

from the alpine divide to the west coast, are included within the Hokitika subdivision of the North Westland quadrangle. The maps covering subdivision of a quadrangle thus grouped are collectively spoken of as a sheet, while those covering a whole division or quadrangle are contained in an atlas folio.

In carrying out the geological field-work a good topographical map is the first requisite, and on it, as a basis, the geological work is placed. The whole area which is being investigated is most carefully examined, the various creeks ascended, and the spurs and ridges followed in mountainous country. Every phase of geological science is given attention—the palæontologic, petrographic, structural, physiographic, and economic. However, especial stress is laid upon the economic side of geology, which relates to the occurrence of minerals of commercial value and has a direct bearing upon the mining industry, the development of which is so important in any new country.

As the result of our labours, carefully prepared geological maps of the areas examined, especially arranged with a view to aid prospectors, will be obtainable. On these maps we do not pretend to locate every feature of economic interest, though many of these may be discovered in the course of our examinations; but we do hope to delineate the horizon within which prospecting for deposits of commercial value may be conducted with a reasonable hope of success.

During the season of 1905–6 detailed work has been undertaken in the North Westland quadrangle, in the Hauraki quadrangle, and in the Central Otago quadrangle. The first work undertaken was on the Hokitika sheet of the North Westland quadrangle, which was started in April, 1905, with Mr. Colin Fraser, M.Sc., as Geological Assistant, Mr. C. E. Adams, B.Sc., as Topographer, and myself in charge of the survey. At the end of May, leaving the Westland work in Mr. Fraser's hands, I departed on a general tour throughout the North Island and part of the South Island in order to familiarise myself with the various mining localities of the colony. The goldfields of Coromandel, Thames, and Waihi were visited in company with Mr. P. G. Morgan, M.A., who had been chosen to fill the position of General Geologist on my staff from the 1st June. After leaving Waihi a hurried reconnaissance was made of the centres of thermal activity at Rotorua, Whakarewarewa, Tarawera, Waimangu, Wairakei, and Taupo. This area is filled with features of geological interest, and it is hoped that for the benefit of science a detailed survey will soon be made of its many wonderful and constantly changing phenomena. The thermal area near Whakarewarewa casts some enlightening information on the origin of gold and silver. These metals are constantly being deposited by one of the springs at least—namely, the large pool just behind the Geyser Hotel, from which the supply of hot water for the baths is drawn. An assay of a siliceous deposit formed in the troughs conducting the water from the spring to the baths gave the following result—gold, 12 gr. per ton; silver, 15 dwt. 3 gr. per ton: while a sulphurous sinter formed on the edge of the spring carried—gold, 1 dwt. 4 gr. per ton; silver, 4 oz. and 18 gr. per ton.

After leaving Rotorua I proceeded to the South Island *via* Wellington, and the following mining localities were hurriedly visited: Aniseed Valley, near Nelson; Parapara; Puponga; Reefton; Westport; and Greymouth. By the beginning of August I was back at work on the Hokitika sheet of the North Westland quadrangle with Mr. Fraser, who had before my arrival been joined by Mr. Morgan. The topographical work now passed into the hands of Mr. R. P. Greville, who succeeded to the position of Topographer of the Survey some weeks after Mr. Adams had retired from the work in July. Mr. Greville, Mr. Morgan, Mr. Fraser, and myself were constantly engaged in the Hokitika area until the end of October. At the end of that month I left for Coromandel to start the detailed work on the second quadrangle to be examined by the reorganized Survey—the Hauraki quadrangle—where I was in a few weeks joined by Mr. Fraser, while Mr. Morgan commenced operations on the Mikonui sheet of the North Westland quadrangle, the next sheet south of the Hokitika sheet. Mr. Greville meanwhile remained in North Westland to carry out the survey of the hitherto unsurveyed parts of the Hokitika and Mikonui sheets. The reason for my departure and that of Mr. Fraser when the work on the Hokitika sheet was incomplete will be understood when it is explained that we had finished the examination of practically all the country which had been at that time sufficiently surveyed topographically for our purpose and which was free from snow. Snow, of course, covers much of the Hokitika area during the winter, owing to its mountainous nature, and prevents an adequate examination at that time of the year. Therefore it was considered economical to carry on work elsewhere until such time as the snow on the mountains should have melted.

A study of the Hauraki quadrangle seemed most necessary owing to the many occurrences of auriferous lodes within its boundaries, and geological examinations were being conducted by myself and Mr. Fraser in its northern portion at the close of the year 1905.

A detailed report, giving the results of the geological investigations on the Hokitika sheet of the North Westland quadrangle will, it is hoped, be published under separate cover as Bulletin No. 1 of the new series of reports of the Geological Survey during the coming year.

Mr. P. G. Morgan's field-work on the Mikonui sheet, which was not started until November, as prior to that date he was assisting on the Hokitika sheet, is progressing very favourably, but will not be completed soon enough to allow of the publication of a report at the same time that Bulletin No. 1 is issued. It is somewhat premature to anticipate the various results that may be looked for in the area under investigation by Mr. Morgan, but the Pounamu formation, with its interesting series of minerals, will probably be located, and likewise auriferous-quartz veins of more or less importance.

Professor James Park, who has been temporarily employed by the Department for the present season, started geological explorations on the Alexandra subdivision of the Central Otago quadrangle in November, and this work was still in progress at the close of the year 1905. Professor Park expects to have his report on this area completed by July, 1906, when it will be issued as a separate bulletin.

Mr. R. P. Greville, who joined the Geological Survey staff as topographer on the 1st September, has in the four months which have intervened between that date and the close of the year been able to cover a great deal of territory, and has successfully mapped topographically much hitherto unsurveyed