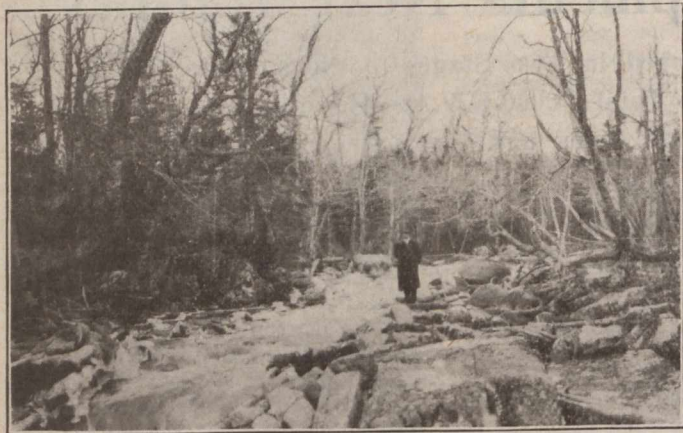


allowance cannot properly be made with accuracy, the run-off assumed for the Indian River, 35 ins., is also assumed to be assured for the Northeast River, as the conditions in the two watersheds are practically identical. With a watershed of 35.5 sq. mi. and run-off of 35 ins. over the drainage area, the Northeast River will discharge 91.57 sec. ft. With a watershed area of 68 sq. mi., the Indian River will discharge 175.4 sec. ft.

By the use of three lakes in the Indian watershed, a storage capacity of 45,300 acre-feet can be secured, or suf-



NORTHEAST RIVER, FLOW IN JANUARY, 1912

ficient to take care of a continuous discharge of 180 sec. ft., or slightly in excess of the dependable flow, without developing other smaller basins that can be utilized in the future if required. In the Northeast watershed, Wright's and Pockwock lakes will have a combined capacity of 29,200 acre-feet, or more than ample to maintain the flow of 91.57 sec. ft.

It is proposed to develop these rivers in three plants, as follows:—

No. 1, the Mill Lake plant, will be located on the Northeast River 500 ft. upstream from Mill Lake. Its head dam will be at the foot of Coon Pond, from which the water will be carried by a 6-ft. wood-stave pipe line 3,500 ft. long. The net head will be about 156 ft.

No. 2, the Sandy Lake plant, will be an extension of the Mill Lake plant and will be housed under the same roof, but hydraulically it will be an entirely separate plant, as



INDIAN RIVER AT FOOT OF SANDY LAKE

it will receive its water from a head dam at the foot of Sandy Lake, in the Indian watershed, through a 7-ft. wood-stave pipe line 6,000 ft. long. The net head will be about 97 ft.

No. 3, the Tidewater plant, will be built on the shore of St. Margaret Bay and will receive its water from a head dam at the foot of Mill Lake, through a 10-ft. wood-stave pipe line 3,500 ft. long. The net head will be about 91 ft.

At the present only plants No. 1 and No. 3 will be built, although the foundations and tail-race excavation for plant No. 2 will be completed. In order to divert the flow of Indian River to No. 3 plant prior to the construction of No. 2 plant, a dam will be built at the foot of Little Indian Lake and a cross-over channel will be cut from Little Indian Lake to Mill Lake, the latter being at a lower elevation. This dam and channel will be useful even after the construction of plant No. 2, to divert to Mill Lake the drainage of the Indian watershed below the Sandy Lake dam. It will be noted that in the final development, the water of both the Indian and Northeast rivers will pass through two plants, as Mill Lake, which will be head pond for plant No. 3, will also be the tail-water for plants No. 1 and No. 2.

The watersheds above the head dams for plants No. 1 and No. 2 are respectively 33.89 sq. mi. (Northeast watershed) and 66.4 sq. mi. (Indian). Making allowance for this difference as compared with the 35.5 and 68 sq. mi. that the watersheds measure above the points previously assumed (Halifax & Southwestern crossings), the regulated flows are estimated at 85 and 171 sec. ft. respectively. Plant No. 3 receives the combined run-off of the whole of both watersheds or 267 sec. ft. The utilization of these flows at the net heads previously mentioned, which will obtain under average conditions of operation, will warrant the installation of two 1,600 k.v.a. units in plant No. 1, two 2,000 k.v.a. units in No. 2, and two 2,900 k.v.a. units in No. 3. The



ST. MARGARET BAY

capacities of the turbines will be respectively 1,900 h.p., 2,375 h.p. and 3,450 h.p. The units will be of the vertical type. The total installed capacity will be 13,000 k.v.a. Each plant will have its own turbine-driven exciter.

The output of plants No. 1 and No. 2 will be transmitted at the generating voltage (13,200 v.) to the Tidewater generating station, which will be the master, or control station, and, from there it will be transmitted, along with the output of plant No. 3, by two lines to a receiving station in Halifax, from which it will distribute at the same voltage. Tenders are now being received for the construction of this receiving station.

The present construction work will include two power dams,—at Coon Pond and Mill Lake. The Coon Pond dam will be 24 ft. high (maximum) and 350 ft. long. It will be mass concrete, with overflow weirs and sluices, and will provide the intake for the wood-stave conduit. The intake will contain trash racks, water control gate, etc., and will be housed. The pipe line to the Mill Lake generating station will be on timber cradles on a graded route, and at the station there will be a differential surge tank.

The Mill Lake power dam will be built a short distance above the railway bridge. It will also be mass concrete, with overflow weirs and sluices and intake for the conduit leading to the Tidewater plant. This dam will be approximately 20 ft. high (maximum) and 450 ft. long.