

Mr. Graham had almost finished the northern part of the area, and was preparing to enter upon work in the southern part, where are situated the principal mining districts. As a result of his labours, accurate topographical maps on which to base the geology are being prepared.

A small portion of the subdivision lying near the eastern boundary of the Thames Subdivision was surveyed in detail by Mr. Fraser during the season of 1908-9.

Accompanied by Mr. Fraser, I paid a visit to the Tairua district in May, 1907. The results of the reconnaissance then made were given in our second annual report (1908).

By the end of May, 1910, the whole of the Whitianga Survey District, the greater part of the Tairua Survey District, and a portion of the Ohinemuri Survey District had been geologically surveyed. It is intended to continue work in the area throughout the winter, and it is hoped that the survey will be completed by next February. Meantime a very brief *résumé* of the field-work will be presented. This may be considered purely preliminary in character, and, as a result of the laboratory work yet to be carried out, the final conclusions may, of necessity, be somewhat different from those tentatively stated here.

PHYSICAL GEOGRAPHY.—The Tairua-Waihi Subdivision is on the whole a hilly, almost mountainous country, the higher elevations being 2,500 ft. or more. Only in the lower portions of the stream-valleys and in the neighbourhood of Waihi are any notable areas of flat or gently undulating land to be found. The greater part of the subdivision lies to the eastward of the main divide of the Hauraki Peninsula, but in the Ohinemuri district the divide turns abruptly east, and almost reaches the coast, close to which it runs for a number of miles before again striking inland.

The coast-line of the Tairua and Whitianga survey districts has a number of inlets, the chief of which are Tairua and Whangamata harbours. Each of these is a typical sunken river-mouth. The same feature is seen farther north in Whitianga Estuary (which enters the north-western corner of the subdivision) and other inlets. To the south of the subdivision it is observable also in the numerous minor V-shaped bays of Tauranga Harbour.

Towards the coast-line, especially in the Whitianga Survey District, there are considerable areas of open fern-clad land. The so-called Waihi Plains are also open country, covered by a somewhat sparse growth of fern and stunted manuka. Elsewhere the area is in great part forested, and contains some valuable milling-timber. Chief among the forest-trees is the noble kauri, now unfortunately fast disappearing before the bushman's axe.

GENERAL GEOLOGY.—With the exception of the material forming the flood-plains of the larger streams, and the flats that in places border the various inlets, the visible rocks of the subdivision are wholly of igneous origin. The oldest of these rocks are andesites and dacites, with tuffs and agglomerates of similar petrological composition. These volcanics probably belong to at least two periods of eruptive activity. Following the andesitic and dacitic rocks comes a considerable development of acidic volcanics, consisting of rhyolitic lavas and tuffs. Finally, andesitic lavas of younger age than the rhyolites are in places developed to a small extent.

In many parts of the subdivision the volcanic rocks are highly altered both by meteoric and by hydrothermal agencies. More especially hydrothermal metamorphism is prominent in the vicinity of the auriferous veins of the various goldfields. In several places masses of siliceous sinter on the surface testify to the comparatively recent cessation of solfataric action.

ECONOMIC GEOLOGY.—During the past season detailed studies of the auriferous veins at Tairua and Whangamata have been made, whilst in other districts similar work is now being done. Only the briefest outline of the results obtained can here be given, as our maps are still uncompiled, and the laboratory work is yet to be done.

In the Tairua district several mines have reached the producing stage, whilst others are still being prospected. The principal concerns are the Tairua Broken Hills, Tairua Golden Hills, Tairua Monarch, Golden Belt, and Champion mines. It is important to note that several of the Tairua mines are in rhyolitic rocks, and not in altered andesites or dacites such as form the vein-bearing rocks in most parts of the Hauraki Goldfields.

The Ohui (Phoenix) Mine workings, south of Tairua, are not in an advanced state, but the prospects are considered promising.

At Wharekerauponga, in the inland Whangamata district, the workings of the now defunct Royal Standard Company are located on a series of parallel reefs, which, like many of the Tairua lodes, are in rhyolite. Apparently the development of the mine by the Royal Standard Company was not carried out satisfactorily, and it is thought that the mine is worthy of further prospecting, especially in depth.

In the well-known mining districts of Waihi, Waitekauri, and Karangahake the reefs traverse highly altered dacites and andesites. In these areas a detailed study of the veins and of the enclosing rocks, such as is now being made, may be expected to give results of considerable value to the mining community.

VISIT TO OREPUKI.

To those interested in New Zealand's mineral resources Orepuki has been known for some time as the site of a large plant erected to treat certain oil-shales existing in this locality for their hydrocarbon contents—paraffin, kerosene, &c. Recently much interest has been aroused at Orepuki by the supposed presence of native platinum in large quantities in the widespread black-sand-bearing alluvium of this neighbourhood. For many years this alluvium has been worked for its gold content, and precious metal to the value of £500,000 is said to have been derived from the locality.

The geology of the country around Orepuki is simple. Apparently the oldest rocks visible in the immediate neighbourhood are granites or allied plutonics, above which lie a series of sedimentary rocks—clays, sandstones, and conglomerates, with coaly and carbonaceous layers, the latter containing the oil-shales. The rocks of this series dip generally at gentle angles, and are followed by horizontally