

the location of a dome or anticline in the upper formations will not necessarily be of any value for the location of a borehole-site. On the other hand, it is possible that the impervious beds of the Whatatutu Series have arrested petroleum derived from underlying formations, and in that case there will be every reason for believing that satisfactory borehole-sites can be located.

Investigations in the area are not sufficiently advanced to state from what formation the petroleum is derived, and this point may possibly only be settled by deep boring.

A plan on a scale of 10 chains to the inch accompanies this report, and on it will be found marked the main oil-spring; Petroleum Creek; the positions of the petroleum-indications; and a suggested site for deep boring. (See plan facing this page.)

Work remaining to be done in the Area.

As regards the work to be done in this subdivision, about two-thirds of the area has still to be examined, including the valleys of the Mangatu River, the Wheao Stream, and the Waihora River.

I anticipate completing the field-work of the subdivision by the end of May, 1909, when the preparation of the bulletin on the area will be undertaken.

MR. R. P. GREVILLE, TOPOGRAPHER.

In January, 1907, Mr. Greville was engaged in a detailed topographical survey of the valleys of the Upper Hokitika and its tributaries. Early in May the survey of this rugged area was completed, and Mr. Greville then returned to Wellington, where office-work occupied his attention until the middle of September. He then proceeded to the Karamea Division, North-west Nelson, and until the end of the year was employed in the topographical survey of an area lying between the middle part of the Aorere Valley and the Karamea Bight.

Early in January, 1908, Mr. Greville proceeded to South Westland in order to begin a topographical survey of the Franz Josef Glacier and of the surrounding country. In this work he was occupied until the middle of March, when, owing to an accident, he was obliged to return to Wellington. From that time until the end of May he has been engaged in office-work. During the past season Mr. Greville has employed a photo-theodolite for much of his work, with very satisfactory results. On his field and office work Mr. Greville has reported as follows:—

My last report extended up to the 31st December, 1906. Since that date topographical surveys have been continued in various parts of the Dominion, notably in the interior of North Westland, in the Karamea Division of Nelson, and in South Westland. The work in North Westland embraced the survey of a large area of country at the headwaters of the Hokitika and Whitcombe rivers, the geological examination of which was being carried on at the same time by Mr. P. G. Morgan.

In the Karamea Division the work included the survey of a large area of unmapped country extending from the middle portion of the Aorere Valley to the Karamea Bight on the West Coast; while the work in South Westland was confined to the making of a topographical survey of the Franz Josef Glacier and of the surrounding country.

Surveys in Westland.

Early in January, 1907, work was resumed in Westland, and the surveys of the upper portion of the Hokitika River basin and of the Whitcombe River, commenced during the previous season, were successfully completed.

The traverse of the Hokitika River was started at the last point of the settlement survey of the Lands and Survey Department, about twenty-four miles from the Town of Hokitika, and was continued to the head of the river.

The Hokitika rises about a mile south-west of the Mathias Pass, near the prominent peaks of Mount Frieda (7,013 ft.), Mount Carl (6,553 ft.), and Mount Marion (6,953 ft.), all on the main divide. For the first mile of its course the river flows towards the pass, close to which the river-bed is at an altitude of 4,117 ft., the pass itself lying a quarter of a mile to the eastward at an altitude of 4,610 ft. The river then follows a north-westerly course for a distance of nearly two miles to a point close to Frew Saddle on the Meta Range, lying about a quarter of a mile to the westward. It then flows in a north-easterly direction for about three miles. The altitude of the bed of the stream has here fallen to 3,000 ft. The river then becomes a series of cataracts and descends 1,400 ft. in a distance of one mile. It is here joined by its large tributary, the Mungo, which, taking its rise away to the eastward near a small glacier under Mount Ambrose (6,596 ft.), flows in a westerly direction for a distance of over six miles until it joins the Hokitika.

The Mungo has three large tributaries—the Park, the Brunswick, and the Sir Robert. The Park, which comes in on the north side, flows from the rugged slopes of the Commodore Range, the principal peaks of which are the Rampart (6,169 ft.), Bastion Ridge (5,946 ft.), Mount Chamberlin (5,928 ft.), and Mount Bannatyne (5,954 ft.). The other tributaries flow from the south. The Brunswick rises at the Mungo Pass and drains the precipitous slopes of the Alps from Kai-iwi Peak (6,843 ft.) on the south to Mount Park (6,710 ft.) on the north. The main branch of the Sir