

assess the water resource potential of the Pend d'Oreille River and many of the smaller tributary rivers such as the Okanagan-Similkameen, Kettle, Incomappleaux, Beaton, Lardeau, Duncan and Goldstream Rivers. Possibilities of sub-basin and trans-basin diversions were also investigated and very extensive programmes of sub-surface investigations, geological and topographical mapping, and water supply studies were undertaken. Approximately one hundred different combinations of projects were studied by the Water Resources Branch of the Federal Government alone during the course of investigation.

2. "Best Plan" for Power in Canada

As the investigations continued the process of elimination resulted in the adoption of sites on the Columbia River at Luxor, Calamity Curve, Mica Creek, Downie Creek, Revelstoke Canyon and Murphy Creek. Together, projects at these sites could develop over 90 per cent of the total head of 1,350 feet available between the headwaters at Columbia Lake and the international boundary. A further 44 feet of head could be developed by a dam at the outlet of Arrow Lakes, but it was apparent even in these early studies by both government and consulting engineering firms that the great value of the Arrow Lakes site was the important role it would play in a plan of cooperative river development with the United States and particularly in promoting the effective use of Canadian storage farther upstream for production of power in Canada within such a cooperative arrangement.

In the Kootenay River basin in Canada where five main stem plants already produce power which is used to a very considerable extent by the industrial complex in the Trail area, project sites were selected for final study at Canal Flats, Copper Creek, Bull River and Dorr on the main stem and Duncan Lake on a tributary stream entering Kootenay Lake from the north. Consideration was also given to the streamflow regulation that could be provided by development of the proposed Libby project in the United States. The Libby reservoir would provide regulation of the Kootenay River flows which would justify the construction of a new plant on the West Kootenay reach of the river in Canada. This new "Kootenay Canal Plant" (not to be confused with the Canal Flats diversion) would utilize, by means of a by-pass canal, the head between the forebays of the existing Corra Linn and Brilliant plants.

It became apparent during the studies that the economics of the high cost dams in the East Kootenay Valley in Canada could be improved considerably if the projects were used for diversion of Kootenay water into the Columbia River across the low divide at Columbia Lake (see Plate 3). In this way, it would be possible to use the Kootenay water through a much greater total head on the Canadian Columbia than is available on the Canadian Kootenay itself.

Such diversions of the Kootenay River however, would not only flood large land areas and require the relocation of settlements and transportation routes, but it would reduce the flow of water to the Consolidated Mining & Smelting Company (Cominco) plants in the lower