

this type, faults, cross-courses, cross-veins, and mineralised bands, as well as the character of the wall rock, have all exerted a powerful influence on the position and value of the ore-shoots.

The most common associate of the gold and silver in the quartz veins is pyrite, and, of course, the decomposition products of this mineral in the case of the ores near or at the surface. Other minerals which are not uncommon, although rather sparsely distributed, in the veins of certain localities are galena, sphalerite, stibnite, chalcopyrite, arsenopyrite, and native arsenic.

In reference to the main Tokatea reef, the largest and most persistent within the Coromandel area, it has often been suggested in mining circles that in view of the rapid and continued progress in all branches of mining and metallurgy, and the prospective cheapening of motive power, this reef will in the near future pay to work. An endeavour to collect reliable information bearing on this question elicited the fact that the accurate value of the veinstone exposed at the various outcrops and in the underground workings, which afforded cross-sections, had never been ascertained. A careful sampling of the reef at various points that appeared to offer the greatest facilities for examination has been undertaken by the writer, and the result of the assays is awaited with interest.

An endeavour has also been made to ascertain whether certain dykes and interstratified bands of igneous rocks which occur within the Tiki-Tokatea area of the Palæozoic group, present any possibilities as low-grade ore-bodies. These rocks have been highly silicified, and contain a fair percentage of pyrite and its decomposition products. The results of the assays of the samples taken are not yet to hand.

As the question of exploiting the deeper levels of the Coromandel Goldfield must eventually demand attention, all reliable information which has a bearing on the subject is being obtained, and the opinions expressed on this particular point by previous writers dealing with the geology and mining industry of the area will be brought together for comparison in the bulletin shortly to be issued.

*Other Veins.*—Apart from the gold-silver quartz veins, mention should be made of certain quartz reefs occurring near the line of contact of the older sedimentary rocks and the volcanic series within the belt of country drained by the main left-hand branch of Cadman Creek and the right-hand branch of the Tiki Creek. These reefs contain bunches of fairly high-grade metallic sulphides—viz., galena, chalcopyrite, and sphalerite—together with a little silver. They have been prospected to some extent, but so far without success, owing to the small dimensions and erratic nature of the ore-shoots. Vein-stone containing chalcopyrite was selected from a narrow band in one of these occurrences, and was found to contain 13·75 per cent. of copper. Considering that a block of ore of large dimensions, containing a high percentage of galena and some chalcopyrite, together with silver to the extent of 30 oz. to the ton, has been found in the débris of the Tiki Creek, further prospecting along this belt might lead to the discovery of larger veins than those already located.

I anticipate completing the field-work on the Coromandel subdivision by the end of March, 1907, when the preparation of the bulletin on this area will be undertaken.

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#### MR. R. P. GREVILLE, TOPOGRAPHER.

Mr. R. P. Greville, Topographer, was engaged during the early part of the season in executing surveys in the rugged interior of North Westland, and at the headwaters of the Waimakariri River, in Canterbury. During the winter he was occupied in compiling his maps at the Head Office. In the beginning of the spring he established survey parties under the newly appointed assistant topographer, Mr. K. M. Graham, and his chainman, Mr. Alfred Whitehorn, in the Parapara subdivision of Karamea, Nelson. Early in October he took charge of the Geological Survey exhibit at the New Zealand International Exhibition. Towards the end of the year Mr. Greville resumed the work in Westland, which he had relinquished in the autumn. He reports as follows on the operations conducted under his charge during 1906:—

*Field-work in Westland.*—Early in January the surveys of the Kokatahi and Toaroha Rivers, which were well advanced last year, were completed.

The Kokatahi River, it may be explained, is the largest eastern branch of the Hokitika River. Rising near Mount Fitzgerald and Commodore Range, on the main divide, it flows in a course slightly to the east of north for about four miles, when it is joined by the Crawford, a stream of equal volume, which rises near Mount Beals and the Twin Peaks. From the junction of the Crawford the river follows a northerly course to the Whakariri Gorge, which is nearly three miles long, and after issuing from the gorge flows in a direction slightly to the north of west to its junction with the Hokitika.

Three miles below the Whakariri Gorge the Toaroha River, coming from the southward, joins the Kokatahi, and about two miles further down is the junction of the Styx River. The Styx rises at the Styx Saddle, close to the Arahura River, and has a general westerly course throughout. The area drained by the Kokatahi and its tributaries is, with the exception of the settled lands on the plain towards the Hokitika River, clad with dense forest to an altitude of about 3,500 ft., and is of a very rugged and generally inaccessible character.

The survey of the Kokatahi River was commenced by my chainman, Mr. Alfred Whitehorn, at the most southerly fixed point of the settlement surveys of the Lands and Survey Department, about two miles above the junction of the Styx River. Progress was fairly easy until the Whakarira Gorge was reached, about three miles from the starting-point. It was there found impracticable to follow the course of the river, and a long *détour* had to be made, necessitating a steep climb of 1,500 ft., and a descent of 1,400 ft. to the river again at a point about a mile above the head of the gorge. The traverse then followed the western edge of the river to the Forks, at the junction of Crawford