The survey for the Huka Falls scheme has been completed, and plans for works to utilise the falls are in preparation to enable a close comparison with the Rotoiti-Kaituna scheme being made as soon as all information is available relative to the latter.

The survey for the Tauherenikau River has been finished. The fall obtainable at Featherston is 430 ft. The conduit would be 5 miles long. Of this length 3 miles would of necessity or choice be tunnel or drive, and 33 chains would be pipe-line. The flood flow in the river during the period for which observations have been made is found to be relatively large—so great that it would be most expensive work to attempt to store all flood-water with a dam of the ordinary solid masonry type, as the volume of storage for a dam of given size is not relatively very great owing to the narrowness of the valley. Depending on the expenditure on a dam, the probable power obtainable at Featherston would be from 6,000 to 10,000 continuous brake horse-power.

The survey for the Hutt power scheme is in progress, and so far promises to be quite as good as the Tauherenikau. A reservoir here is as indispensable as for the Tauherenikau, and the conditions are much more favourable for storing a large volume of water. A dam 160ft. high will store water enough to give up to 16,000-horse power at Mungaroa power-station for part-time working; the fall obtainable will be 280 ft. The flow during the months in which a record has been kept would justify an installation of the above size, but the period of actual observation of river-flow is yet short. It is probable that this Hutt scheme will be the most favourable for the supply of power to Wellington, unless the Mangahao scheme proves to be a very good one.

A survey will be started immediately to get preliminary information as to the possibility of diverting the water from the Mangahao River through the hills towards Shannon. There is every prospect of getting a considerable power scheme.

The alternative surveys for the diversion of the Clarence River at Jollie's Pass and at Jack's Pass have been completed, also the survey of Lake Tennyson to determine the capacity of the lake-basin for storage purposes, and the plans are now being finished. It appears that Jollie's Pass will be the better location for a power-station. Taking the probable maximum length of conduit that would be adopted at about 3¼ miles, an effective fall of about 1,080 ft. would be obtained. The conduit would consist of 8,800 lineal feet of tunnel under the pass, 3,900 lineal feet of drive from adits along a spur, and about 4,500 lineal feet of pipes. The low water-flow should give about 22,000 brake horse-power on Pelton shaft, and considerably more power could be got by the storage of water in Lake Tennyson and by the construction of dams in two additional places to supplement an artificial storage-reservoir at the lake. In all cases the dams will be costly—probably too much so to be adopted at present. Some alternative positions for the power-station are possible, giving shorter length of conduit but less power.

A survey of Lake Coleridge power scheme is in progress to supplement what was done previously. Until it is finished it is not advisable to decide whether Lake Coleridge scheme or the two alternative schemes at Clarence and Opihi would be better for the Canterbury District.

Opihi: A survey has been made to determine the best method of utilising the waters of the two Opuhas and the Opihi. A dam can be built at the upper end of the Opihi Gorge to store a large volume of water. A conduit just under 4½ miles long through the Opihi Gorge will give a fall of 260 ft. By diverting the high-water flow of the two Opuhas into this reservoir by a race 2¾ miles long between the two streams, and a channel about a mile long between the South Opuha and the head of St. Michael's Valley, water enough could easily be got to give, say, 16,000 brake horse-power at a power-station on the Opihi River. This would be for continuous working: for part-time working—say, equal to full power for ten to twelve hours per day—the power available might be put at 35,000 brake horse-power. The distance from Timaru would be about 22 miles, but the valley is open and favourable for the establishment of industries near or at the power-house if other conditions should become favourable. The Opuhas—especially the South Opuha—being snow-fed rivers is a very favourable condition. There were preliminary surveys made to determine the possibility of utilising the water from the Opuha direct at a different power-station. A conduit, starting from the junction of the two Opuhas, 8 miles long would give a fall of 320 ft. at a power-station at the Beautiful Valley Road-bridge over the Opuha, yielding, say, 6,500 brake horse-power, and a conduit about 14¾ miles long would give 460 ft. fall at a power-station at the lower end of the Opihi Gorge yielding, say, 9,000 brake horse-power for a minimum flow observed, but which may be too high. Only the low-water flow of the Opuha would be available, as the conditions are not favourable for storing water at the junction of the Opuhas.

A survey was made for a line of conduit to divert water from the Tengawai into the Opihi. To do so would increase the power available, but the cost of the conduit would be considerable. No account has been taken of this stream in the figures given above for the power available at the Opihi Station.

Some additional information was obtained during the progress of these surveys as to the possibility of bringing the water from Lake Tekapo into the Opihi. This is possible by driving a tunnel about 9¾ miles long. The last two miles would be accessible by adits. From the end of this tunnel to Ashwick Flat a fall of up to 840 ft. would be obtainable, and power to over 400,000 brake horse-power and a further 150,000 brake horse-power if the water were utilised again at the Opihi Gorge.

It may be interesting to record here that in Sweden, as in New Zealand, a law has been enacted making all water-power the property of the State, and a substantial royalty is proposed to be charged in cases where private persons are allowed to utilise water-power. It is believed that the development of water-power plants in the Scandinavian Peninsula will result in a great trade in products manufacturable by hydro-electric processes, &c., such as soda, chlorates, nitrates, calcium-chlorites, iron, &c.

Norway has made a law that half of all capital employed in Norwegian water-power schemes must be Norwegian, and the management of all works be in the hands of natives