

## EXAMPLES OF CONSTANT ANGLE ARCH DAMS.

IN *The Canadian Engineer* for March 9th, 1916, were outlined the chief points in the design of the constant angle arch dam, wherein, it will be remembered, a considerable saving of masonry may often be effected. The following descriptions by the author, Mr. L. R. Jorgensen, by whom the design of this type has been developed, relate to two important installations of this type. The attention of our readers is called to mention of these structures by Messrs. A. P. Davis and D. C. Henry in the article on Masonry Dams which appeared in our issue for January 27th.

**Lake Spaulding Dam.**—This dam is located on the South Yuba River, near Emigrant Gap, Cal., and is owned by the P. G. & E. Co. The distance from the Southern

rock was conveyed from under the storage bins to the top of the mixing house by means of belt conveyers, and from here distributed into measuring hoppers. The cement was brought in by a belt conveyer from the storage house and the mixing of the gravel and cement was done on the second floor of the mixer house. On the first floor of the mixing house were four 1-yard mixers driven by electric motors. Stretched across the canyon above the dam were two cableways each having a span of 1,400 ft. The cables were 2 in. in diameter with a breaking strength of 170 tons. The operating cabins contained a variable speed hoist and traversing line, centrally operated by a 112-h.p. induction motor. These cableways handled all material except concrete.

The concrete from the mixers was transported to the dam by gravity in a 30 in. wide by 12 in. high wooden

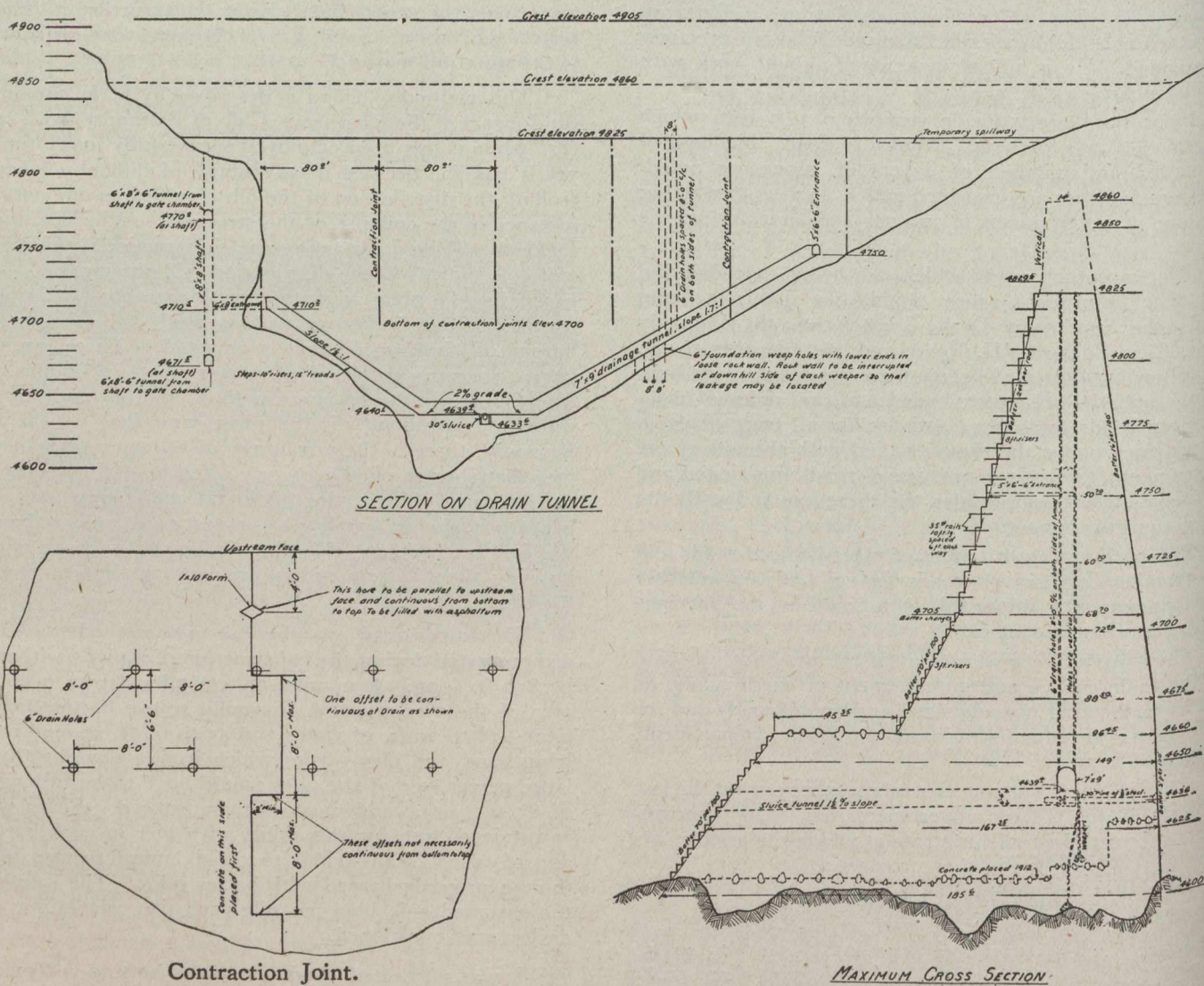


Fig. 1.—Sections of 225-foot Lake Spaulding Dam.

Pacific Co.'s railroad at Smart to the dam site is only 2.3 miles. Over this distance the company themselves built a standard gauge track to facilitate the transportation of material and men. The track terminated at the works plant elevated somewhere above the crest of the dam. The works consisted of a compressor house, a mixing plant, storage bins for crushed rock and gravel, and two rock crushers. It was possible to place the crushed rock in the bins or to dump sand and gravel from the cars in the bins as required. On the hillside below the bins was located the mixing house, built in four stories. Gravel or

flume, lined with  $\frac{5}{8}$ -in. thick cast iron plates on the bottom. This flume had a slope of 1 : 3 down the hillside to a nearly vertical cliff at the south abutment. A tower was constructed below the cliff provided with short sections of chutes built as baffles, allowing the concrete to drop to the bottom of the tower, where it was discharged into a number of distributing chutes. When the crest of the dam had reached the top of the tower the concrete could no longer be distributed by gravity flow, and a series of 30-in. belt conveyers with a slope of 18° was installed along the top of the dam. The support for these