

**Thirty-Eighth
Annual Report**

of the

**Board of Water and Power
Commissioners**

of the

City of Los Angeles



Fiscal Year Ending June 30, 1939

Major Construction Division

H. L. JACQUES, *Engineer*

MONO CRATERS TUNNEL

ON JUNE 30, 1938, there remained 10,713 feet of tunnel to be excavated, 1,320 feet between West Portal and Shaft One and the remainder of 9,393 feet between Shaft One and Shaft Two, all of which was completed during the year.

The section between West Portal and Shaft One was holed through August 21, 1938, and the section between Shaft One and Shaft Two on April 26, 1939.

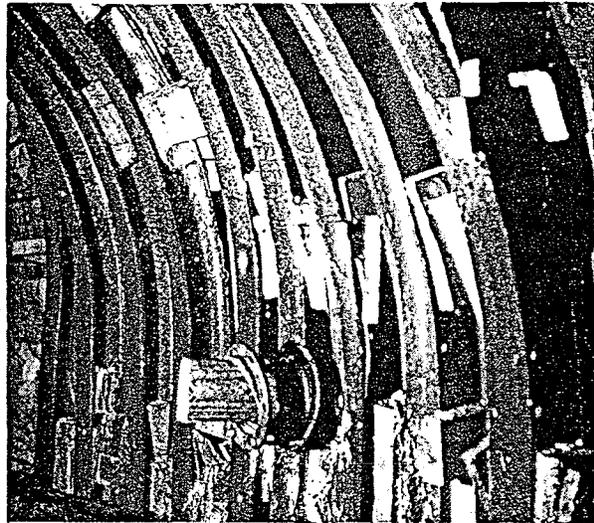
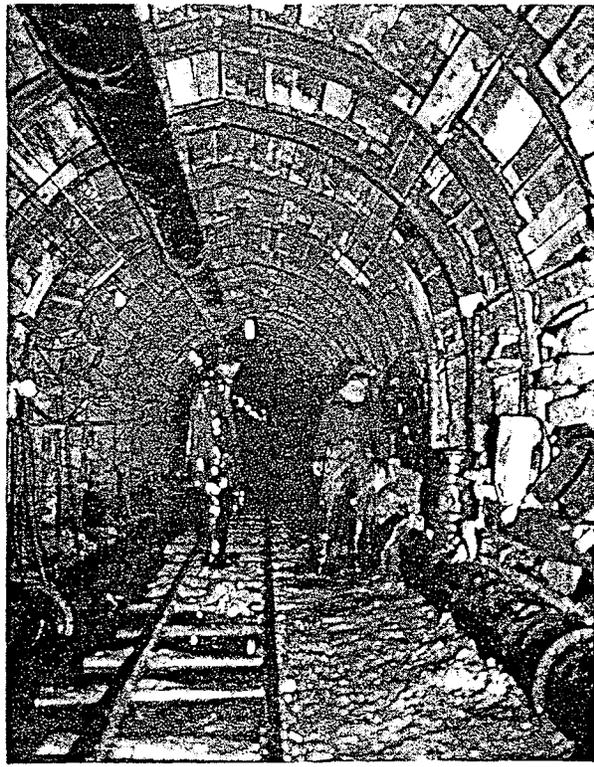
The carbon dioxide continued to flow into the tunnel at an average rate of approximately one thousand cubic feet per minute throughout the year 1938. Early in 1939 the flow began to diminish gradually and by the end of June had fallen off to about 500 cubic feet per minute.

After completing the tunnel excavation the problem of ventilation was simplified somewhat since it was then possible to remove the ventilating pipes and by reversing the blowers at Shaft Three permit the air to be drawn through the tunnel and up Shaft Three without the aid of ventilating pipes.

The amount of water to be removed from the tunnel did not decrease to any great extent after holing through. On June 30, 1938, the discharge was a little over 18,000 gallons per minute and during June, 1939, the average was about 14,000 gallons per minute.

The work of placing the concrete lining in the tunnel was begun as soon after holing through as the necessary cleanup work could be accomplished. The procedure was to place the concrete floor first and then place the arch.

On June 30, 1938, a total of 12,626 feet of floor and 12,066 feet of arch had already been placed. During the next twelve months 32,320 feet of floor and 19,521 feet of arch were placed, bringing the total up to 44,946 and 31,587 feet of floor and arch, respectively, in a total length of tunnel of 59,812 feet. The quantity of concrete in the portion already placed to that date averaged slightly over two cubic yards per linear foot.



Mono Craters Tunnel construction scenes—(Top, left) Face of Heading No. 2, showing breastboarding used to prevent run of sandy material. Photo taken eight days before holing through, which occurred August 21, 1938 at point shown directly below. (Top, right) Heavily spiled tunnel section, looking east. Heading No. 2. (Above) Sections required heavy steel tunnel supports placed nine to twelve inches center to center.