

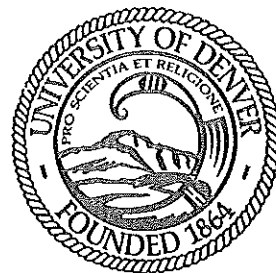
CHERRY CREEK
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HYDROLOGIC & HYDRAULIC
INVESTIGATIONS
OF CHERRY CREEK
DENVER, COLORADO

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CHERRY
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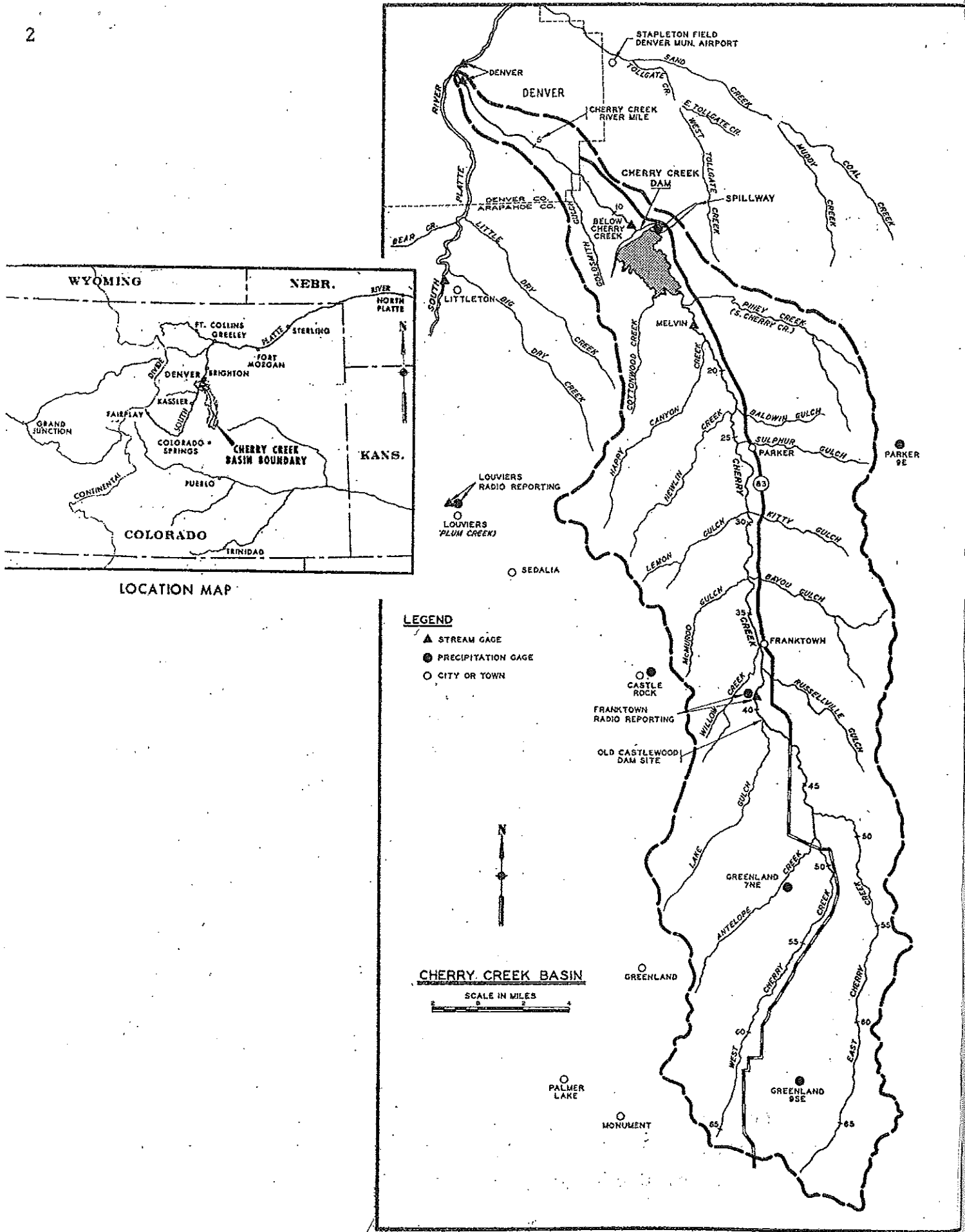


