

SPECIAL REPORTS.

1. TE KUITI SUBDIVISION.

(By H. T. FERRAR and N. H. TAYLOR.)

INTRODUCTION.

Te Kuiti Subdivision lies mainly in Pirongia Division, on the west side of the North Island, and includes also a small unsurveyed part of Taranaki. Its northern boundary coincides with the southern boundary of the already-surveyed Huntly-Kawhia Subdivision (N.Z. Geological Survey Bulletin No. 28), and on the south it connects with the surveyed portions of Taranaki along the northern boundaries of the Mokau Subdivision (Bulletin No. 24) and the Tongaporutu-Ohura Subdivision (Bulletin No. 31); on the east it adjoins the partly surveyed Rotorua Division and extends west to the Tasman Sea. As at present defined, it includes the following survey districts: Marakopa, Kawhia South, Orahiri, Mangaorongo, Whareorino, Maungamangero, Otanake, Pakaumanu, Pahi, Mapara, and the greater part of Totoro.

Work was begun at Te Kuiti on the 1st November, 1928, and, after being carried southward to Mapiu and westward to Aria, was suspended at Waitanguru on the 27th May, 1929. During this period an area of 329 square miles in Otanake, Maungamangero, Mapara, and Totoro survey districts was surveyed in detail.

STRUCTURE AND PHYSIOGRAPHY.

The district examined is part of a broad plateau standing between the Rangitoto Range on the east and the Herangi-Pomarangei Range on the west. The plateau is in reality a shallow graben, or downwarped area, between two higher uplifted earth-blocks, with a subsidiary uplifted block, the Mairoa Hills, near the middle. Faults striking a little east of north form the boundaries of these earth-blocks and allow tilting, but usually their throw is not great. Faults striking east and east-north-east also dislocate the rocks.

The plateau is part of a peneplain portions of which survive at heights of about 1,000 ft. above sea-level. Being deeply dissected, the streams that drain it flow in narrow valleys, 400 ft. to 500 ft. deep, around and between flat-topped hills. No high hills interrupt the accordant summit-levels of the plateau, although the deeply eroded valleys, by making the minor topographical features prominent, reduce the area of "easy" farming-land.

The drainage of the district is by way of several tributaries of the Waipa River, flowing northward, and by certain reaches and tributaries of the Mokau River flowing westward and southward.

The Mairoa Hills, 1,000 ft. to 1,500 ft. high, near the middle of the district form a water-parting of low relief that separates the headwaters of the Marakopa River from these two drainage-basins. Where massive limestone covers the countryside the drainage is largely subterranean, and apparently independent of surface topography. Under these conditions caves and grottos are numerous and sinkholes abound.

GENERAL GEOLOGY.

Early geological exploration in the newly mapped area was done by F. von Hochstetter, who crossed the district in 1859. Recently J. Henderson and M. Ongley worked in the district during the years 1917 and 1918, and their report (Bulletin No. 24), together with that of L. I. Grange on portions of northern Taranaki (Bulletin No. 31), forms the foundation upon which the present survey is being built. The following table of strata is tentative and will be expanded as the work proceeds:—

Local Name.	Content and Local Thickness.	Approximate Age.
Mamaku beds	Alluvium, pumice silts, andesitic ash, rhyolitic ash, dune-sands, river-gravels	Recent and Pliocene.
	Rhyolitic tuffs, massive, subaqueous above, subaerial below : 100 ft. to 300 ft.	Pliocene.
<i>(Unconformity.)</i>		
Tongaporutu beds ..	Yellow mudstone ; 100 ft.	Upper Miocene.
Mohakatino beds ..	Soft grey claystones ; 159 ft.
Mokau beds	Massive sandstone with shelly conglomerates and coal-seams ; 500 ft.	Lower Miocene.
Mahoenui beds ..	Claystones and sandy limestones ; 500 ft.
Te Kuiti beds	Massive limestones, incoherent sands, conglomerates in places, thin coal-seams ; 250 ft.	..
<i>(Local Unconformity.)</i>		
Whaingaroa beds ..	Argillaceous and glauconitic sandstones, coal ; 250 ft. ..	Oligocene.
<i>(Great Unconformity.)</i>		
Mangaotaki beds ..	Massive sandstone and conglomerate, plant-beds, dark-gray shales, and mudstones ; 10,000 ft.	Jurassic.
Mairoa beds	Argillites (fossiliferous) and shattered greywacke ; 10,000 ft. or more	Triassic.