



The upper Arkansas River in Colorado is a classic example of “stream capture,” the process by which part of a stream is “captured” by another stream, and because of this is key to understanding Colorado railroad routes. During the Pliocene and Pleistocene, several million years ago, the headwaters of the Rio Grande extended northward across its current headwater at Poncha Pass to Tennessee Pass; what is currently the north-northwest-trending upper Arkansas River was then the upper Rio Grande. Establishment of the modern drainage pattern occurred when the then-upper Arkansas River, which drained the Rio Grande-Mississippi divide, captured the upper Rio Grande. This capture may reflect either (1) blockage of an original southward drainage of the Rio Grande by tectonic uplift of the Poncha Pass area, resulting in eastward spillover into the Arkansas River, or (2) headward erosion of the Arkansas River leading to capture of the upper Rio Grande. In either case, the added flow in the Arkansas rapidly cut the Royal Gorge section of the river. Thus, the Arkansas River, even with its difficult Royal Gorge, presented the only major drainage in Colorado to approach the continental divide from the east. This is the reason the Denver & Rio Grande Railroad and the Atchison, Topeka & Santa Fe Railroad battled for control of the Royal Gorge route in 1879. The two other railroads that crossed the continental divide in Colorado in that era both used the upper Arkansas River, but unlike the D&RG’s Royal Gorge route had to cross intermediate passes to reach the upper Arkansas River. The Colorado Midland crossed Ute Pass (9,165 feet) and the Denver, South Park & Pacific crossed Kenosha Pass (10,001 feet) and both lines crossed Trout Creek Pass (9,346 feet) to reach the upper Arkansas River and the continental divide from the east.

The D&RG reached the upper Arkansas River and the continental divide from the east without crossing any passes by following the Arkansas River to Tennessee Pass. It is for this reason that the D&RG was the first line in and the only one that has not been abandoned. The D&RG Royal Gorge route was surpassed in 1927 when the continental divide was breached by the 6.2-mile-long Moffat Tunnel; Tennessee Pass and the Moffat Tunnel are now the only rail crossings of the continental divide in Colorado. This photograph shows the D&RG (now UP) mainline as it follows the upper Arkansas River to Tennessee Pass.



The D&RG Royal Gorge route crosses the continental divide at Tennessee Pass, where a summit tunnel was constructed to lower the grade across the pass.



During the Pliocene and Pleistocene, Tennessee Pass was at the headwaters of the Rio Grande, but since stream capture occurred is at the headwaters of the Arkansas River.