

## DIRECTOR'S REPORT.

## SUMMARY OF FIELD OPERATIONS.

DURING the field season of 1921–22 detailed topographical and geological surveys have been conducted in the following districts:—

- (1.) North Auckland district (Dargaville Subdivision), by Mr. H. T. Ferrar, M.A., F.G.S., Geologist, assisted by Mr. W. H. Cropp, A.O.S.M.
- (2.) Tokomaru-East Cape district (Waiapu Subdivision), by Messrs. M. Ongley, M.A., B.Sc., and E. O. Macpherson, Assistant Geologists.
- (3.) Ohura-Aria-Taumarunui district (Ohura Subdivision), by Mr. L. I. Grange, M.Sc., Assistant Geologist.
- (4.) Waihi district (resurvey of part of Waihi-Tairua Subdivision), by the Director, Mr. P. G. Morgan, assisted by Mr. H. A. Ellis, A.O.S.M.

Owing to the reduced amount of the Geological Survey vote, detailed surveys have been conducted on a somewhat more restricted scale than in 1920–21.

Brief visits for various purposes were made by the Director to the following localities: New Plymouth (reported on in the last annual report), Greymouth, Te Puke, Maratoto, and Waiotapu. Dr. J. Henderson, Mining Geologist, visited and reported on the Progress Mines (Reefton) and the Chertsey oil-bore (Canterbury). He also spent six weeks in the East Cape district examining critical sections in the Waiapu Subdivision. Mr. J. Marwick, Geologist and Palæontologist, visited the Maraekakaho district, west of Hastings, where he made extensive fossil collections and examined some of the limestone-deposits.

## PROGRESS OF AREAL SURVEY.

During the twelve months ended 31st May, 1922, an area of about 1,523 square miles was geologically surveyed in detail. Of this area 543 square miles is in the Dargaville district, 540 square miles in the Tokomaru-East Cape district, and about 400 square miles in north Taranaki. In addition about 40 square miles was resurveyed in the Waihi district.

The present state of the detailed geological survey is given in the following table:—

	Square Miles.
Surveys completed and work published, on the scale of 1 in. to the mile	8,884
Surveys completed and work published, on the scale of $\frac{1}{2}$ in. to the mile ..	325
Surveys completed but work not yet published .. .. .	5,509
Surveys in progress—area actually surveyed .. .. .	1,553
Total area surveyed .. .. .	16,271
Area in which work is suspended (Heaphy) .. .. .	293
Area resurveyed (Whatatutu and Waihi) .. .. .	352

## DARGAVILLE SUBDIVISION.

During the past field season Mr. H. T. Ferrar, Geologist, assisted by Mr. W. H. Cropp, examined in detail an extensive area in North Auckland near Dargaville. The cinnabar-deposits of the Puhipuhi district and several coal-bearing areas in the Whangarei-Bay of Islands Subdivision were further examined.

The soils of the Dargaville district, as well as the deposits of limestone, kauri-resin, and coal, received due attention. Coal occurs near Avoca, a few miles north of Tangowahine, but unfortunately the seam is vertical and extends over only a small area.

## WAIAPU SUBDIVISION.

The Waiapu Subdivision, which includes the area called Tokomaru Subdivision in last year's annual report, extends northward from Tokomaru Bay nearly to East Cape, and contains almost the whole of Waiapu County, together with parts of Waikohu, Uawa, and Matakaoa counties. Numerous escapes of inflammable gas and several oil-seepages, as well as many outcrops of rock containing petroleum in small quantity, occur in the district. That the structure of the strata of the possible oilfield should be understood is of the greatest importance, and the work of the Geological Survey in the Waiapu district has been directed mainly to this end.

Since oil-seepages are known north of the area so far explored, and since from time to time specimens of copper-ore have been received from the Cape Runaway district, the further extension of the survey is recommended in order that these occurrences may be thoroughly examined.

## OHURA SUBDIVISION.

The survey of the Tangarakau district, begun in November, 1920, by Messrs. Ellis and Marshall, was continued this season by Mr. L. I. Grange eastward and northward across the wide Ohura basin to the Auckland-Wellington Railway.

The whole of the known outcrop portion of the North Taranaki Coalfield has now been examined. The coal-measures cover an area of more than a hundred square miles within the subdivision. Throughout the southern half of this area the coal-seams, so far as known, are thin and unworkable at a profit under present conditions; but in the northern half thick coal outcrops at many points, and as soon as a railway has been built mining on a large scale will be practicable.