

## REPORT.

## (1) INTRODUCTION.

THE output from the Reefton Coalfield amounted in 1929 to 30,016 tons, an unduly low figure for an extensive field containing some excellent coal.

The small production is attributable to several causes :—

1. The supply of coal which can be worked by "rise" methods is being rapidly depleted.
2. The majority of the mines are very small. The irregularity of the output of a small mine in a faulted field tends to drive the market to districts where constancy of supply is assured. A combined marketing scheme whereby the coal from the various mines in each seam could be pooled would overcome this difficulty, and would ensure the despatch of a type of coal which would meet the particular requirement of the purchaser. A market has frequently been lost by the sale of steam coal (No. 4 seam) as household coal (No. 2 seam).
3. The delineation of the lease boundaries bears no relationship to the trend of the major geological dislocations. Several blocks of coal have been lost owing to the inability of the neighbouring lessees to come to practical agreements for the working of coal in angles between fault-lines and lease-boundaries.
4. The unprogressive policies of all but a few lessees have increased the production-costs, by the use of inefficient plants, and have also prevented the working of the major portion of the field by others willing to mine on modern and progressive lines. Capital expenditure is to-day required more urgently than in the past, as the exploitation of coal "to the dip" cannot be profitably accomplished on a large scale without replacing the obsolete and inadequate mechanical units now operating by a central power-station.
5. The greater part of the slack coal produced on the field cannot be disposed of at remunerative rates.
6. The structural dislocations which are frequently encountered have necessitated much dead-work, which is often carried out in a haphazard manner. The expense of penetrating a fault can be minimized by the intelligent application of geological knowledge.

The present survey was instituted for the guidance of those who are interested in the coalfield. As the geological structure has now been determined, there should be no difficulty in attracting finance, which is so urgently required to reduce mining-costs to a competitive basis.

The interpretation of the geological structure has been hindered in the past by gravel terraces, by the density of the vegetation, and by the fact that the greater portion of the measures lie beneath the gravel plain of the Inangahua River and its tributary, the Waitahu River.

The old rise workings have been studied, and from the nature of the disturbances occurring in them the structure of the concealed portion of the coalfield has been deduced.

The object of the report is economic. Theoretical discussions have been introduced only where they have a direct bearing on economic problems.

*Field-work.*—The field-work involved in the preparation of this report was carried out between the months of December, 1929, and May, 1930. The mine plans show most underground workings in existence before April, 1930.

The greater portion of the area is covered with fern and scrub, but patches of forest remain undisturbed.

The topography was mapped by Mr. K. F. H. Walker with the aid of a plane table fitted with Indian-pattern clinometer and telescopic alidade with stadia wires. The plane-table work was superimposed on a network of triangles previously fixed with a theodolite and co-ordinating with trigonometrical stations and such boundary-pegs as could be located. Vertical and horizontal controls were introduced from time to time to avoid cumulative errors.

In addition to the topographical work, it was necessary to survey the many working-mines in the district which had not already been surveyed, and also abandoned workings where possible.

No distinction has been made on the map accompanying the report between underground and outcrop observations of dip and strike, as no mines are sufficiently deep to reveal any serious difference in readings taken vertically below one another.

*Previous Work.*—The Reefton Coalfield has been previously visited by geologists on numerous occasions. The first detailed discussion on the coalfield is that given by Dr. Henderson in *New Zealand Geological Survey Bulletin No. 18* (new series) on the Reefton Subdivision (1917). A further report was made by the same writer in 1921, and published in the *New Zealand Journal of Science and Technology*, Vol. 4, p. 18. A full bibliography is given in Dr. Henderson's publication of 1917, p. 7, and need not be repeated here.