

LETTER OF TRANSMITTAL.

SIR,—

Geological Survey Office, Wellington, 31st May, 1916.

I have the honour to forward herewith the tenth annual report of the Geological Survey Branch of the Mines Department. This report covers the work of the Geological Survey during the twelve months ending to-day.

I have, &c.,

P. G. MORGAN,

Director, New Zealand Geological Survey.

The Hon. W. D. S. MacDonald, Minister of Mines, Wellington.

DIRECTOR'S REPORT.

SUMMARY OF FIELD OPERATIONS.

DURING the field-season ending 31st May, 1916, the detailed surveys of the Egmont and Gisborne subdivisions were brought to a conclusion, and a re-examination of the greater part of the Whatatutu Subdivision was made. Special arrangements were made with Professors James Park and P. Marshall, of Otago University, to make surveys of the Oamaru and Tuapeka districts. These have been completed, and thus the area examined in detail during the 1915-16 season (excluding Whatatutu Subdivision) is fully 1,000 square miles. Since the reorganization of the Geological Survey in 1905 about 9,800 square miles has been subjected to detailed examination and mapping. Reports on the four districts mentioned above are now in course of preparation. Brief visits, involving geological examinations, were made by the Director to Waihi, Kaipara Harbour district, Huiroa (Taranaki), Huntly, Marlborough (coastal region), North Canterbury, and Oamaru. He also visited Trentham and the new Featherston camp at the request of the Defence Department in order to report upon soil and drainage conditions. Dr. J. Henderson made visits to Huntly, Manawatu Gorge, Mauriceville, Reefton, and Wangapeka. The chief results of these examinations are given in the special reports published on later pages.

Egmont Subdivision.

Field-work in the Egmont Subdivision was resumed by Mr. W. Gibson, Assistant Geologist, in September, 1915, and carried on until the completion of the survey towards the end of May, 1916. Mr. Gibson was assisted for some months by Messrs. L. Grange and H. A. Ellis, of the Otago School of Mines, whilst during portions of February, March, April, and May the Director also took part in the field-work. The ground examined during the past two seasons consists of the survey districts of Ngatimaru, Huiroa, Egmont, Wairau, and Cape, together with a small portion of Opunake Survey District. The total area surveyed is, roughly, 625 square miles.

Gisborne and Whatatutu Subdivisions.

Mr. M. Ongley, Assistant Geologist, recommenced work in the Gisborne Subdivision during September, 1915, and early in March, 1916, was joined by Dr. Henderson, Mining Geologist. The survey of the subdivision was completed before the end of March, and attention was then directed to a revision of the geology of the adjoining Whatatutu Subdivision, a report on which had been published in 1910 (N.Z.G.S. Bulletin No. 9). The desirability of such a revision has been felt for some years, but the field-work done in the neighbouring area by Dr. Henderson and Mr. Ongley has served to emphasize its necessity as a corollary to the report on the Gisborne area now in preparation.

Tuapeka District.

On the 1st November, 1915, Dr. P. Marshall, with the assistance of Mr. G. E. Hyde, began a detailed survey of the Lawrence, Waitahuna, and Waipori districts. Field-work was completed during February, and since then Dr. Marshall has been occupied in laboratory-work in connection with the survey and in preparing a report and maps.

Oamaru District.

Professor Park began work in the Oamaru district early in December, 1915, and remained in the field until the 7th March, 1916. Geological maps and sections have since been received from Professor Park, who also advises that his report will be forwarded at an early date.

Limestone and Phosphate Deposits.

Largely in response to requests from the Agricultural Department, a good deal of attention has been given during the past year to the limestone and phosphate deposits of the Dominion. A visit was made to the Kaipara district principally for the purpose of re-discovering a phosphate deposit from which a sample was collected many years ago by Mr. S. H. Cox, then a member of the Geological Survey staff. This was stated to come from the Hotoe River, but a search of the country near the mouth of that stream on the line of Mr. Cox's route in 1879-80 showed