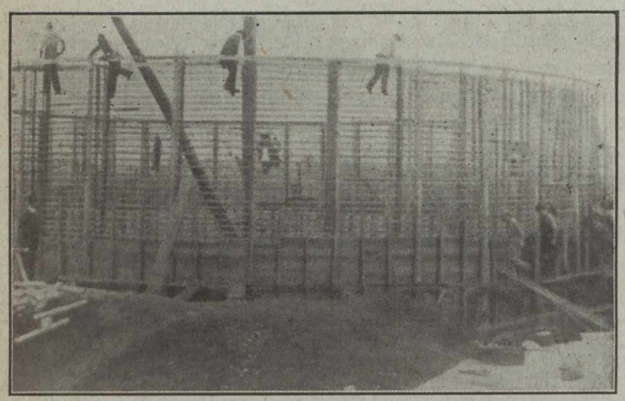
in their circumferential flanges to receive the connections for the horizontal reinforcement bars.

The location of this reservoir was on ground higher than the surrounding country, where strong winds were quite common. For that reason the forms were fastened rigidly to the steel framework and the entire wind stress was transmitted through them to the anchorage of the angles in the foundation blocks.

Wall Forms.

A ring of 2 x 10-in. plank cut to a radius of 37 ft. 5 ins. was laid flat and doweled to the floor on the inner side of the wall footing. On this were seated 4 x 4-in.



Assembling Reinforcement Steel in Advance of Form Construction.

vertical studs 3 ft. apart on centres with 1-in. matched flooring boards nailed to their outer faces and to the outer face of the circular ring, to make the inner concrete form. The outer form was similar except that the boards overlapped the vertical shoulder of the wall footing and the circular plank was laid on radial 2 x 4-in. pieces doweled to the footing.

The outer and inner forms were braced and connected at intervals of 5 to 10 ft. by horizontal 2 x ¼-in. steel bars set on edge with their ends bent at right angles to make flanges secured by horizontal bolts passing through the vertical studs on the outer faces of the forms. These bars were punched with holes to receive bolts through the flanges of the vertical angles and held them in position at the proper spacing.

Assembling the Reinforcement.

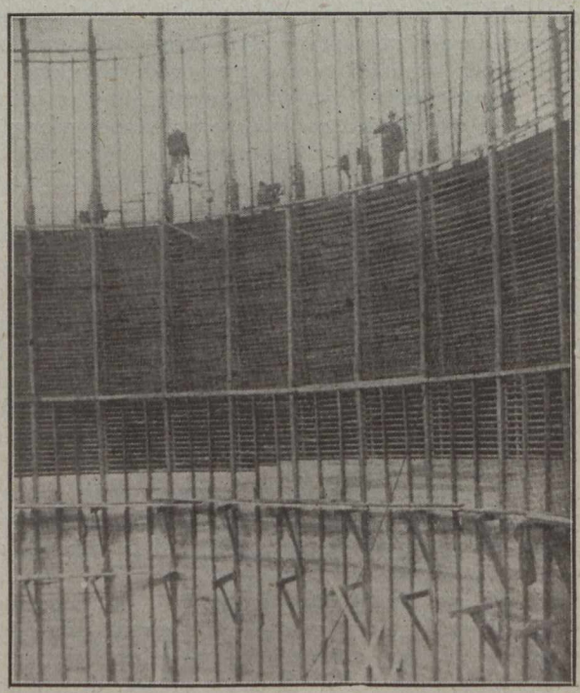
The lower sections of the vertical angles were set in place in the sockets of the concrete blocks and the concrete footing was cast around them, giving them abundant stability and rigidity. The upper ends were bolted to the radial facing bars and were spaced circumferentially by temporary wooden strips which held them securely until the footing concrete was placed.

The reinforcement bars in 50-ft. lengths were sprung to position in contact with the vertical angles and were spliced to make continuous circles with overlaps secured by three Crosby wire clips, making an expensive connection which the contractors believe might have been easily replaced by longer laps, without the clips. Soft steel ⅜-in. rods with one end upset so as to form a head and making pieces similar to long button head rivets were put through the open holes in the vertical angles and formed supports on which the circular reinforcement bars rested. The ⅜-in. rods were then bent to U-shape enclosing the circular bars and holding them tight against the angle bars.

After the circular reinforcement bars were assembled, the inside and outside forms were built from the bottom up and bolted to the horizontal bent radial bars.

Both reinforcement steel and form timber were handled by a derrick installed in the centre of the reservoir with a round timber mast 85 ft. high and a somewhat shorter boom both made of local timber. The mast was guyed with very long ropes, making angles flat enough to clear the top of the reservoir and allow the boom to swing over it in a complete circle.

After the forms were boarded up to the top of the vertical studs, the latter were extended by additional sections spliced to them, a second row of inside and outside brackets was nailed to the studs to carry tackles for working platforms, and the assembling of the reinforcement was continued. Additional lengths of angles were spliced to the lower sections and braced circumferentially and radially as before and the circular reinforcement bars were assembled and cast as already described. The inner and outer forms were then built up again to the top of the studs, and so on, both operations being repeated to the top of the wall. None of the forms were shifted or used twice, this method providing for continuous complete forms from top to bottom on both the inner and outer faces of the wall. It is obvious that the form gained little strength from the uprights, but the rigid steel framework to which the sheeting was bolted made the form monolithic and prevented any perceptible movement in high wind. The uprights were merely bearing strips assisting the bolts in holding the sheeting. The decision to build a complete form instead of lifting sectional forms was based on the wishes of the engineers that it be done in that manner, and the price of the lumber used, which was a high-grade for such work, being but $10 to $12 per M. There was approximately 100,000 ft. of lumber used, the salvage value of which, for other work



Interior View of Reinforcement and Scaffolds.

outside of the lumber region, was considerably more than the cost of transportation. It is the opinion of the contractor that there was little difference in the cost of form work, whether sectional form method was used or the method which was adopted. The steel frame work in-