Figure 1. Location Map of Cherry Creek Drainage Basin

Table V

MAJOR FLOODS ALONG CHERRY CREEK, DENVER, COLORADO

Year	Estimated Discharge (cfs)	Comments
1864	20,000?	19 killed; all bridges across Cherry Creek destroyed
1876	11,000?	
1878	(less than 1864 flood)	all bridges across Cherry Creek destroyed
1885	20,000	largest historical flood
1912	11,000-15,000 ?	\$511,700 damages in Denver
1933	16,000	failure of Castlewood Dam; \$800,000 damages in Denver
1965	(50,000)?	(hypothetical peak without Cherry Creek Dam; \$130 million in damages prevented)

hydrologic information and events, uncoordinated federal and local goals and objectives in flood control, and revised operational criteria of structures caused by increasing pressures for development into unsafe areas.

Between the time when the first settlement appeared along Cherry Creek in 1858, and 1864, buildings began to crowd the banks of the stream, and some structures were actually constructed right in the dry bed of the stream, for which lots had been platted (Smiley, 1901, p. 324). The early settlements along the banks of the creek enjoyed tranquil prosperity from 1858 until May 19-20, 1864, when heavy rains on the upper portion of Cherry Creek watershed generated a severe flash flood along the downstream portions of the basin. The flood took 19 lives in Denver and destroyed all the bridges across the channel, as well as the city hall and the local newspaper building. The newspaper building was built on piles in the previously dry creek bed. Following the flood of 1864, a few isolated local interests built wooden retaining walls to prevent further bank erosion; but these were localized uncoordinated efforts. Figure 7 shows the Larimer Street bridge area following the floods in 1864 and 1878.

1936 was that in an effort to eliminate flooding in lower Cherry Creek, the City walled the stream too narrow in 1907-1915 to save costs of land acquisition and in 1935-1936 built an \$800,000 dam that was too small.

A preliminary examination of the new flood potential of Cherry Creek was authorized by the U. S. Congress in August 1937. In 1938 the Corps of Engineers reported that a flood problem did indeed exist. After several years of investigation of alternatives, it was decided that a single large reservoir located close to the Denver City limits would best satisfy both flood control and irrigation requirements along lower Cherry Creek. The proposed dam would be located about 0.4 km (1/4 mile) upstream from the existing Kenwood Dam. World War II slowed progress on the new dam proposal, but plans for the new dam were finally approved by the Corps of Engineers in 1945. The Denver Chamber of Commerce endorsed the project in January 1946, and Congressional appropriations of nearly \$15,000,000 followed. Groundbreaking ceremonies for the new Cherry Creek Dam, which was to provide complete protection for the City of Denver from Cherry Creek floods, were held in July 1946.

The design for the size of the new dam was completed by modeling an artificial storm over Cherry Creek. The storm cell centered over Kiowa Creek during the Memorial Day storm of 1935 was closest to the Cherry Creek basin. This storm well was transposed 19 km west and 44 km north with no rotation to model maximum flood conditions at the mouth of Cherry Creek (Fig. 14). This rainfall produced a flood with a peak discharge of 113,000 cfs and a volume of 98,800 acre feet, which is equivalent to 12.2 cm (4.8 inches) of runoff over the entire drainage basin. This discharge of 113,000 cfs is the reservoir design flood and is 5.65 times the maximum flood of record along Cherry Creek (A.S.C.E., 1944).

