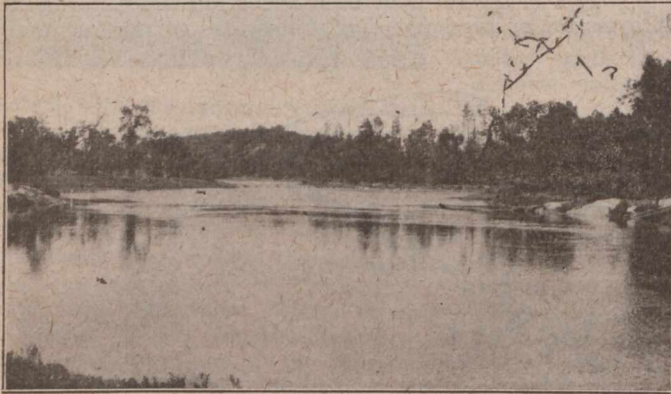


EXCAVATION FOR CANAL, LOOKING DOWNSTREAM

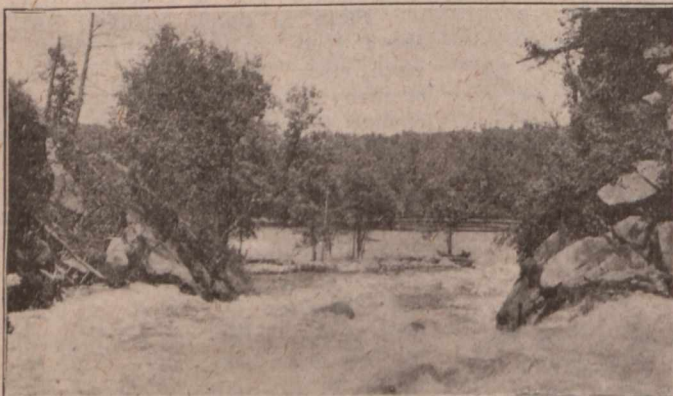
proportion to the power developed. The Improvement Co. has acquired the necessary flowage rights on the various lakes. The chief storage dams are those at the outlets of Cross, Gull and Long lakes, and are rock-filled timber cribs. There is also a pondage area of over 500 acres behind the new concrete dam that is being built at High Falls by the "Hydro," this dam also increasing the available head by approximately 12 ft. The "Hydro" purchased the power site at High Falls two years ago from its private owner. The "Hydro" was already a member of the Improvement Co., on



LOOKING UPSTREAM ABOVE DAM SITE

account of its ownership of the Carleton Falls plant further down the Mississippi river.

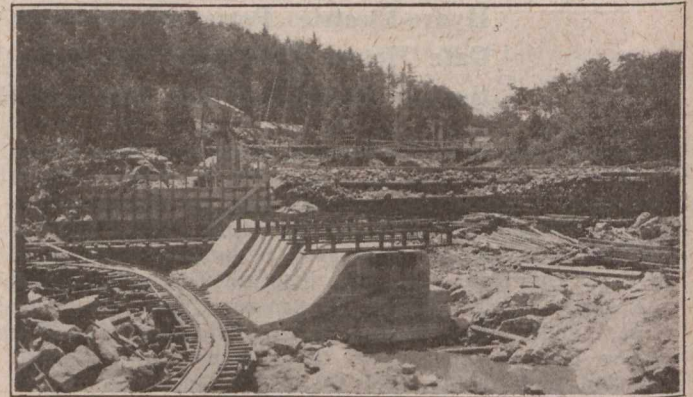
The accompanying general plan of the development indicates that the concrete dam at High Falls consists of a sluiceway section 76 ft. long, flanked on the south by an overflow section 104 ft. long, and on the north by a gravity section 112 ft. long, and terminating at the south in a core-wall section 38 ft. long and at the north in a core-wall section 140½ ft. long, the north core-wall section being sealed to the gate house by a wing wall 40 ft. long.



LOOKING DOWNSTREAM BELOW DAM SITE

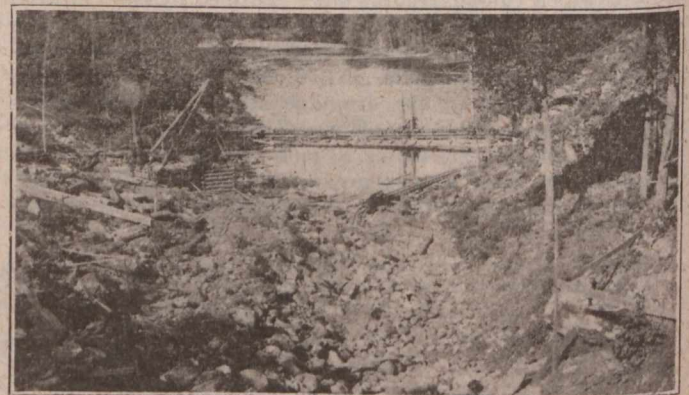
The total length of the dam and wing wall is about 510 ft. This is about the correct length of the whole dam as constructed, but since the lay-out was made from which the accompanying general plan was copied, the dam was located slightly further upstream, with a consequent lengthening of the overflow section and a shortening of the northern core-wall section. The overflow section as constructed is also more nearly on a straight line with the remainder of the dam than is indicated by the accompanying general plan.

The four sluiceways each have a 14-ft. clear opening. Each of the four rollways is 8 ft. 7¼ ins. wide at top, with a batter of 9 in 12. The reinforced concrete deck is 17 ft. 4 ins. wide. The height of the top



PORTION OF SLUICWAY SECTION OF DAM, SHOWING THREE OF THE FOUR ROLLWAYS

of the deck above the base of the dam is about 26 ft. for sluiceways Nos. 1, 2 and 3, and about 22 ft. for sluiceway No. 4. The clearance from the top of the rollways to the deck is 14 ft. 2 ins. The deck is 10 ins. thick. The piers have a batter of 7½ in 12. The overflow section has a top width of 4 ft. 5½ ins., and a batter of 7 in 12. The gravity section has a top width of 3 ft. and a batter of 7 in 12. The core walls have a maximum thickness of 2 ft., and a minimum thickness of 1 ft. The rock fill is 6 ft. wide at top and has



POWER HOUSE SITE BEFORE UNWATERING, LOOKING ALONG PIPE LINE

a 1 to 1 slope on each side. The whole dam rests upon a rock foundation.

A canal, or intake channel, has been excavated for a distance of about 247 ft., extending upstream from the gate house at the north end of the dam. After the removal of the cofferdam that was built in order to divert the flow of the river and so unwater the site of the dam, this channel will be entirely under water excepting for a distance of 150 ft. from the gate house. The bottom of the canal is 8 ft. wide, and the sides are sloped 1½ to 1. The bottom and sides are protected by riprap excepting where they are in solid rock. The bottom of the canal is level for 100 ft. from the