

TE KUITI SUBDIVISION.

(By J. H. WILLIAMSON.)

Field-work in the Te Kuiti Subdivision was completed this season. Since the final report is not likely to appear for several years, a summary of the geology of the whole district, together with a small-scale black-and-white map, has been prepared.

The Te Kuiti Subdivision is an area of 1,190 square miles lying south of Kawhia Harbour on the west of the North Island. It adjoins the Huntly-Kawhia Subdivision on the north, the Mokau and Tongaporutu-Ohura Subdivisions on the south (described respectively in Bulletins Nos. 28, 24, and 31), and extends some forty miles eastward from the Tasman Sea. Important limestones and clay deposits occur in the district, but this investigation has shown the improbability of the existence of any considerable amount of coal. The chief industries are agricultural, but here, as in some other parts of the central portion of the North Island, deficiency diseases in stock have developed on several farms. One of the reasons for this survey was to see if the rocks underlying the affected farms could in any way be connected with the occurrence of the trouble. Accounts of some of the results obtained have already appeared.

PHYSIOGRAPHY AND STRUCTURE.

A depression extends north and south through the district. To the east rise the uplands forming the western part of the great central plateau of the North Island, and to the west broad uplands extend to the Tasman Sea. A well-marked zone of faulting, striking a little east of north and passing about seven miles west of Te Kuiti, forms the west boundary of the depression, but to the east the boundary is indefinite; the depression is rather a warped and broken fault-angle depression than a graben, although parts of it could be so regarded. North of Te Kuiti a north-east-striking fault diverges from the main fault-zone and forms the edge of a block extending from Waitomo to the north boundary of the subdivision and intermediate in height between the lowlands and the western uplands. In this part also the depression merges into the lowlands of the middle basin of the Waikato, where post-deformational infilling largely obscures the structure.

From Te Kuiti the land rises eastward for eight or nine miles to the crest of an anticlinal warp, and then slopes downward to the fault along the west base of the Rangitoto Range, highlands rising 3,000 ft. along part of the east boundary of the district. The warp dies out southward, and the sloping surface rises gently to the Maraeroa Plains (1,400 ft.), overlooking the downfaulted area drained by the Waimiha and upper Ongarue. A series of subparallel streams flow north-west down the slope of this large block, which forms most of the eastern portion of the subdivision; the Mokau and its tributaries to the south flow to the fault-angle and thence southward; the Mangaokewa and other streams to the north join the Mangapu, which flows north in the lowest part of the depression to the Waipa. The last-mentioned river rises on the sloping block, is diverted down the depression at the west base of the Rangitoto Range, and cuts across the anticlinal warp at Otewa.

The broad western uplands form a distorted and in parts deeply dissected plateau. A strong east-west fault, with upthrow to the north of several hundred feet, separates the northern third of the uplands from the main part of the plateau. This northern third consists of a large earth-block tilted gently north and west, and drained by streams flowing down its surface to Kawhia Harbour. The little-dissected central portion of the uplands, which slopes gently north-westward to the east-west fault, is drained by the Marakopa, a stream that flows west to the Tasman Sea along or near the fault; the upwarped western part of the plateau forms the Herangi Range; the southern part slopes southward, in which direction its deeply entrenched streams discharge to the Mokau.

North of the mouth of the Marakopa the uplands extend to the coast. South of that river a strip of relatively depressed country lies between the sea and the faults that bound the uplands. The Kiritehere and Waikawau are short deeply entrenched streams that cross the depressed strip from the steep west-facing scarp of the Herangi Range, which in Maungamangero rises to 2,656 ft.

The western uplands consist of an undermass of folded Mesozoic strata, on the planed surface of which rest horizontal or gently inclined beds of middle Tertiary age. Crustal movements during the late Pliocene caused the above-described faulting and deformation, which are quite independent of the folding and structure of the basal Mesozoic rocks of the district. These seem to be flexed into broad north-south folds. Thus the undermass of the western uplands consists essentially of a syncline a dozen or more miles across that plunges gently northward. Near the eastern edge of the uplands the strata seem to turn over to form an anticline, but east of this so much of the Mesozoic rock is concealed and so weathered and shattered are the outcrops that the structure could not be made out.

GENERAL GEOLOGY.

Correlation of the Mesozoic rocks is rendered difficult by the varying definitions of the series into which these strata have been divided in other districts, more particularly in the case of beds of Triassic age, and to avoid confusion local series names are used. The subdivision here adopted is based on an examination of two sections—one at Kawhia from Arawi Point to Waiharekeke Inlet, and the other on the coast south from Marakopa River to Ngukuhakare Bay.