

0.08 h.p. per head. The demand over the whole Dominion of Canada is 0.31 h.p. per head. The relative proportion of industrial to agricultural industries in New Zealand will be approximately the same as in Canada, and the provision of 0.2 h.p. per head is thus a comparatively conservative provision.

On this basis the allowance, based on the 1916 census, is 130,000 h.p. for the North Island and 90,000 h.p. for the South Island. Allowing for transmission and distribution losses and for normal increase, the total power now required is 160,000 h.p. for the North Island and 110,000 h.p. for the South Island. The Government Statistician forecasts a population of the Dominion in 1930 of 1,573,000, which on the one-in-five basis indicates a demand of 300,000 h.p. delivered, about 180,000 for the North Island and 120,000 for the South Island, plus the necessary allowance for standby plant and transmission losses.

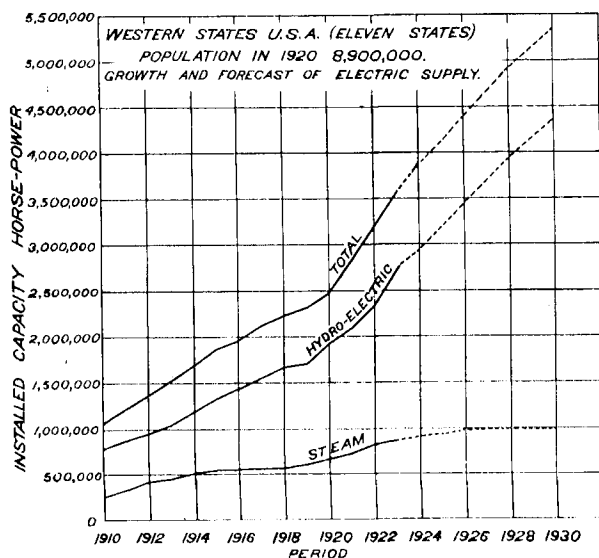


FIG. 3.

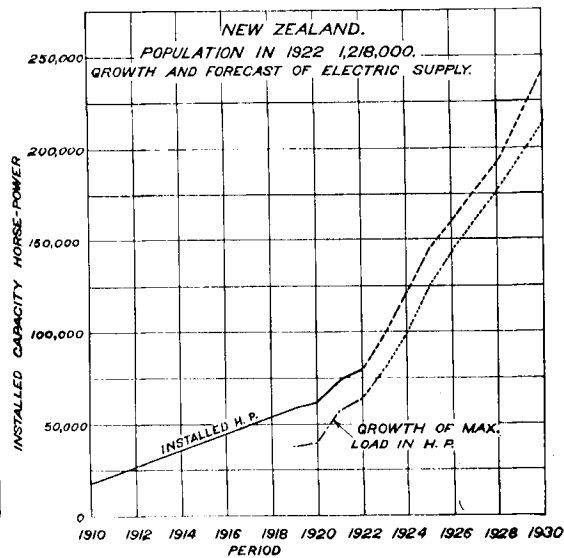


FIG. 4.

The curve shown in Fig. 3 gives the output of electric power in the eleven western States of America in which the conditions are generally fairly comparable with those in New Zealand, and a forecast to 1930, based on developments actually in hand (*Journal of Electricity*, vol. 46, p. 601). Fig. 4 gives similar curves for New Zealand, the forecast up to 1926 being based on actual commitments and to 1930 on the development in view. This gives the following results :—

Year.	Horse-power installed.	Estimated Population.	Horse-power per Head.
1921	74,000	1,218,000	0.061
1922	79,000	1,273,000	0.062
1924	122,000	1,342,000	0.091
1925	146,000	1,378,000	0.106
1926	160,000	1,415,000	0.112
1928	190,000	1,492,000	0.127
1930	240,000	1,573,000	0.156

The forecast of the development is conservative, and will still leave in 1930 an unsatisfied demand of 60,000 h.p. In fact, based on the experience in Canada and the Western States of America, a much larger development is required than is included in the present programmes of the Government and the present local authorities.

ELECTRO-CHEMICAL INDUSTRIES.

Apart from the normal development of the general systems of electric-power supply, the main justification for the development of the largest and most economical sources of New Zealand will be the establishment of large electro-chemical industries taking 10,000 h.p. to 30,000 h.p., such as the alkali and nitrate industries of Norway and Germany, or the zinc-extraction and carbide industries of Tasmania. There are several sites in New Zealand, particularly on the western fiords of the South Island, quite as favourably situated for such industries, and it is important that these should be surveyed and the results advertised abroad, from whence the capital for these industries will come.

LAKE COLERIDGE ELECTRIC-POWER PLANT.

The year under review is the seventh year of operation, and, in spite of the fact that serious turbine troubles developed, necessitating the calling into service of the steam standby plant, and entailing a period of restricted service, a small credit balance is shown after paying operating and capital charges. The year was again abnormally dry, but lake-level conditions were steadily improved as a result of temporarily diverting a portion of the Harper River into the lake (Fig. 6). Insulator troubles are still unduly frequent, but a decided improvement is shown as the original stock is weeded out and replaced by later designs of insulators. The plant operated under heavy overload throughout the year.