

Abstract for “Ralph Parshall and Water Engineering in Northern Colorado,” by Michael Weeks

During the first half of the twentieth century, no individual contributed more to fairly and effectively distributing water to farmers than Ralph Parshall. Born in Golden, Colorado, Parshall spent his entire career working for Colorado Agricultural College (now Colorado State University) and the Bureau of Agricultural Engineering of the United States Department of Agriculture (USDA). This article analyzes Parshall’s impact through his career as a water engineer, consultant, and public figure. In addition, by examining Parshall’s career in and out of the laboratory, this article details both the powers and limitations of federal water engineers during the first half of the twentieth century as they pushed water users to more efficiently manage the resource.

Parshall’s research and advocacy was animated by the need to help water users manage and distribute Colorado’s limited supplies fairly, equitably, and predictably. During the 1920s, he perfected what his academic peers named the Parshall Flume, which measured water in irrigation ditches 20-30% more effectively than previous devices. It was inexpensive and simple to install. Accurate measuring made it more difficult for well-situated water users to take water they were not entitled to, thereby enabling junior users to obtain more secure access and increasing the value of Colorado agriculture. The Parshall Flume remains ubiquitous to this day in farmers’ fields throughout the world. It has been applied to industrial and municipal applications as well. Parshall’s push for greater efficiency yielded other important breakthroughs as well. With the help of colleagues and graduate students, Parshall developed devices to remove sand and silt from irrigation canals, supervised some of the first snow surveys in the American West - helping water users predict how much water would be available to them - and wrote the principal economic analysis in support of the Colorado-Big Thompson Project, which added 20% more water to Northern Colorado by transferring water from the headwaters of the Colorado River. Parshall also designed and helped to build the labs and flumes on and off the CAC campus that made these advances possible.

While this article emphasizes Parshall’s contributions to the science of irrigation engineering, it also highlights Parshall’s public role. After Parshall constructed his namesake flume, he spent much of his career consulting with farmers, irrigation companies, and industry on how to calibrate flumes to meet their needs. Parshall also was a regular guest on local and regional radio shows that provided technical advice to farmers. He publicly criticized water managers for their lack of efficiency and business acumen while at the same time joining them by endorsing – reluctantly at first - the Colorado-Big Thompson Project. Though Parshall’s ability to influence the politics and culture of water management was limited, his reputation as a groundbreaking water engineer and a steward of the public good is well-deserved.