

in height running east from near Waiouru to the Rangitikei River, with scattered deposits continuing across the Ngamatea Plateau near the line of the Inland Patea Road. These consist of limestones and mudstones with a south-westerly slope. North of this shallow deposits of mudstones and limestones with a series of narrow bands of combustible coal, the greatest 7 in thick, occur immediately upstream of the greywacke Mt Azim Gorge.

Patetere ignimbrite flanks the Northern Kaimanawa greywacke on both sides, extending down the Taharua River across the head of the Mohaka and up the Oamaru Valley as far as the Waitawhero tributary. On the western side ignimbrite is exposed as far south as the Waimarino and extends about three miles further into the upper Hinemaia basin than is shown on the Tokaanu sheet of the Geological Survey. The river is slotted into spectacular cascades over three of these bands, the second of which has a fall of 240 ft.

There is also a line of ignimbrite deposits south of this at a higher elevation (see Map 2), the largest of perhaps a couple of acres at Ignimbrite Saddle (3,960 ft, Fig. 7) at the head of the Waimarino River, small hummocks at the head of the Mangamaire (3,900 ft) where it was first recorded by McKay (1901), and a third forming a conspicuous castellated mound above the confluence where the Ngaruroro begins (3,100 ft). About 4 miles down the Ngaruroro near the Te Matia confluence the river runs over a reef of what may also be ignimbrite.

ASH SHOWERS

The Taupo showers have been investigated by Baumgart (1954). He distinguishes four main showers and locates their sources, which lie in a cluster near the NE corner of the lake. His detailed investigation plots the distribution of ash over part of the Kaimanawa Range as far as the Tauranga-Taupo valley. The earliest of the "Taupo" series, the Waimihia shower, fell over 3,000 years ago on a strongly developed topsoil indicating a considerable period of quiescence since the deposit from the earlier Tongariro showers. The Waimihia shower covered the whole of the Kaimanawa Ranges and extended east as far as the coast of Poverty Bay, hence its alternative name of the Gisborne shower.

After a further period of quiescence three eruptions took place within a short interval, Hatepe, Rotongaio and the "Taupo shower" proper, the source of the last being about four miles up the Waitahanui Valley. The first two covered no great area, but deposited a considerable depth of ash close to their vents. The effect of these and the Waimihia shower has no appreciable bearing on the present-day vegetation, but the final Taupo shower has preserved abundant evidence, in the form of charred buried timber, that it fell at a considerable temperature, estimated as of the order of 250° C, at any rate within the radius of 30 miles, on forest which had established itself over much of the Waimihia ash, though there is little evidence of vegetation on the Rotongaio deposit, which in turn had fallen on bare, deeply gullied ash from the preceding shower.

In the case of the Taupo eruption, "shower" is a misnomer, at any rate in the vicinity of the vent. Ash profiles show a strong planing effect upon the underlying deposits, so that locally it behaved more like an ignimbrite flow exerting considerable lateral force.

The Taupo ash was deposited to a depth of 6 in or more over an area of 8,800 square miles, within a radius of 60 miles from the vent with an extension eastwards to 90 miles, giving a pear-shaped outline. This includes the whole of the Kaimanawa, Kaweka and Ahimanawa Ranges with part of the Huia Range. The deposits become finer and shallower towards the margin, but there is one anomaly towards the south-west, where they become deeper and coarser; to account for this Baumgart suggests the possibility of a simultaneous eruption from a vent somewhere in the Rangipo Desert.