds up to 6 ft. thick, are separated by thin layers of clay and contain occasional 1 in. bands of small (up to $\frac{1}{4}$ in.) quartz pebbles. The white sand occurs at the west end of the cliff. They have not yet been tested for glass-manufacture, but have been used as moulding sands and for colouring purposes.

NOTES ON THE HOKONUI DISTRICT.

By J. HEALY.

Collections were made in several places of pebbles from different conglomerate beds of the Mesozoic rocks of the Hokonui Hills. The aim of collecting is to compare the igneous rocks of the conglomerates with types from the Otama intrusive mass, as a large number of sections have been made from specimens from the latter in the course of the work in Wakaia Subdivision. The conglomerates were also examined for the presence of schistose rocks.

Traverses were made across the strike of the beds in several places where large thicknesses of strata could be most easily examined. The previous work done by Cox and McKay was used as a basis, and collections were made near the lines of several of the sections shown on their map. No great difficulty was experienced in following the sequences described by them, and practically all the conglomerates recorded in their reports were visited. One traverse was made from Mandeville up the Otamita Stream to its junction with the Coneburn, and thence up the latter stream. A second traverse was made at Flag Hill, a third up Taylor Stream, and a fourth along the road from Glenure to Dipton.

The writer has as yet had no chance to examine the collection in detail. The specimens have been sent to Dr. F. J. Turner, under whose supervision the sections are being made. So far eighteen sections have been completed, including rhyolites, greywackes, schists, semi-schists, and one diorite. None of the plutonic igneous rocks have yet been sectioned. Dr. Turner states that the schistose rocks do not resemble the Otago Central types of schists, but appear rather to be products of contact metamorphism. In all the conglomerate beds examined the pebbles were well rounded and composed of extremely resistant rocks. The pebbles had been subjected apparently to considerable wear, and it seems unlikely that pebbles of schists similar to those from Otago Central would survive in such deposits.

A search was made for some Tertiary fossils reported from Whisky Gully, six miles north-west from Gore. In a disused water-race leading from an old dam a few chains below the picnic ground quartz conglomerates similar to those of the Welshman Series at Wakaia were seen, with strike south-west and vertical dip. Nearby in the creek are fragments of porcellanite. These facts suggest that the conglomerate is separated from the Hokonui beds by a fault along which basalt was injected. No fossiliferous beds were found, but probably the fossils reported previously occur in sandstones of the Chatton Series.

Six miles south of Lumsden the low ridge of Ram Hill projects above the level of the Waimea Plains. It runs parallel to the Hokonui Hills for approximately two miles and lies about three-quarters of a mile from them. The ridge is composed of very coarse greywacke, containing small fragments of red argillite. This suggests that the rocks belong to the Clinton Series, as in the Clinton district the presence of this red argillite distinguishes those rocks from those of the Hokonui Series. Between Ram Hill and Glenure there are further numerous small ridges parallel to the strike of the beds. This evidence, together with the presence of rocks of the Clinton Series at Otama, suggests that they continue from Clinton through to Lumsden, with strike and dip similar to those of the Hokonui beds.

MARUIA HOT SPRINGS.

By J. HENDERSON.

The Maruia hot springs rise at the foot of the steep wooded slope on the north side of the long east-west reach of the upper valley of the Maruia River. Clear, slightly mineralized water, smelling decidedly of sulphuretted hydrogen, discharges from two shallow wells sunk in the gravels of the flood-plain. The water-level in the wells is approximately the same as that of the adjacent river, and rises and falls with it. The river gravels and talus from the hills conceal the fracture along which the hot water is thought to rise from a deep source. The run-off from the hills saturate these loose deposits to ground-water level, the surplus constituting the surface streams. A cross-section of the valley at the springs would show a large mass of subsurface water, saturating the gravels and practically identical with river water, but moving much more slowly, and, in the immediate vicinity of the springs, grading into a much smaller body of hot water derived from and overlying the fracture. Just as the Maruia River is that part of the run-off from its drainage basin that, owing to the friction in, and the insufficient porosity of the gravels, finds readier escape down the valley on the surface, so the visible discharge from the wells is the surplus flow of hot water from depth not seeping through the gravels.

The hard rock of the district, a siliceous greywacke which north-westward grades into schist, outcrops at the back of the springs and the small rills a few chains east and west flow over the rock to the fans which grade into or overlie the gravels of the valley-floor. Mineral water