In 1944 the Denver chapter of the American Society of Civil Engineers issued a report which criticized the size of the new Cherry Creek Dam as "uneconomical" (A.S.C.E., 1944, p. 4). They recommended enlarging the spillway of the existing Kenwood Dam to

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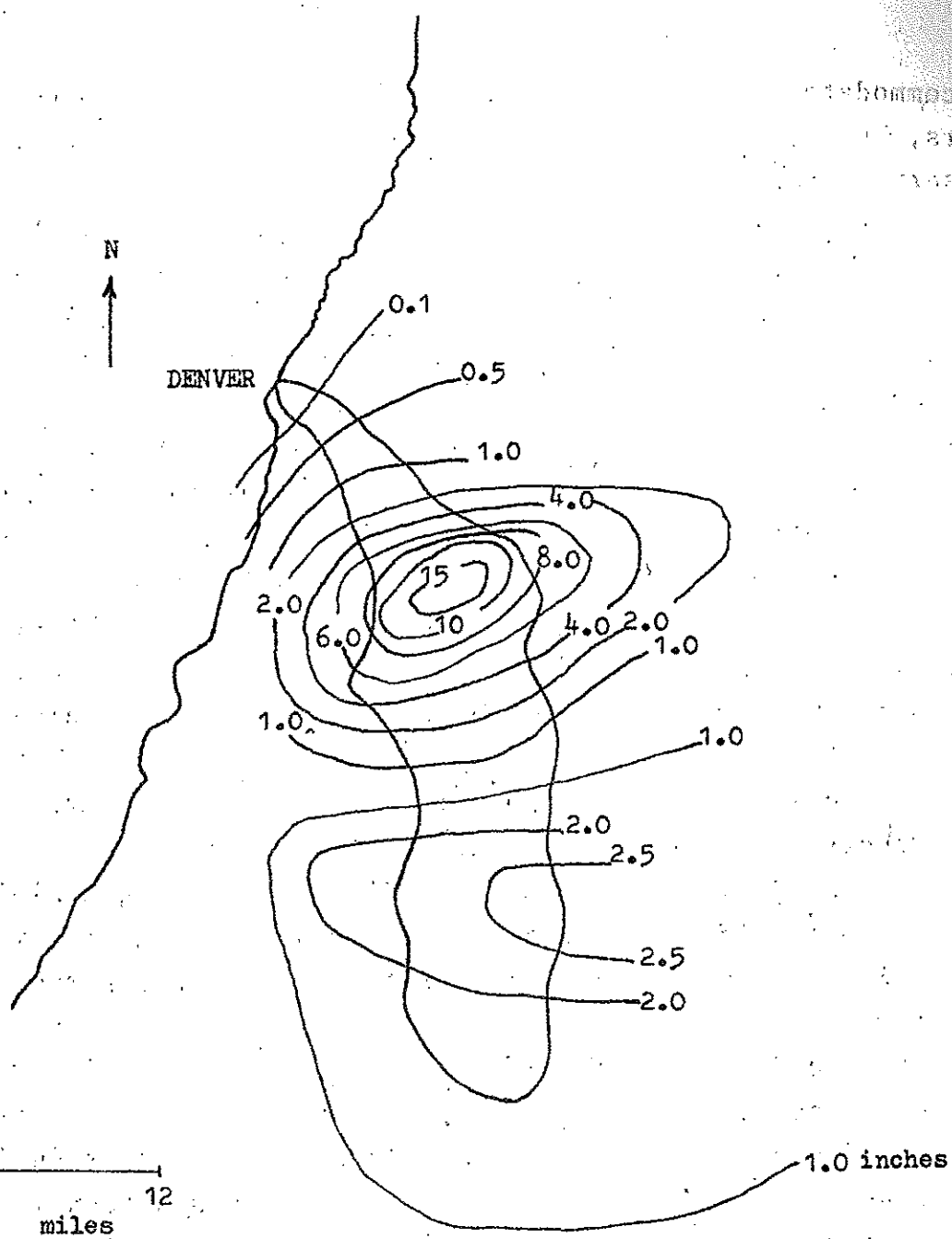
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CHERRY CREEK TRANSPOSED STORM

MAY 30, 1935

(SHIFTED 12 MI W, 27 MI N, NO ROTATION FOR MAX. EFFECT AT DENVER)

Figure 14. Design rainstorm for Cherry Creek Dam and Reservoir.

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