

December 12: At Foxhill we took the early train to Nelson, where we arrived at 9 a.m. The balance of the forenoon we spent looking up maps and information for this district. The afternoon we spent in looking over the Maitai River.

December 14: Took the regular coach to Blenheim, which we made our headquarters for examining the rivers of the district. This occupied the 15th, 16th, and a part of the 17th. The afternoon of the 17th we went to Picton by train, and from thence by boat to Wellington, completing our tour of inspection of the most important water-powers of the colony.

GENERAL.

In visiting your colony I have brought to bear on the subject the experience of eight years devoted to transmission-work, having handled successfully every item of detail of engineering construction and operation, including hydraulic, mechanical, and electrical; also a great deal of the general business of the plant came under my care.

I took up your work thinking it would be largely similar to the growth of the Bay Counties Power Company, and with the idea that you would want to do the most work with the least money; that the needs of the colony were to be considered as a whole, and that the best interest of all was to be considered and harmonized.

It seems that there should be some focal points selected where initial work could be commenced and the maximum results achieved with the minimum of expense of time and money; in other words, to get something going and doing successful work as soon as possible. I have made a study of the localities visited with this in view. The following method of carrying out the work with reference to the twelve districts mentioned in the preliminary report is suggested:—

Wellington District.—That examination of the streams on the east side of the Tararua and Ruahine Ranges be made between Wellington and Napier to see if some place cannot be found that will yield five or ten thousand horse-power. If this cannot be found, develop Waikaremoana.

Auckland District.—See if Wairua Falls will answer; if not, investigate Okere Falls, and should they not be adequate, utilise some one of the Waikato locations.

Napier District.—Develop Waikaremoana.

New Plymouth District.—Search will have to be made in that neighbourhood for some location suitable.

Christchurch District.—Develop Lake Coleridge.

Dunedin District.—Search for a location within fifty miles where from five to ten thousand horse-power can be developed; if this cannot be found, arrange to develop the power available at Hawea.

Invercargill District.—Investigate Lake Monowai.

Oamaru and perhaps *Timaru.*—Connect them to the Hawea development; or, if that is not put through now, search for a location that will give them 5000-horse power.

Greymouth.—Develop Lake Kanieri.

Nelson, Blenheim, and Westport.—Search will have to be made for suitable places.

I have tabulated all the data obtained, and present it in the following list of the principal locations where power can be developed. This information is—

1. The name of the river or lake.
2. The drainage-area.
3. The run-off per square mile of drainage-area.
4. The storage-area. This is the area of the lakes in the watershed, and is intended to give some idea of their equalising effect on the streams.
5. The flow in cubic feet per second. In some cases this was gauged by the Government Engineers; in others the figures given were obtained by estimating from the drainage-area, and the rainfall taken from the records of the nearest station which had furnished reports, using conservative methods in each case.
6. The difference in level, in feet, to be utilised. This is usually termed the "head." This was determined—(1) from maps and railroad records; (2) by actual survey made either just before or just after our visit; (3) by aneroid-barometer readings taken at the time of our visit.
7. The theoretical amount of horse-power it is possible to develop at each locality.

We actually visited all but six of the places mentioned. These we omitted, not because of any lack of value, but because our time was too limited.

Besides the locations herein listed there are doubtless numerous places where power can be developed that have not been thought of as valuable sites. Search will have to be made to find these. For the initial development for nearly all the large places it would be far preferable to work up some smaller amount of power at a place not very far away, say within fifty miles of the large centres. Thus, while getting work started in a minimum of time and expense, you would also start the growth of the idea, and people would become more and more accustomed to the service. You would also save any long negotiation of large loans to carry out the greater work. You would be doing also what is exceedingly necessary—that is, training your own people to do this class of work.

While the cost per horse-power developed in the larger plants is very reasonable if the whole amount available is utilised, the initial interest-charge is very heavy for the plant to carry if