Many thanks go to MarÊÏÒÉÅ Ingram Viales, who lives in Carmel Valley village along the Carmel River, for donaÔing these historic photos of the construction of San Clemente Dam. The photos were originally scanned at 600 dpi from a family album dating from 1905. Although there were many photos labeled with first names, there were few full names in the album. The album may have belonged to the Buttle family as there was one photograph signed by "Harry Buttle."

If anyone recognizes who the people in the photographs are it would be great to give credit to the photographer and to name the people in these photos.

Please contact Larry Hampson at the Monterey Peninsula Water Management District at 831-65ή-ŸάΨΦ or larry@mpwmd.ÎÅÔ if you have any information to add.

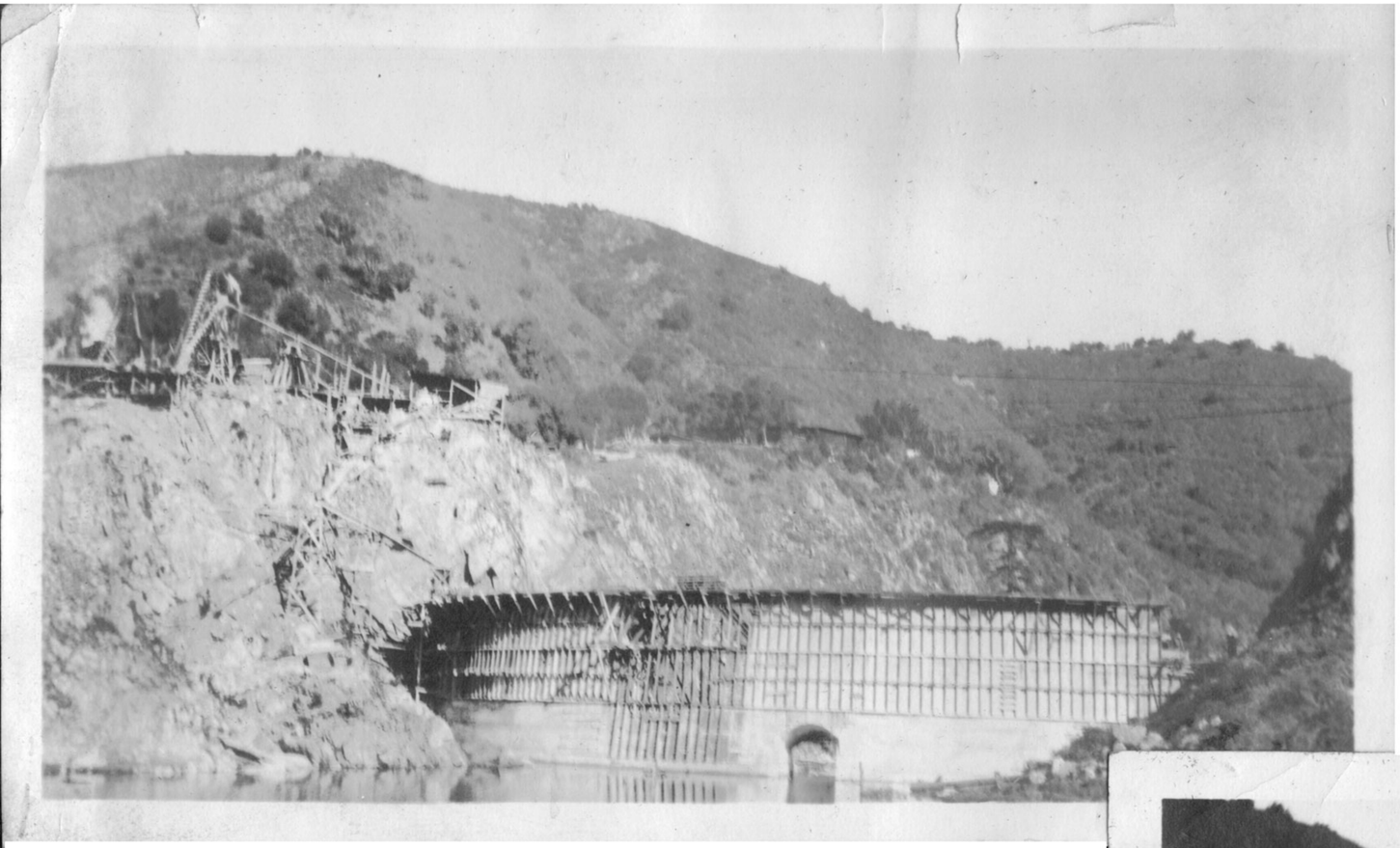
San Clemente Dam

Dec 1920
June 1921

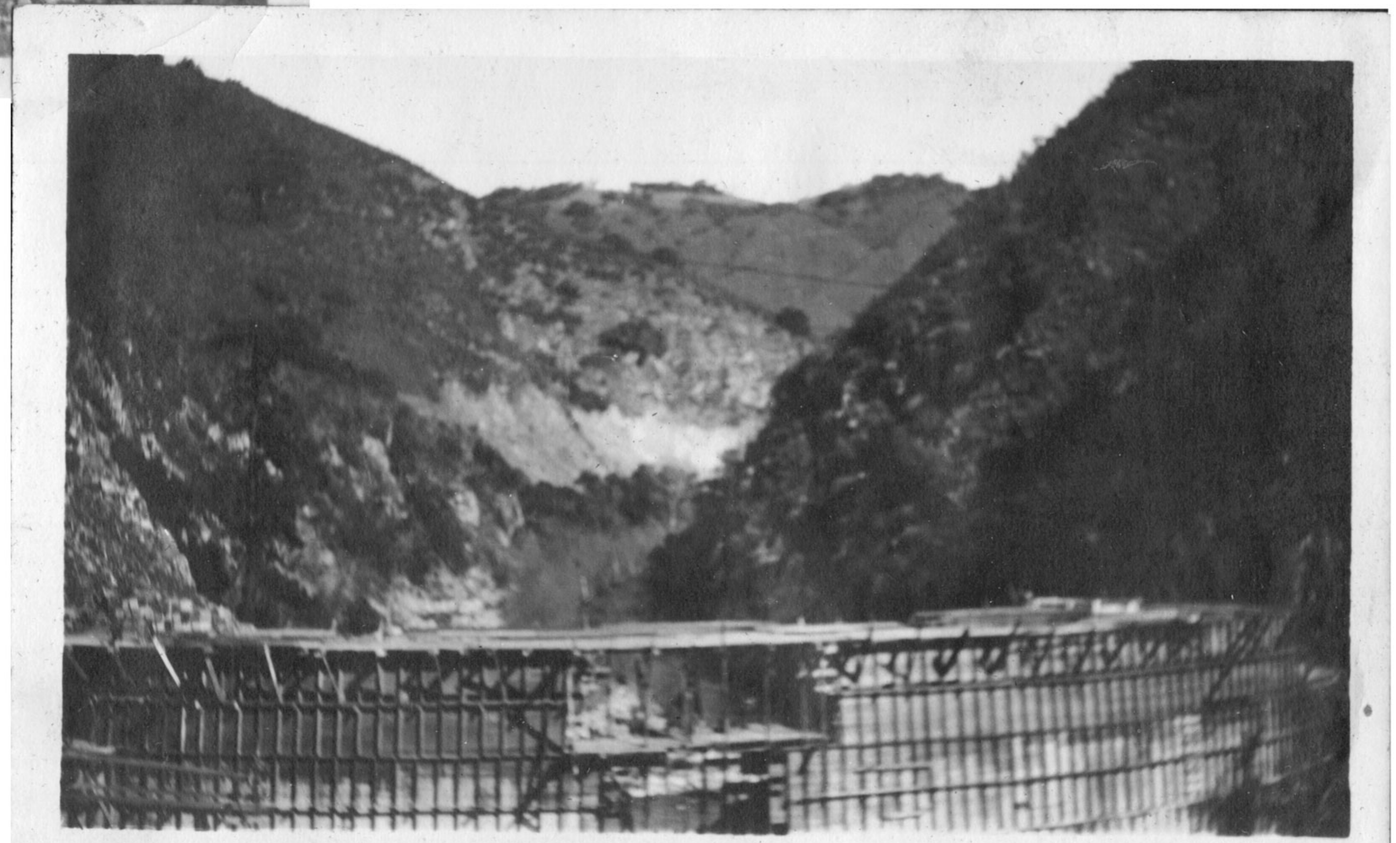
**Upper left and lower right - looking upstream and downstream to San Clemente Dam. People in the photo: possibly the dam engineer or foreman (Harry Buttle?) and his wife.**

