ample room is thus provided for substantial framing on which to carry the high tension leads.

Two 725-kilowatt units and a 1,200-kilowatt unit are in operation in the power house. Two 1,200-kilowatt units, with accompanying wheels, may be substituted for the two 725-kilowatt equipments as installed at any time, if desired, without necessitating changes

Figure 3.—Rear View of Power House Showing Draught-Tube and Tail Race.

in the power house. These generators are of the standard General Electric revolving field type, as built by the Canadian General Electric Company, as is also the entire electrical equipment of the whole installation, with the exception of the induction motor operating the War Eagle hoist at Rossland, which was built at the Schenectady works of the General Electric Company. The generators run at 180 revolutions per minute, have forty poles, and deliver 60-cycle, three-phase current at 1,100 volts delta. Underground waterproof ducts carry the generator leads to the switchboard, which consists of three exciter panels, three generator panels, three transformer panels, and four line panels. Nothing of novelty is imparted in the switchboard, as all instruments, appliances and methods are of standard General Electric varieties. It is interesting to note that at the outset considerable difficulty was experienced in synchronizing the generators, but the trouble was finally located as being due to the fact that the slip-rings on the revolving fields were out of true one-eighth of an inch. Rotation thus introduced a varying resistance in contact between the brushes and slip-rings which, though imperceptible in the voltmeter and ammeter readings, made synchronizing an uncertain performance. However doubtful station engineers may be that the trouble experienced was due to the cause ascribed, it is certain that after the slip-rings were turned down no further difficulty was encountered in synchronizing, which is done with perfect ease under a variation of 200 amperes.

Ducts placed under the floor carry the leads from the transformer panels to the step up transformers. There are twelve of these, each having a capacity of 282 kilowatts and wound for 1,100 volts on the primary with either 11,620 volts, 20,100 volts on the secondary, according to whether delta or Y. The higher potential of 20,100 volts is delivered to the line.

It is the opinion of the writer that if it had been the general custom to install air-blast transformers in the manner adopted by the West Kootenay Power and Light Company and to have maintained them under the same care and attendance as the Kootenay company is administering to the air-blast transformers in its installation, a greater degree of success would have attended their use than has been the experience of a few of the many transmissions which have adopted them. More detailed reference to this matter will be given in describing the step-down transformer installation at the Rossland sub-station. In this transformer house, three 60-inch Buffalo blowers, together with the two horse-power, 110-volt induction motors from which each is driven, are placed under the platform forming the floor of the transformer house. These blowers furnish an air blast to the transformers through large ducts or tunnels after the manner and for the purpose to be described later. The high tension circuits are led from the transformers to porcelain insulators placed on

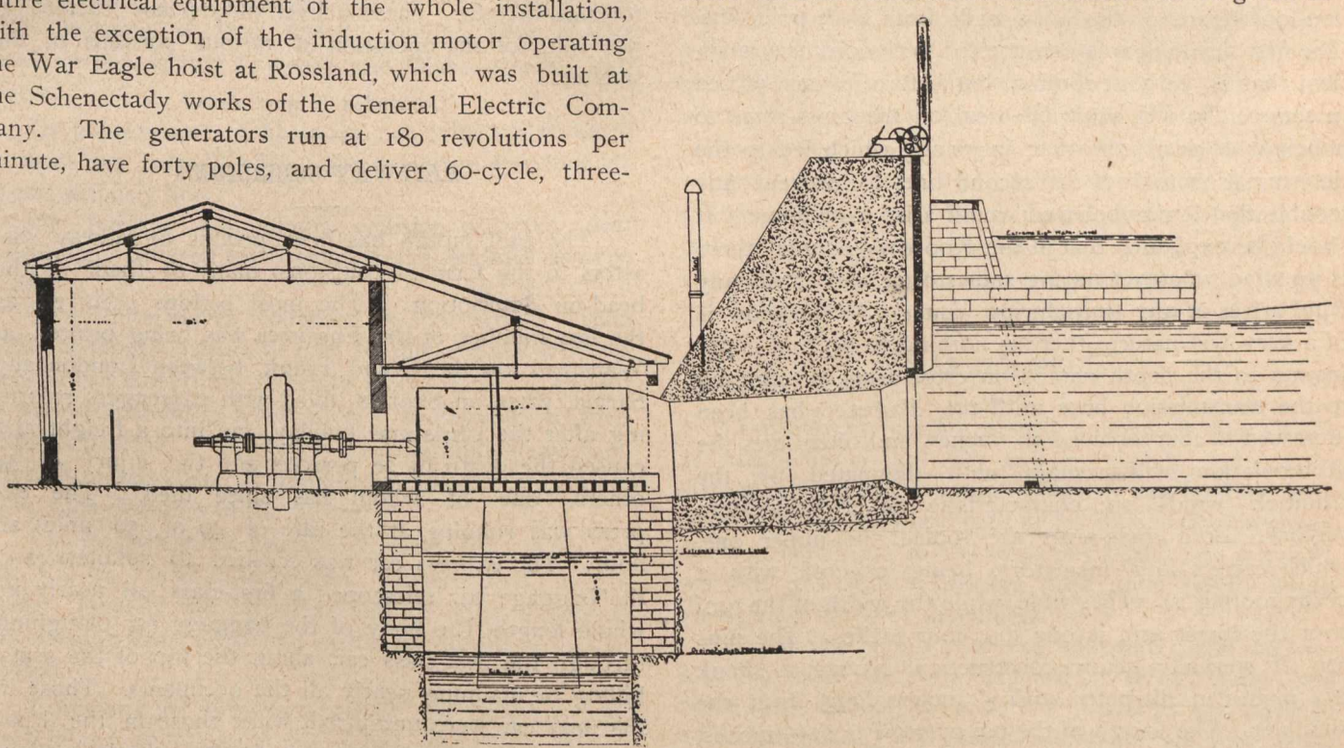

Figure 4.—End View of Power House, Tail Race and Dam.