

As the bulk of the Christchurch power would naturally be taken from the cheapest source of supply, the dual scheme appears to be the better for this as well as for the reasons given above.

TEVIOT.

This is the largest scheme available near Dunedin, and is distant about seventy miles by the shortest route for a transmission-line; but the longer route *via* Beaumont, Lawrence, Milton, Mosgiel, and other smaller centres would probably be the better one to follow, as, in addition to facilities for carriage of materials for the transmission-line, considerable amounts of power might ultimately be sold along the route.

There are four separate schemes possible along this river between Lake Onslow and the junction of the Teviot River with the Clutha. The first starting from Lake Onslow would have a conduit about 5 miles 8 chains long, giving a fall of 230 ft. and about 7,000 b.h.p. A second conduit starting immediately from the first power-house would have a length of 7 miles 60 chains, giving about 300 ft. fall and 9,000 b.h.p. A third conduit would start from the second power-house, its length would be 5 miles 54 chains, the fall about 365 ft., giving about 11,000 b.h.p. The fourth conduit would start from the third power-station, its length would be 3 miles 45 chains, including 6,800 ft. of steel pipes, the fall obtainable clear of the Clutha flood-level would be 870 ft., giving about 27,000 b.h.p. at a power-station on the left bank of the Clutha, about one mile below the Roxburgh suspension bridge. It is also possible to adopt a smaller scheme for the fourth and a larger one for the third scheme.

All four schemes together would yield about 54,000 b.h.p. on the turbine or Pelton-wheel shafts. The configuration of the country would compel some such measure as outlined to be adopted to enable all the power in this river to be developed if ever it should be desired to develop it.

It would be necessary to increase the storage-volume of Lake Onslow by raising the present dam or perhaps building a new one a little lower down, where the gorge is narrower. A dam 90 ft. high would give a lake-area of about ten square miles, the dam probably would not require to be so high as this to store all the water available from the drainage-area, which is only sixty-six square miles. An investigation as to the possibility of diverting water from other areas into the Teviot basin was made, but, though possible, this appears to be too costly.

The fourth scheme of those outlined above is the only one having interest at the present time. The conditions are favourable for the economic development of power. The cost of works, plant, transmission-lines, &c., for 27,000 b.h.p. would be £550,000.

The cost at which power could be delivered in Dunedin from this scheme for large amounts of continuous supply would be £5 per horse-power year, and for part-time supply £6 to £7 and over for intermittent and small supplies.

The scheme would supply abundant power to the principal industrial interests of Otago for a long time to come.

For a scheme to utilise all the power over part-time work—say, twelve hours on an average per day—any amount of power could be developed up to 50,000 to 60,000 b.h.p. Taking a scheme of 54,000 b.h.p. the cost would be £870,000 or more, depending on where the power was used, the cost of transmission-lines being somewhat uncertain, depending on assumptions as to points of delivery of energy.

Partial developments may be made to start with as shown below :—

—	Power and Cost.		Power and Cost.		Power now used in Districts to be served.
	H.p.	£	H.p.	£	H.p.
Kaituna	36,000	750,000	18,000	590,000	37,000
Huka	38,000	790,000	15,000	345,000	
Tauherenikau	12,000	420,000	6,000	380,000	19,000
Hutt	17,000	470,000	17,000	470,000	
Clarence	22,000	440,000	11,000	340,000	21,000
Coleridge	29,000	700,000	14,500	440,000	
Opihi	16,000	610,000	10,000	500,000	18,000
Teviot	27,000	550,000	13,500	400,000	

The larger part of the power now in use in the various districts is only worked eight hours per day.

The Kaituna schemes would not be very favourable ones for partial development, as the cost of the full-power conduits would heavily load the partial scheme. It is not clear that any scheme there would remain long partially developed, as a large amount of power is used in the Auckland district.

The Huka is the best of all schemes for partial development at first, and any scheme can be carried to full development with hardly any loss.

The Hutt scheme should be completed in the first instance.

Coleridge is a scheme that is very favourably conditioned for partial development, and subsequent completion in successive stages as the demand for power justifies.

Opihi, on account of the cost of the dam and the expensive conduit through the gorge, would not be a very favourable scheme for partial development.