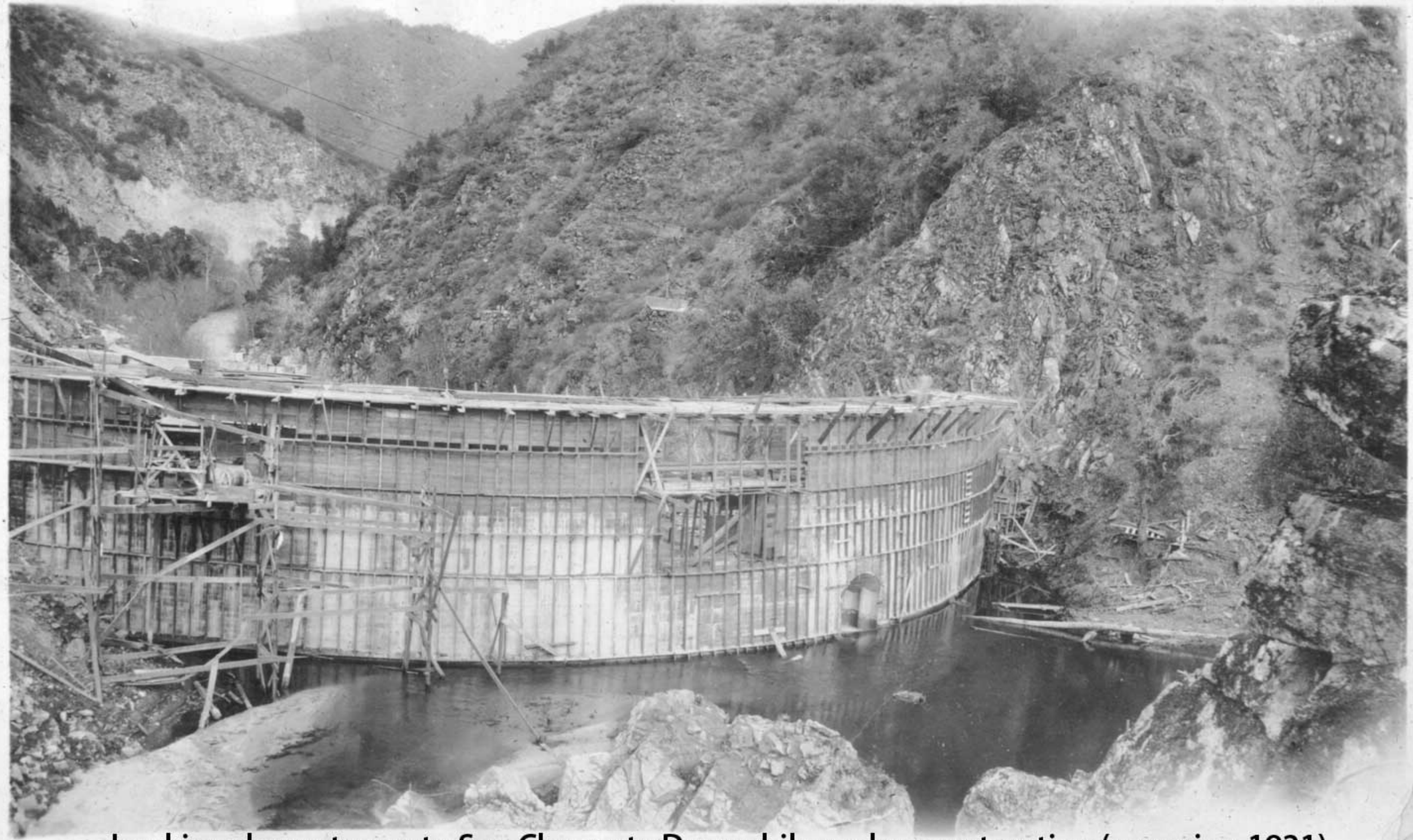
414 Lobos Avenue, Pacific Grove CA - circa spring 1921
Possibly the San Clemente Dam surveyor's home?
Note that it appears that electricity had not been installed in the neighborhood.

