

*Israel C. Russell  
Ann Arbor, Mich.*

ELEVENTH ANNUAL REPORT

OF THE

UNITED STATES GEOLOGICAL SURVEY

TO THE

SECRETARY OF THE INTERIOR

1889-'90

BY

J. W. POWELL  
DIRECTOR

---

PART II—IRRIGATION



WASHINGTON  
GOVERNMENT PRINTING OFFICE  
1891

near an abandoned smelter. Observations were begun August 26, 1889, and continued through the succeeding year, the floods, however, were unusually low, and the results given in the tables are probably far less than the average discharge for several years.

## SALT.

This river, though considered as a tributary of the Gila, is in fact larger both in catchment area and discharge, and might properly be considered the main stream. It receives the drainage from central Arizona, its principal tributary, the Verde, flowing southeasterly and south from the mountains and table-lands south of the Colorado River. There is a little irrigation along the upper waters of the Verde and in the Tonto Basin, but the diversions of water are too small to be noticeable on the main stream.

The Verde Valley is situated in Yavapai County, on the headwaters of the stream, and extends from a canyon above Camp Verde to a point 10 miles below the fort, where a branch of the Mogollon Mountains on the east and another of the Verde Mountains on the west approach the river. About 3,000 acres of land in this valley are under cultivation, and large crops of alfalfa, small grain, corn, and potatoes are raised, as well as fruits in great variety and perfection. The military reservation comprises about 1,000 acres of farming land, much of it capable of irrigation.

About a mile below the junction of the Verde, and 30 miles above Phoenix, the river begins to enter upon the plains of the Gila Valley. At this point the Arizona Canal Company have built a dam or weir across the river to raise the water and turn it into their canal. The engineer of this company, Mr. Samuel A. Davidson, has calculated the daily discharge over this weir for a number of years, and with his permission these results are given herewith, as they show in a general way the character and range for nearly three years of the rivers of this portion of the arid region. While these calculations, being based on weir formulæ, may be in error to a considerable degree, yet they are comparable among themselves, and