

*Miscellaneous Economic Resources.*

At the present time the most important industry of the Grey Subdivision is probably sawmilling. Though much of the more accessible bush has been cut out, the area yet remaining ought to maintain a large and profitable timber trade for many years to come.

Since the Grey Subdivision contains but a limited area of high country, it lacks the abundance of water available for power purposes that characterizes other portions of Westland. Additional factors contributing to this result are the smaller rainfall, and more particularly the absence of permanent snowfields.

Permanent supplies of water in sufficient quantity for hydraulic sluicing on a large scale can be obtained only from a few localities. Among these may be mentioned the headwaters of the Big Hohonu and Eastern Hohonu streams. These could be brought to Hayes Terrace, near Kumara, at a higher elevation than the water-supply that it is proposed to take across the Teremakau River from Kumara. Lake Hochstetter, which could furnish a permanent supply to the Notown and Red Jack's districts (though at great expense), is some miles outside the boundaries of the subdivision.

## MR. COLIN FRASER, MINING GEOLOGIST.

Throughout the year ended 31st May, 1909, Mr. Fraser has been engaged almost continuously in field and office work connected with the detailed geological survey of the Thames Subdivision, Hauraki, Auckland. A portion of the Tairua-Waihi Subdivision, covering some 15 square miles, was also examined and surveyed in detail, since it was deemed economical to carry out the work in conjunction with that on the adjoining portion of the Thames area.

Mr. J. A. Bartrum, Assistant Geologist, assisted in the field-work in this area from June to early in October, 1908.

## FIELD-WORK IN THE THAMES SUBDIVISION.

**EXTENT AND POSITION OF THE AREA.**—During the period under review, the field-work in connection with the geological survey of the Thames Subdivision has been completed. This subdivision comprises the three survey districts of Hastings, Thames, and Waihou, and covers an area of about 385 square miles. This stretch of country extends from Kirita Bay in the north to three miles beyond Paeroa in the south, and constitutes the western half of the southern portion of the Hauraki Peninsula and a contiguous portion of the mainland. The portion of this area actually examined during the past field season consists of all that lying to the south of a straight line drawn from the village of Tapu on the western coast-line to the trigonometrical station (97) on Table Mountain.

**NATURE OF WORK CARRIED OUT.**—The nature of the geological, topographical, and mineral prospecting work carried out in this subdivision is precisely the same as that described in connection with the neighbouring Coromandel area in the annual report of 1907. The survey of the mining centre of Thames, however, occupied much more time and involved considerably more detailed examination than that of any special area yet examined by myself in Hauraki or elsewhere. The maze of underground workings to which the adits and shafts give access was carefully examined, and the ascertained data were plotted on the working-plans. As regards conditions obtaining in the numerous inaccessible mine-workings of this old field, the collecting of reliable information from every available quarter proved no small task.

*General Geology.*

**GENERAL CLASSIFICATION OF ROCK FORMATIONS.**—The following classification of the rock formations occurring in the area is the same as that set forth in describing the northern portion of this same subdivision in the annual report of 1908 :—

- (1.) Pre-Jurassic and Jurassic stratified rocks.
- (2.) Tertiary volcanic rocks of the "First Period."
- (3.) " " "Second Period."
- (4.) " " "Third Period."
- (5.) Intrusive rocks of various periods.
- (6.) Unconsolidated and loosely consolidated débris.

(1.) *Pre-Jurassic and Jurassic Stratified Rocks.*—Both Pre-Jurassic and Jurassic strata outcrop over one or two small areas at and near Rocky Point, some two miles north of the town of Thames. These are the most southerly occurrences of the basement rocks in the peninsula. Pre-Jurassic argillites and rhyolite mudstones (Tokatea Hill Series) were, however, struck in a borehole near the mouth of the Moanataiari tunnel, Thames, at a depth of 1,240 ft. below sea-level. This determination, obtained by boring, taken in conjunction with Rocky Point outcrop, throws considerable light on the geological structure of the deeper horizons of the Thames mining centre.

(2.) *Tertiary Volcanic Rocks of the "First Period."*—Andesites and dacites of this period, in places fairly fresh, but generally in various stages of alteration, form essentially the "auriferous series" of the Thames area. It is here sufficient to state that they cover the whole stretch of country—excepting the small areas at Rocky Point—from Tapu Stream southward to the town of Thames, and again a few more isolated areas in the country further to the southward. Only in the borehole referred to above has the depth to which these rocks descend below sea-level been ascertained.

(3.) *Tertiary Volcanic Rocks of the "Second Period."*—These andesitic and dacitic rocks, better known as the Beeson's Island Series, overlies the older Tertiary volcanics, coaly partings in some places