This appears to be the construction crew for the San Clemente Dam.  Note the old tractor and concrete mixer at the center and above that is the instrument man (?) standing behind an engineer's dumpy level and holding a philadelphia rod.

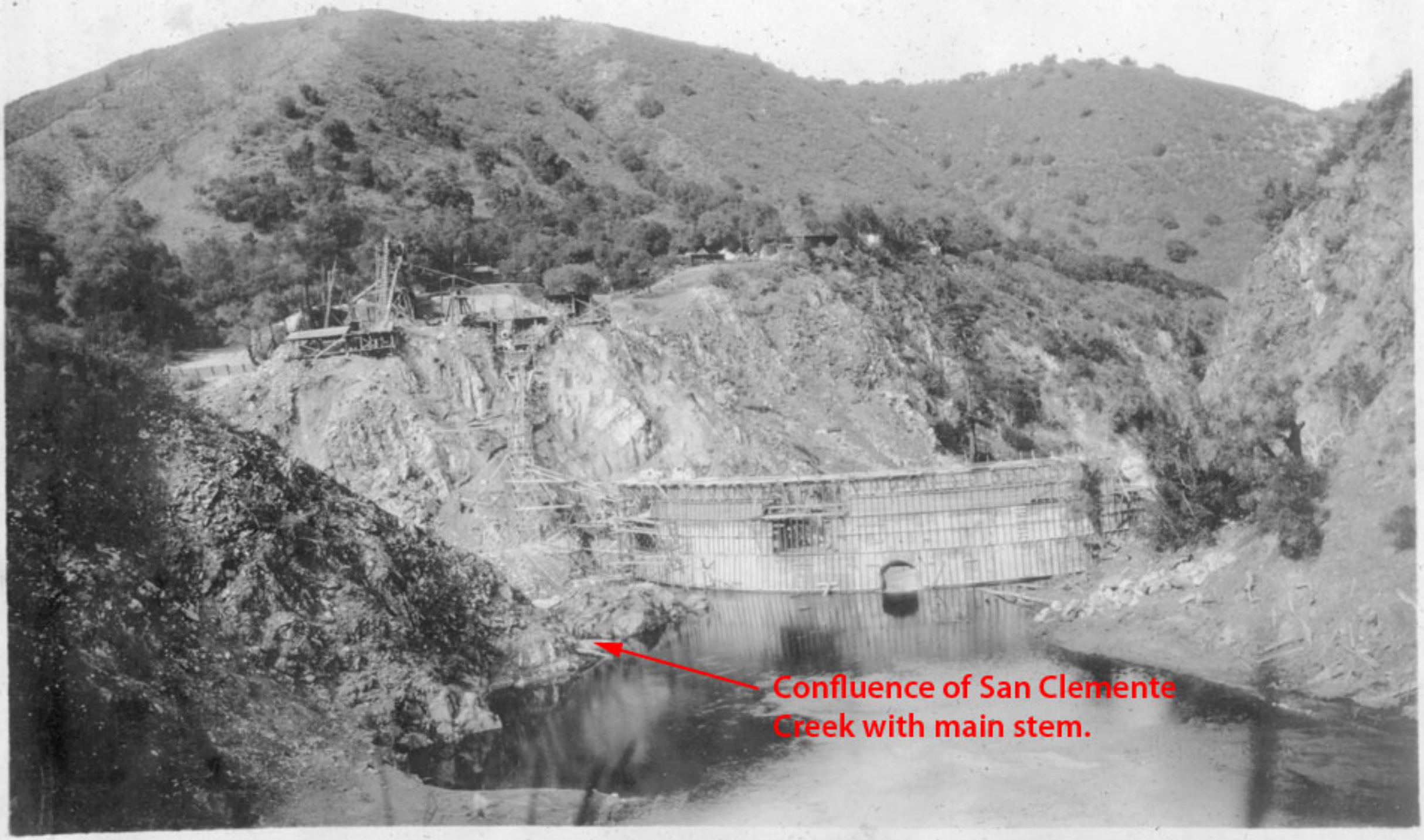


Looking downstream to San Clemente Dam
during construction - date uncertain
(sometime between Dec 1920 and May 1921)





Looking downstream to San Clemente Dam while under construction (ca spring 1921)




