

In Tasmania the Government hydro-electric scheme offered much valuable information, as the details of the development are similar in many ways to our own developments. The Great Lake dam is a multiple arch dam of twenty-nine spans of 40 ft each, and a maximum height from foundations of 80 ft. The area of the lake is 50 square miles, the watershed 216 square miles, and the capacity of the dam at 11 ft. draw-off is 315,000 acre-feet. The pipe-lines, both wood-stave and steel, are special features. The four wood-stave pipe-lines are each over a mile long, and run down to a maximum head of 400 ft., the pipes being 4 ft. and 5 ft. in diameter. The steel pipes are gas-welded pipes with muff joints, and the total head is 1,130 ft. or 480 lb. pressure. The power-house is equipped with nine pelton wheels and generators, of a total capacity of 66,000 h.p. The transmission-lines to Hobart are carried on two lines of double-circuit steel towers, a distance of sixty-two miles, at a pressure of 88,000 volts.

Many of the details of construction and experiences of operation gained in Tasmania will be of the utmost value in putting the new lines into service here. The two main consumers of the power are the Electrolytic Zinc Company, who are now taking 15,000 h.p., to be increased under contract to 30,000 h.p., for zinc-refining, and the Electrona Carbide Works, now taking 2,500 kw. to be increased to 5,000 kw., for the manufacture of carbide of calcium. The huge carbon electrodes for the carbide-furnaces are each 20 in. by 15 in. by 7 ft. long, and are made on the premises by means of a 3,000 ton press. In the trials of electro-chemical industries in Christchurch during the war the production of the necessary electrodes proved the main stumbling-block.

In addition to the above main works numerous smaller works and industries were visited and noted in detail.

In addition to the opportunity of visiting engineering and industrial works, the visit enabled me to get into direct touch with the development and organization of electric-power supply and distribution under four distinct systems of control, viz.: (1) By a branch of the Public Works Department in New South Wales; (2) by a special Government Department set up for the purpose in Tasmania; (3) by a special Electric-power Commission responsible direct to Parliament in Victoria; (4) by private enterprise in South Australia. All four are meeting a very large demand, and facing such developments as are before us in New Zealand, and the organizations which are actually meeting the demand most effectively are the Electric-power Commission of Victoria and the Hydro-electric Department of Tasmania.

The visit proved most valuable, and it is very essential that the members of the staff engaged in the detail design and layout of the hydro-electric works should have opportunity from time to time of making similar visits to the corresponding works being carried out in other countries, particularly America, Sweden, and Switzerland.

STAFF.

The hydro-electric work of the Dominion has developed rapidly, and the present staff deserve the highest commendation for the loyal and efficient manner in which they have coped with extra duties; but the personnel will have to be materially supplemented to maintain the efficiency that is imperative with the growth of this important work. A few additions have been made, and two officers made prolonged visits to America for the purpose of gaining experience, with most satisfactory results. However, urgent work is waiting to be done, and it will be necessary to obtain additional experienced officers in this class of work at an early date.

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