### Turakina.

There are two falls—Otaemata, 20 ft., and Rerepapa, 80 ft., about a mile and a quarter apart—on this river. The drainage-area of the river above the falls is seventy-three square miles, but the Wangaehu cuts off the Turakina from Ruapehu on the one side, and the Hautapu cuts it off from the Kaimanawas on the other. The low-water flow is likely to be small, and perhaps variable. A small scheme could be got by taking the water from the upper fall to any convenient point below the lower fall, either by race or pipe-line—perhaps at most 500 to 600 b.h.p. This may be of use for some local purpose in the future.

### Taranaki.

No suggestion of value has yet been made for a power scheme likely to be of any great use. The largest scheme at present known of, near New Plymouth, appears to be at falls on the Waitara River, 30 ft. high. The drainage-area above these falls is 433 square miles, and the rainfall on some parts of this area is very high. Probably there would be as a rule a good flow of water, but the flood-rise would be likely to give some trouble. Merely from these falls it is not likely that more than 1,500 to 2,000 b.h.p. could be got, but it may be possible to get more power by carrying the water some distance in a race. A survey would be required to determine what could be done. The distance of the falls from New Plymouth is about twelve miles, and about five and a half miles from Waitara. The Mohakatino River has been suggested as likely to yield some power. A preliminary survey is required to determine fall in river, possibility of constructing water-races, and getting storage for water. The drainage-area is not large, and the rapid fall in the river does not offer much prospect of getting a storage-reservoir.

Some minor schemes have been suggested for using streams from Mount Egmont. The only one apparently of any size, and it is very small, is that for using Bell's Falls. The stream and falls by themselves would perhaps not be of much value, but it is stated that some swamp land, about 400 acres in extent, could be utilised as a reservoir. If this could be done cheaply, and water stored to some depth, the value of the stream might be considerably increased. As the quantity of water would be small, a pipe might be taken some distance down the mountain-side and a fair amount of power got at perhaps no great expense. The rainfall is high just below Bell's Falls, and will likely be more nearer the mountain-top. At best, however, only a few hundred horse-power could be got. The drainage-area is only three and a half square miles, and the height of the falls 60 ft.

With so many streams running from Mount Egmont, it is probable that if water were taken from some of the larger ones, or the water from several streams diverted to one power-station, a much larger scheme could be got than at Bell's Falls.

### Mokau.

The Wairere Falls on the Mokau River have been suggested as a source of power. The drainage-area above these falls is 240 square miles. As the country is relatively low, the minimum flow of the stream is not likely to be great. The height of the falls is about 40 ft. Further data are required, but it is likely that the falls will only be of value for local requirements in the future. The Mokau can be easily diverted into the Waipa, but the drainage-area is small above the point of diversion.

### Rangitikei.

This river has been examined from the junction of the Hautapu to Vinegar Hill bridge. In this distance there is a fall of 400 ft., but the Makohine ravine is a serious obstacle to carry a river across.

In view of the fierce floods that may occur in this river, and the wholesale cutting-away of flats in the bottom of the canyon, either the Makohine flat, or the flat just below Ohingaiti, seems to be a very suitable location for a power-station; and of these the Makohine flat seems the best, so far as safety from flood-attack is concerned, also the flood-rise should be fairly low.

Just below the Kawhatau junction is a good point to take the water from the river. The extra height at the Hautapu junction would not compensate for the loss of the Kawhatau water, while below the Kawhatau there are no streams joining to compensate for the loss of head. Water could be taken, of course, at points lower down the river, for schemes giving less power, but there is no need to discuss any such schemes at present.

The river was gauged at Mangaweka in October last, and gave over 2,100 cubic feet per second, from a drainage-area of 1,060 square miles, but it was stated that the water had been lower by a certain height. Allowing for this, and for a slight reduction in drainage-area, the low-water flow at the Kawhatau junction may be taken to be 1,500 cubic feet per second under the existing conditions of the river-basin. These conditions may yet, however, be much modified by destruction of the forests increasing the flood flow and diminishing the low-water flow.

A gauging supplied by the Surveyor-General for the Rangitikei above the Hautapu junction at Omatane ford gave only 606 cubic feet per second. Allowing for the Hautapu, Kawhatau, and other streams, the result would give a little over half of the above flow as the low-water flow at Kawhatau. This illustrates the uncertainty of formulating a scheme for any river merely on solitary gaugings, combined with statements as to the lowest known level of the river.

The river does not at first sight appear very favourably conditioned for development of power, but though the works would be costly, yet if the power could be sold up to the quantities given in the schemes below, it appears that any of them would be successful.

The papa country along the banks of the Rangitikei is not favourable for the construction of canals carrying water, being too liable to slip. I have therefore assumed that the conduit would be wholly in tunnel. If it was found safe to construct it in canal or flume, some reduction in first cost might result.