Looking downstream to San Clemente Dam during construction (ca spring 1921). Note rocky outcrop near left abutment at the confluence of San Clemente Creek with the main stem. Is this evidence of a waterfall or fish passage barrier to migration up San Clemente Creek at lower flows ?

**Photos taken during construction of San Clemente Dam in late 1920 and early 1921.**

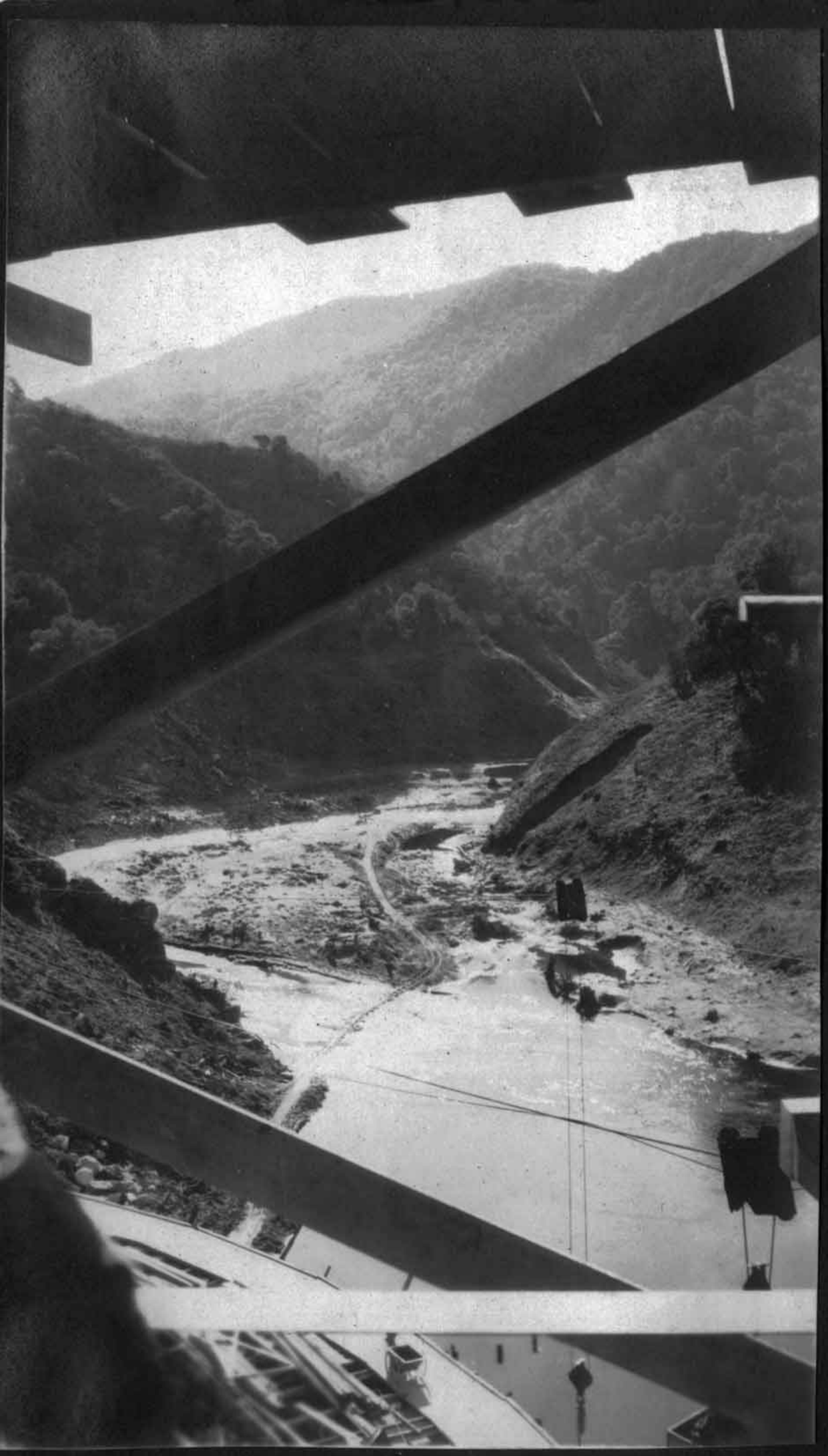
Left - San Clemente Dam construction camp.

