CEMENT.—Samples selected from various outcrops of limestone have been submitted for analysis, with a view to ascertaining their value for cement manufacture. These analyses in general show a content low in magnesia and in iron-oxide, moderately low in free silica, and sufficiently high in carbonate of lime. The limestones can be easily pulverised, and are fairly homogeneous. Should a sufficient supply of cheap fuel be available, good cement could be economically produced.

SUITABLE SITES FOR DEEP BORING.—In a petroliferous area, the geological formation of which consists of alternating porous and impervious beds that have been subjected to folding, it is reasonable to suppose that the petroleum will be collected in anticlines. Since oil is lighter than water, and does not mix with water, it will be buoyed or forced upwards towards the anticlines, while the pressure of the gas in the petroliferous area also assists in effecting the same result. A point where two anticlines cross, forming a dome, should therefore have a maximum accumulation of oil.

From the structure of the Whatatutu Series described under *General Geology* it may be deduced that three favourable sites for deep boring for petroleum occur in the subdivision. One at Waitangi Hill has already been proposed as a suitable site;* the two remaining are,—

(1.) On the northern bank of the Mangamaia Stream, in the vicinity of the Mangatu River;
(2.) In the valley of the Makahakaha Ngarara Stream (left branch of the Waingaromia River), a mile and a half to two miles north of Hokoroa Homestead.

At each of these sites a dome has been located, and for this reason they should be suitable sites for deep boring.

MR. K. M. GRAHAM, TOPOGRAPHER.

FIELD-WORK IN THE WAIHI SUBDIVISION.

On the 21st October Mr. Graham entered upon the work of making a detailed topographical survey of the Whitianga and Tairua survey districts. These districts occupy the middle and eastern portions of the Thames-Coromandel Peninsula, and have a land-area of approximately 116 square miles and 135 square miles respectively.

Mr. Graham's work involved the traversing of the main rivers and their tributaries, the fixing of the main watersheds, and the mapping of the natural features of the country, in so far as was necessary for the subsequent carrying-out of a geological examination.

The survey of the Whitianga district was completed in the early part of May, and a start was then made in the northern part of the Tairua district.

At the end of May field operations were suspended for the winter months, and the preparation of the complete maps of the area surveyed is now in progress.

MR. H. RICHARDSON, TEMPORARY ASSISTANT TOPOGRAPHER.

During June, 1908, Mr. Richardson was engaged in traversing the Big River and its tributaries, Heaphy Subdivision, Karamea, Nelson. He then returned to headquarters, where for some months he was employed in draughting work. Early in October Mr. Richardson resumed the topographical survey of the Heaphy Subdivision, and was so occupied until the end of the field season. During this time he completed an accurate traverse of the coast-line from the Turimawiwi River to a point beyond the Big River, and surveyed in detail the country drained by Raukawa Creek, the Anaweka River, the Turimawiwi River, and their various tributaries. Previously the valleys of these streams were practically unsurveyed, their courses being simply roughly sketched on the available maps.

During the past season Mr. A. J. Whitehorn, chainman, acting under Mr. Richardson's directions, has topographically surveyed portions of the Heaphy, Gunner, Kowhai, and Murray valleys, in the Whakapoai and Gouland survey districts.

Mr. Richardson reports that the country surveyed by him contains a considerable area of fairly good land, together with some of first-class quality. It is mostly covered by mixed bush, and in some localities contains good milling-timber.

As noted on a previous page, what may prove to be most important discoveries of sub-bituminous† coal of excellent quality were made by Mr. Richardson in the Raukawa, Turimawiwi, and Anaweka valleys. The explored area containing coal-seams is about three square miles, but the coal-measures probably continue to the north and north-east of the known outcrops until they join those of the West Wanganui district. Southwards the coal-measures are interrupted by granite for some miles, but reappear in the Heaphy Valley, where new outcrops, in addition to those formerly known, have been

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*Second Annual Report, N.Z. Geol. Survey, 1908, p. 11. †The term "sub-bituminous" is here used in accordance with the classification of coals adopted by the United States Geological Survey. Coals having the composition and physical properties of the coal in question have in New Zealand hitherto been classed as brown coals; but, since they are much superior in every respect to the typical brown coals—for instance, those of Germany—it is obviously desirable that they should be distinguished by another name. See an article by Marius R. Campbell in *Economic Geology* for March–April, 1908, entitled "A Practical Classification for Low-grade Coals."