

HEAD HOUSE AND BUILDINGS AT ROCK CREEK SHAFT.

## AQUEDUCT TUNNEL

Work on It Being Rapidly Pushed by Col. Miller.

## REPLACING THE BAD WORKMANSHIP

A Star Reporter Makes a Trip Through Some Sections.

## WORKING UNDER DIFFICULTY

Work on the aqueduct tunnel is being pushed rapidly, 350 men working in eight-hour shifts night and day. Prospects are that the project will be completed inside of a couple of years and within the estimated limit of cost of \$850,000. When the last link is struck a notable addition will be made to the city's water facilities, and the northern and eastern sections of Washington will receive an increased flow of Potomac water.

Every Washingtonian remembers the famous "Laydecker tunnel," that great cavern under the city, stretching from the reservoir west of Georgetown to the Howard University reservoir, just south of the Soldiers' Home, a distance of four miles, and which was abandoned ten years ago, when it was discovered that faulty construction rendered it practically useless.

For ten years the tunnel lay idle, filled with water and mud, the timbering of the shafts rotting and falling in. About two years ago Congress directed an examination of the tunnel by a board of experts to determine whether it would be feasible to complete the work and get some return from the large expenditures originally made.

A board was appointed, consisting of Major William L. Marshall, Capt. James L. Lusk and Capt. D. D. Gaillard of the corps of engineers, U. S. A., and A. F. Felt and Desmond Fitz Gerald, civil engineers. They pumped the water from the tunnel, cleaned out the mud and made a thorough examination, with the result that they concluded the tunnel could be utilized by the expenditure of about \$850,000. Congress authorized the work to commence and to proceed under the direction of the chief of engineers of the army.

Col. Miller's Work.

Col. A. M. Miller, corps of engineers, U. S. A., the officer in charge of the Washington aqueduct, was placed in charge of the project. He undertook the work with enthusiasm and is pushing it steadily.

He makes personal visits to the tunnel several times a week and receives daily reports from his assistants of the progress of the operations. Colonel Miller chose as his assistants and active directors, Mr. R. S. Smead, a civil engineer, who has had wide experience in tunnel and mine construction, William Green and Harry Fox, experienced day and night superintendents and John Green and Taylor Cronin, two young engineers of this city, who were put in charge of the instrument and surveying work.

The laborers on the project are hired by the day and are paid \$1.00 a day. The laborers are principally colored men, big stout, husky fellows, who do the arduous and dangerous work 150 feet below ground. Colonel Miller estimates the job a year ago last July. The first thing to be done was to pump out the tunnel, which had filled again since the examination by the board. They pumped out 27,000,000 gallons of water in three weeks, 16,000,000 gallons coming from the section under Rock creek. The rock had broken through the partition of earth and through fissures in the rock had poured into the tunnel. Most of

timbers had been thrown. All this space will now be filled with rubble masonry and the interstices grouted.

When the tunnel was thoroughly cleaned the engineers laid a railroad track its entire length upon which they run small cars to carry brick, mortar and stone. Two acetylene gas plants have been installed in the tunnel, supplying light at points where the workmen are engaged. Artificial ventilation is not needed and the only thing necessary in the way of maintenance is to keep the pumps going and prevent the water gaining headway.

A considerable portion of the tunnel,

started, making a rumble like a freight train as the echoes go rolling down the cavern and the journey through the tunnel is commenced.

The first group of workmen reached

back of the tunnel lining. By means of a

step ladder you climb through the aperture

in the roof of the arch and stand upright

in the space between the arch and the rock

roof. Several gas jets, made by a rubber

tube connection with the gas main, furnish

a brilliant white light. The rubble masonry

is being laid from the rear of the cavern

toward the manhole, and on one side

the workmen have found a cleft in the

rock, which is so low that they have to

lie on their stomachs to work, crawling

backward as they fill the hole. It is still

flung hot in these places, and the perspiration

stands out on the foreheads of the men

as they ply their tools and fit the

rock into place.

Several sections are passed where similar

operations are being conducted, the fore-

men standing on watch to see that the

city is not shocked and that the spaces are

solidly filled. When the hole is closed the

bricks are replaced in the roof of the lin-

ing and a framework set under them until

the arch is set.

Putting in the Iron Cylinder.

The Rock creek section is then reached,

where the iron cylinder is being put in, the

cylinder being cast in sections, which are

bolted together. Here the noise of the fall-

ing water is like a young Niagara, and the

men flounder around knee deep, sometimes

with little streams pattering on their backs

as they bend over to their work.

Once again a plunge is made into the

space, and the iron cylinder is being put

in. Occasionally a point of light looms up in

the darkness ahead, and a laborer, with

his miner's lamp in his cap and his face

grimy with the smoke, stands against the

wall to allow the car to pass. The tunnel

goes up grade and down, and at one point

makes a curve to the right for some un-

known reason. The original workmen

are putting down the cylinder, and at one point

much regard to level or horizontal.

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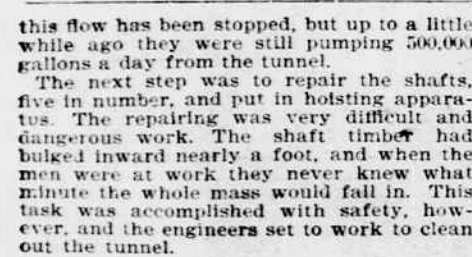
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NEW LINING SHOWING CENTERING STATION 20, CHAMPLAIN AVENUE EAST.

this flow has been stopped, but up to a little

while ago they were still pumping 500,000

gallons a day from the tunnel.

The next step was to repair the shafts,

five in number, and put in hoisting appara-

tus. The repairs were made in a very dan-

gerous work. The shaft timber had

bulked inward nearly a foot, and when the

men were at work they never knew what

minute the whole mass would fall in. This</