Middle - inside San Clemente Dam during one of the lifts

Right - Old Carmel River Dam (Chinese Dam) located about 1/3 mile downstream of San Clemente Dam

Note the square steel rebar on the upstream face of the dam. To the left are boards used to form the dam. Along most of the dam, the force of water puts the upstream face in compression, which is a force that concrete is very good at resisting. However, so much force is applied to the thin arch by the water that the dam can flex in some places and put the concrete in tension, which can cause cracking and failure. Thus, the rebar counteracts these tension forces and holds the concrete together.
Note the "jigsaw" concrete pouring technique, which was also used in the Lower Crystal Springs Dam built in 1888 on top of the San Andreas fault in the Santa Cruz mountains. The dam survived both the 1906 San Francisco and 1989 Loma Prieta earthquakes. However, that dam is a gravity dam that is significantly larger at 157,200 cubic yards than the San Clemente Dam, which is a thin arch dam composed of 7,070 cubic yards of concrete.

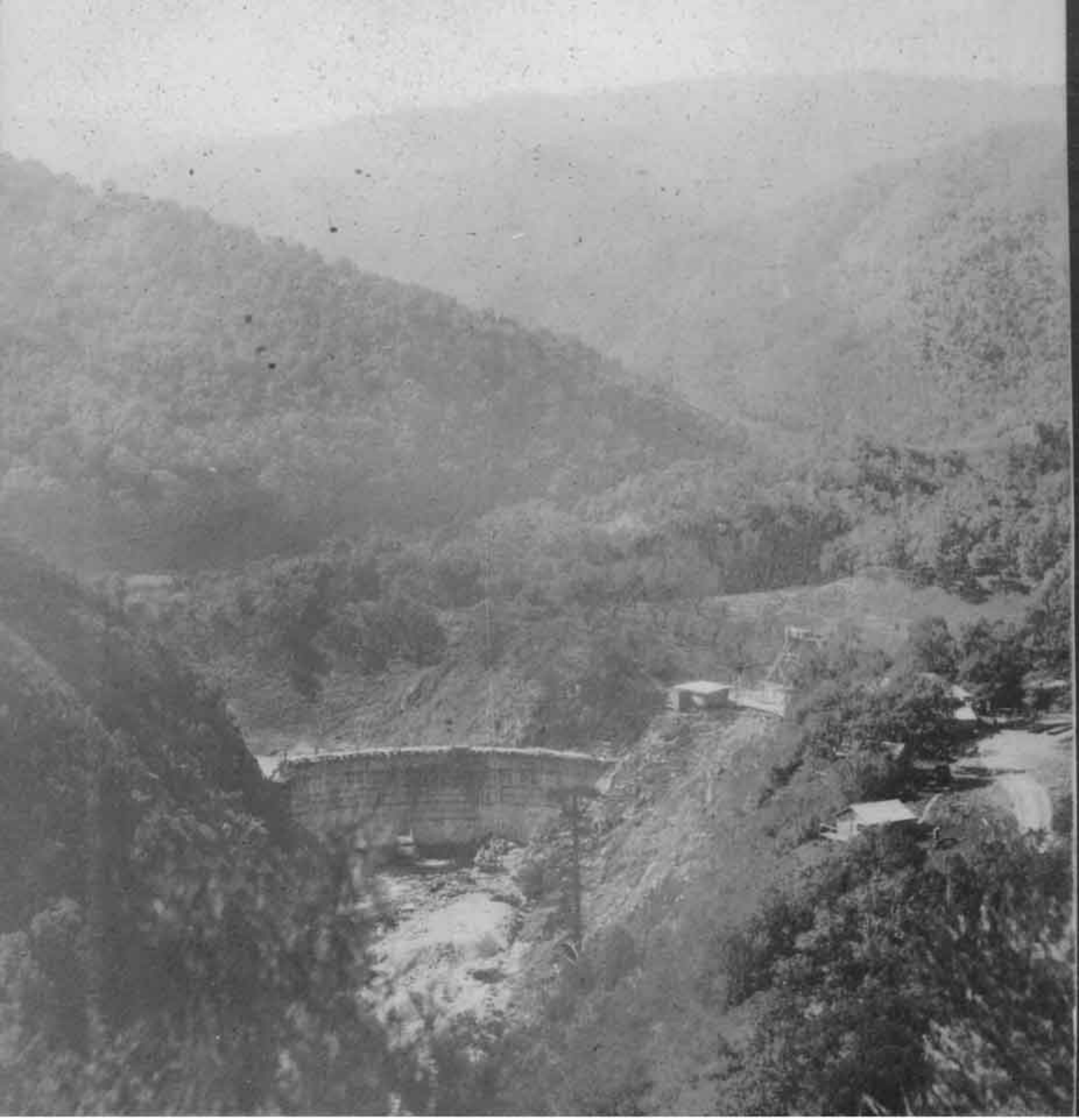
This picture looking at San Clemente Dam in the winter of 1920-21 shows quite a good flow going through the horseshoe-shaped tunnel at the base of the dam that allowed river flow to pass while the dam was under construction. The flow may be as much as 1,000 cubic feet per second and probably occurred during a storm event in January 1921.



