

the Rotorua-Taupo Subdivision. Five new cuttings for the proposed Rotorua-Taupo Railway (between five and six miles south of Rotorua) expose beds of high-grade material, with a maximum thickness of 10 ft. These should be of economic value in the future.

Tongariro National Park.—The National Park is becoming increasingly popular as a tourist resort. The topographic maps and volcanological data, when published, should prove useful and instructive.

4. MARUIA SUBDIVISION.

(By H. E. FYFE.)

The Maruia Subdivision lies in the southern part of Nelson Province, and includes the survey districts of Burnett, Matakītaki, Rahu, Una, Lewis, and Travers, comprising in all an area of about 650 square miles. The Murchison Subdivision adjoins it on the north and the Reefton Subdivision (see N.Z. Geological Survey Bulletin No. 18) adjoins it on the west. Field-work was commenced towards the end of November, 1928, and continued to the end of May, 1929; during which time some 325 square miles of the Burnett, Matakītaki, Rahu, and Una districts were surveyed in detail.

PHYSIOGRAPHY.

Three meridionally-trending mountain-ranges and their intermontane valleys occupy the greater portion of the area so far examined. The easternmost is the Nardoo Range, that commences as bush-clad highlands south of the Matakītaki River, near Hunters' Station. Southwards the range soon rises above the bush-line (about 4,200 ft.), and increases in height to about 6,000 ft. at its junction with the Spenser Mountains. This range forms the western watershed of the upper Matakītaki, and the eastern watershed of both Station Creek and the headwaters of Glenroy River.

The Mount Cann Range occupies a central position in the area, and forms the western watershed of the Glenroy south of the Granity Creek junction, and a part of the eastern watershed of Maruia River. The Mount Baldy highland, separated from the Nardoo Range by a south-westerly extension of the well-known Wairau fault, is the structural continuation northward of the Mount Cann Range.

The westernmost mountains are the Victoria Range, that forms the western watershed of Maruia River. It is an exceedingly rugged range, averaging about 5,000 ft. in height. Two isolated mountain-masses, culminating in Mount Mantell and Mount Rutland, are separated from the Victoria Range to the west by the Maruia Gorge, and from Mount Cann Range by the southern extension of the Murchison depression, that southward forms the graben called the Upper Maruia Plains.

Three main drainage-channels traverse the area, and all lead northward throughout the greater part of their courses. From east to west they are the Matakītaki, the Glenroy (a tributary of the Matakītaki), and the Maruia.

The highlands and the headwaters of the main rivers show the effects of former glaciation, especially in the Upper Matakītaki Valley where hanging and U-shaped valleys, truncated spurs, and terraces of morainic debris are prominent features of the landscape. An interesting feature of the Matakītaki-Tutaki valley-system is the evidence of a change of drainage that has taken place in post-glacial times. This change of drainage was first noted by Cox, who wrote "thus the Upper Matakītaki drained down the Tutaki River, and thence by that branch of the Mangles which now heads towards Lake Rotorua, and either through the 'grassy patch' to Murchison Creek, or more probably through to Rotorua Lake."*

The evidence gathered recently shows that ice and a post-glacial river formerly drained from the Upper Matakītaki Valley into the Tutaki Valley, whence they flowed northwards up the southward-flowing Grassy Creek into Murchison Creek.

PRINCIPAL FAULTS.

The structure of the area is controlled by faults that strike in directions between the north and north-north-east. The Nardoo Range is separated from the Mount Baldy highland by a continuation of the arcuate Wairau fault, that traverses Station Creek Valley (tributary of the Matakītaki) and the middle reaches of Glenroy River, and crosses the Mount Cann Range near the headwaters of Station Creek (tributary of the Maruia River). Its continuation southwards has not yet been traced. To the south-east of this portion of the Wairau fault are some north-north-easterly-trending fractures of less importance. Another fault traverses the portion of the Glenroy Valley that lies between the junction of that river with the Matakītaki and a point about one mile west of the Granity Creek-Glenroy junction, and extends southward along the western flank of the Mount Cann Range. There are a number of other faults between this one and the Wairau fault, chief of which is the Tutaki fault of the Murchison Subdivision. This fault continues southward from the northern boundary of Maruia Subdivision and crosses the Glenroy River near Shale Creek junction. The courses of the Warbeck and Warwick streams are determined by a fault, or a fault-zone, that continues south-westward skirting the eastern flanks of Mount Rutland and the Victoria Range. Northward this line of weakness skirts the base of Mount Mantell and passes into the Murchison Subdivision. The conspicuous rectilinear or westward reach of the Matakītaki River from Hunters' Station to Horse Terrace is probably fault-determined.

GENERAL GEOLOGY.

As no internal evidence as to the age of the pre-Tertiary rocks has been discovered, no attempt will be made at present to correlate them with strata of known age outcropping elsewhere in Nelson Province. Cox* considered the ancient sedimentary rocks of this portion of the province to range in age from Upper Silurian to Lower Carboniferous, and included the bulk of them in the Te Anau and Maitai Series.

* Cox, S. H.: "On the District between the Maruia and Buller Rivers." Rep. Geol. Explor. during 1883-84, No. 16, p. 9: 1884.