motor traffic and level roads, is particularly suited to the development of electric-battery traction, and its influence on local traffic problems will undoubtedly be vital and far-reaching. There are now more than 1,600 motor vehicles in the Christchurch District, consuming over 600,000 gallons of petrol, worth over £60,000 per annum, indicating generally the value of the business which is available, provided that charging-stations are established at required intervals. Such stations will become possible when the distribution of electricity becomes general throughout the Province of Canterbury.

In addition to the supply of energy, the Department has been in constant touch with manufacturers in various branches of industry with the object of assisting in introducing new processes and improving existing ones, either by electrical or allied methods. This aspect of the work is of especial importance just now owing to the necessity of manufacturing locally a large number of products drawn from countries now at war with Great Britain. For instance, a large number of locally made insulators have been tested from time to time to assist manufacturers to produce a satisfactory article. As far as the actual requirements of low tension and telephone insulators are concerned, there appears to be no difficulty in supplying what is required, and the only obstacle is a commercial one. In the local manufacture of electro-chemicals a considerable amount of investigation has been undertaken both by the Department and by the Christchurch City Electrical Engineer, which will result during the current year in several commercial products being manufactured to replace German imports.

The establishment of the Lake Coleridge works has an important bearing upon the national economy, and even the present small beginning has quite an appreciable value, which has fully justified the undertaking, and enables one in a measure to gauge the effect of water-power development on a large scale upon national efficiency. The output of energy for the last year was 4,128,000 units, and for the current year will be over 12,000,000 units. To supply this with coal or other fuel would require 27,000 tons, costing about £34,000 delivered in the bunkers, or over £40,000 in the fire. The result of one year's operation is therefore, even at this early stage, to conserve the coal-supplies to the extent of 27,000 tons per annum, and to economize labour to the extent of about a hundred men, after allowing for labour required for operating the plant, together with the labour equivalent of the capital charges, and which has been brought about by utilizing what is otherwise waste energy.

Considerable changes in staff have occurred during the year. Three men left to join the Expeditionary Forces, making, together with another man who left previous to the commencement of the financial year, four men out of a staff of nine engineers at the Lake Coleridge power-house. Three more left to take up employment elsewhere, and one was transferred to Head Office. Two men from the office staff at Christchurch have joined the Expeditionary Forces. Owing to the many changes in the staff during the year, and the fact that the plant is of a new and unusual type, and that a good deal of construction-work is in hand, the work has been carried out under the most exceptional difficulties, and has placed great strain upon the management and the staff generally, and great credit is due to them for the manner in which the service has been maintained and extensions carried out.

Electricity-supply in the North Island.

Considerable progress has been made towards determining the best methods of providing for a general supply of electricity throughout the North Island. The succession of dry seasons which has been experienced has caused serious shortage of water to several of the smaller water-power schemes which have been put in by various local authorities, and previous estimates of the power available at various sources in the North Island have had to be modified on this account. With the knowledge of the flows during the last two dry summers, the various schemes possible for a general supply to the North Island outlined in previous reports have been revised, and at present surveys and investigations are being made to decide the relative merits of two general systems of supply. One system involves the concentration of the whole generating plant in one large station at Lake Waikaremoana or one of the larger Waikato schemes. The other proposal is to supply the whole Island from three smaller conveniently situated sources for the time being, and ultimately, when the capacity of these stations is exceeded, to link up their various distributing systems with one of the large central generating schemes outlined above. These three stations would then become standby plants, and their possession would overcome the risk of interruption on the long transmission-lines, which is the chief objection to the adoption of the single generating-station from the outset.

With this object in view a survey of the Aratiatia Rapids and Huka Falls on the Waikato River has been made, a survey of the Mangahao River has just been completed, and surveys are being organized for work on the Waikato River above Cambridge, and at Lake Waikaremoana. In all these cases the surveys are being conducted on lines calculated to give the exact information required to fully outline a scheme in the most expeditious manner and with the least possible expense. These surveys and investigations have indicated that some of the schemes previously outlined require modification, and that others which had not been previously fully investigated are among the best in the Island. Further investigation of these sources, and a good deal of survey-work on transmission routes, is required before a definite pronouncement can be made as to the best scheme or schemes to be developed for the most economical method of supplying electric power to the North Island.

Water-power Licenses.

Water-power licenses have been issued to the following: Edward Parker, Blenheim; J. Gilbert, Hundalee; Moslyn Trevor, Ohakune; A. J. Cameron, Makuri; L. Jones, Wairakau, Te Aroha.