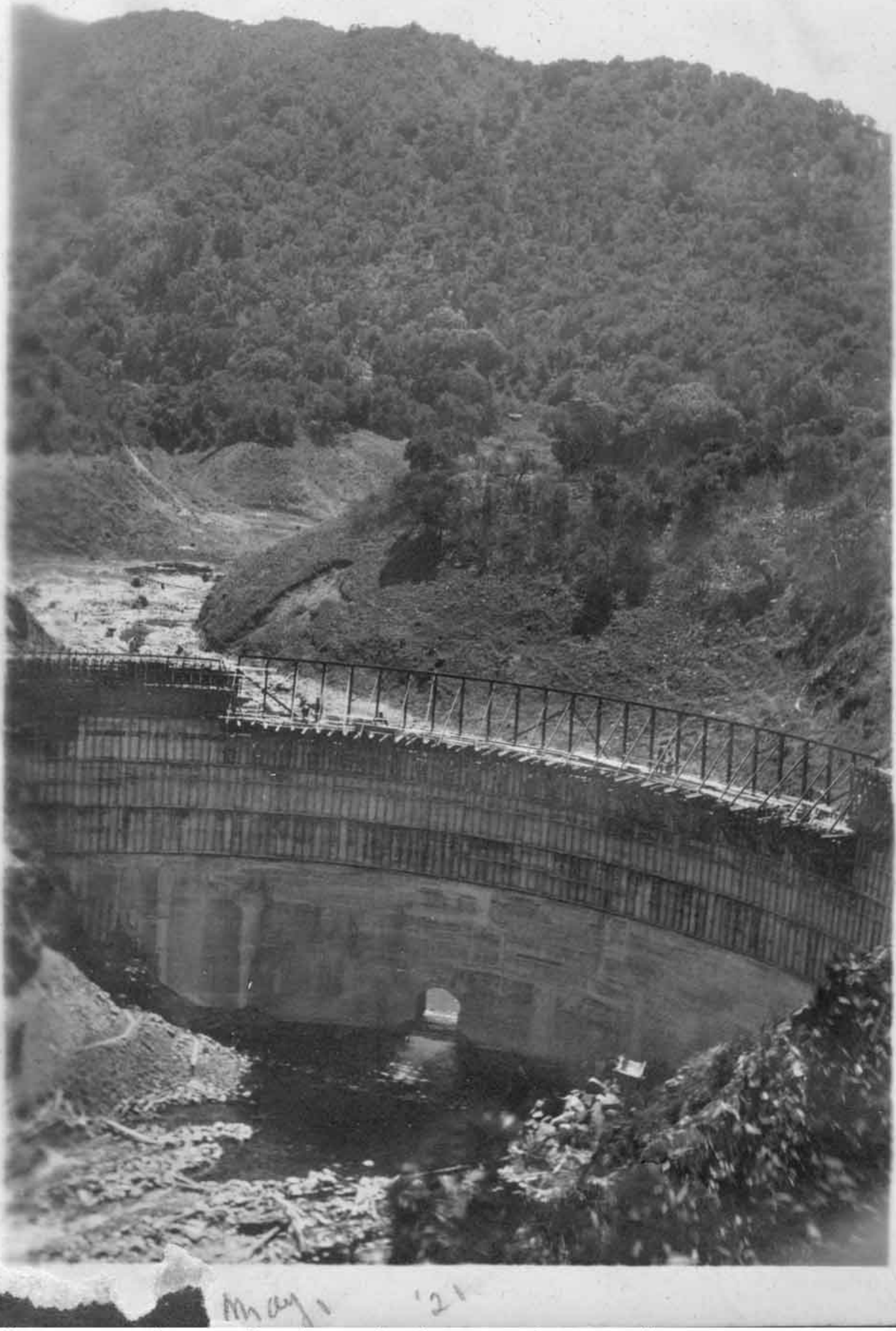
Building San Clemente Dam (ca spring 1921)

Looking upstream from San Clemente Dam (ca spring 1921). To the left are upright steel supports on the dam spillway that will eventually become part of the superstructure with ports and a walkway. In the reservoir area, there is a railway across the river that was likely used to move sand and gravel to the dam where it was mixed with cement to form the concrete for the dam.

San Clemente Dam under construction in 1921.



San Clemente Dam circa spring 1921




**This was the only dated photo of San Clemente Dam under construction. The slopes upstream of the dam below the spillway elevation appear to have been grubbed (i.e., trees were stripped away).**