

The 1942 rainfall recorded at Thornton was 37·85 in., rain falling on 101 days. The wettest month was August, with a fall of 6·47 in., and the driest month June, with a fall of 0·23 in. The average rainfall at Thornton over a period of twenty-five years has been 50·42 in.

At a time when almost all available earth-moving plant was engaged on defence work, this district was fortunate to retain two drag-line excavators throughout the year for drain-maintenance work. Brief particulars of the work carried out by these machines are given below:—

No. 17 Monaghan Drag-line Excavator was employed throughout the year on the lower Omeheu Canal, which has now been reconditioned by this plant for a distance of three miles down-stream from the railway. At a point 15 chains from the junction of the Awaite Stream and Omeheu Canal, preparations are now being made for transferring the machine from the left to the right bank of the Omeheu Canal, when it will continue down the canal and Awaite Stream, deepening the channel and removing willows.

No. 30 Bay City Drag-line Excavator.—Because labour was not available, the regular work of this machine was interrupted to carry out flood-damage repairs and the urgent work which, under normal conditions, would have been done by the labour force. In April, after completing the stop-bank on the eastern bank of the Tarawera River at the railway and road bridges, this machine commenced work on the Te Rahu Canal upstream from the railway. From September to January the machine was engaged in opening the mouth of the Rangitaiki River, removing silt from Western Kopeopeo Canal, repairing a break in a temporary stop-bank on the left bank of the Kopeopeo Canal, and straightening the mouth of the Tarawera River. Following an overhaul at the Thornton Depot, this machine travelled to the upper end of the Kapua Drain, which is to be deepened and connected through a floodgate with the Kopeopeo Canal.

No. 32 Kuston Bucyrus Drag-line Excavator was released from defence work in February for urgent protective work on the Tarawera River. As the machine travelled by road trailer from Tauranga, the opportunity was taken to remove 350 cubic yards of metal and 420 cubic yards of spoil that had been washed from the road into the White Pine Drain. The trailer was then used to deliver the machine to the railway bridge over the Tarawera River. From this point the excavator travelled under its own power down-stream for a distance of approximately 100 chains, where it was employed closing a dangerous break in the left bank of the Tarawera River.

RANGITAIKI RIVER.

On the 4th September flood stages in the Rangitaiki River from Edgecumbe down-stream were 1 ft. to 2 ft. above the 1925 flood levels, and the fact that the recent flood passed down the river with only slight overflow above Edgecumbe can be attributed principally to the fact that the lower reaches of the river have been recently cleared of willows. This form of improvement gives the best possible results for the expenditure on rivers similar to the Rangitaiki, but maintenance is essential for lasting results. There may be uncertainty as to the economic soundness of a comprehensive stop-banking scheme for the Rangitaiki River, but there can be no doubt that the annual expenditure necessary to control the willow growth along the river-bank provides a protection against medium floods which the district cannot afford to be without. It is to be expected that a flood of this magnitude would cause bank erosion, and where this has been harmful protective work should be carried out as soon as it is possible to obtain the necessary labour.

The mouth of this river moves along the coast eastwards. A direct outlet to the sea was opened across the sand-spit which formed between the river and the sea in June, 1938. Unsuccessful attempts were made to reopen the original mouth in 1942. On 4th September, 1942, when the river was in high flood the mouth was reopened with very little trouble by a drag-line excavator a few chains east of the direct approach of the river to the sea. In a period of five years the eastward travel of the river mouth was approximately one mile.

TARAWERA RIVER.

Mention has been made in previous annual reports of the necessity for a substantial stop-bank along the left bank of the Tarawera River. This is required for the protection of the swamp area between the river and the western hills and also as a safeguard against the possibility of the river leaving its present channel. In 1942 the overflow scoured a channel through the natural river-bank at a point about 100 chains down-stream from the railway bridge which proved difficult to close, and another serious break in the same locality this year required the use of a drag-line excavator to close it.

The mouth of the Tarawera River moves westwards, and it is difficult to account for the fact that this movement is in the opposite direction to that of the Rangitaiki River mouth. The westerly movement of the mouth of the Tarawera River has been prevented for some years by a stone training-wall. During last winter the river breached this training-wall some distance from its seaward end and the river-mouth moved rapidly westwards, levelling the training-wall for a distance of about 300 ft. from its outer end. For the reconstruction of this section of wall 2,300 cubic yards of stone was required. The smaller stone was quarried near Matata, and the larger stone was collected at the base of the hills in the same locality.