

Electric Fountains for the Pan-American Exposition.

BY ORRIN E. DUNLAP.

HENRY RUSTIN, chief of the mechanical and electrical bureau of the Pan-American Exposition, is in receipt of the plans for an electric fountain which is to be located on an island to be built in the North Bay, a section of the Buffalo Park lake system. It is a beautiful body of water, and has been included within the limits of the Exposition grounds. It has a width of about 800 ft., while its length is about 900 ft. The banks surrounding it are thickly wooded and about 28 ft. high. They slope gradually to the water, and in their height and forest growth they will serve as a most appropriate setting for such a display as that proposed in connection with the electric fountain. While there will be water and light effects in and about the electric tower and the adjacent basins, there will be no other spectacle that will be called an electric fountain, and it will remain for the North Bay to have all the glory connected with this magnificent display.

At present there are no islands in the North Bay, but to provide the necessary accommodations for the fountain an island is to be built 160 ft. long, 80 ft. wide and 10 ft. above the water level. It will be constructed of rock, and its form will be quite irregular. The entire interior of the island will be a submerged chamber in which the necessary installation and operators will be located. The rock will be whitened on the rough sides in order that better light effect may be obtained, but in no feature will the island construction be such as to in the slightest mar the beauty of the scene by day. In the daytime the island will appear as a rock-bound shore, quite in keeping with the bay and woodland surroundings.

The intention is not to have it in constant operation, but each evening for about 25 minutes. It will commence at a specified hour, in order that all who care to see it may be on the wooded shore. The evening displays will be varied night after night, in accordance with a previously arranged programme. There will be nine different piping systems, each of which will be controlled by operating levers, which will permit of from 100 to 150 combinations of light and water effects. There will be a total of about 102 fountain orifices and 22 holophote orifices. The individual jets making up the several combinations will be grand geyser, ring curtains, ring jets, wheat sheaves, geysers, lily jets, pulverizers, fan jets and mist banks.

The grand geyser jet will be located approximately at the center of the fountain. It will throw a 1½-in. solid stream perpendicularly 250 ft. in the air. It will be unbroken. At certain periods of the programme the grand geyser jet will be the center of a mammoth pyramid of water in motion, while in other water figures, which will appear on the programme, it forms a jagged outline not unlike a pine tree in shape. The ring curtains when in operation with other jets will form a cylindrical figure of water cut off at the top evenly by the limit of the force given to the jets by the operating valves. The ring jets of the electric fountain will be not unlike the ring curtains, except that the individual jets are farther apart and each orifice maintains its pillar of water to the highest point of projection without breaking, thus giving, when illuminated, an appearance of threads of light thrown vertically in the air.

The wheat sheaves will be of the form their name indicates. In height they will be of a most impressive beauty, and the proper outline will be carefully adhered to. The geysers will be similar to the giant geyser, but not so large, nor will the jet rise to the height of the grand geyser. In the lily jets all the purity of the calla lily, together with its beauty, will be portrayed. These water flowers will be 14 ft. high, approximately. The pulverizers will throw the water in pulsating vertical streams to a height of 25 ft. These streams will be intermittent in their action and automatically controlled. The fan jets will be all that their name suggests. The figures will be 15 ft. high, and 20 ft. in extent at the top. By means of the mist banks the whole surface of the electric fountain will be covered with a very dense mist formation.

All of the different effects of both light and water will be controlled by the operators in the submerged chamber. When certain levers are pulled by the water operator to give specified water effects on the fountain surface, the programme that the operator of the lights will play will correspond in every particular, so that the switches he will throw will cause the proper light and color effect to fall upon the water effect. Each will have his programme before him, and each will play his part on time. The lighting of the fountain will be accomplished by 22 projectors so arranged that they can be diaphragmed

and focused at will. The searchlight to be used will be the regular fountain projector lamps of 22-ampere capacity, and they will be supplied by Mr. Charles J. Bogue, of New York City. There will be 22 color screens in the form of circular disks, each having the primary colors, and these colors will be projected on the different water effects when in operation. The light will reach the water display through the holophote openings, which will be equipped with clear glass plates, varying in size from 30 in. up. The glass of these openings will be so arranged as to make an absolutely water-tight joint, so that it will be impossible for water to find its way through them to the operating room.

The operating chamber proper of the fountain will be located below the central portion of the fountain deck. In this chamber will be located two pumps which will be supplied by the P. H. & F. M. Roots Company, of Connersville, Ind. One of these pumps will have a capacity of 3000 gallons per minute, with a pressure of about 50 lbs. The other will have a capacity of 600 gallons per minute, with a pressure of 150 lbs. The pumps will be located on the north side of the chamber, and will take their supply direct from the bay. The larger pump will supply all the fountain orifices with the exception of the grand geyser, the orifices of which will receive its water from the smaller pump and under the greatest pressure, which is, of course, necessary to force the solid stream 250 ft. in the air. In this chamber there will also be a 500-volt, direct-current motor of Westinghouse make. This motor will operate the countershaft which will be belted to the pumps. The current for operating the motor-driven pumps will be obtained from the 500-volt circuit provided for use of motors on the Exposition grounds, and will come from the service plant. The current for operating the lamps will be derived from a motor-generating set, to be furnished by an exhibitor, as yet unannounced. This motor-generating set will be located in an artistically designed booth on the west bank of the North Bay.

The direction of the Electric Fountain Island will be southwest by northeast, and it will extend full in front of the New York State Building, but it will be possible to get a good view of it from all the surrounding points. Mr. Luther Stieringer, who has had more electric fountain experience than any other man in the world, is the consulting electrical engineer of the Exposition.