

## Pima-Maricopa Irrigation Project

Education Initiative  
2005-2006



*Restoring water to ensure the continuity of the Akimel O’otham and Pee Posh tradition of agriculture*

## The Pacific Railroad Surveys and the Pima Villages

Part 65

In the early 1850s, the United States began looking for ways to connect California with the rest of the nation. In March 1853, months before the Gadsden Purchase, Congress agreed to the Pacific Railroad Survey bill, which set into motion a series of expeditions by the US Army Corps of Topographical Engineers. Several of these expeditions passed near or through what was now commonly known—and listed on official maps—as the Pima villages, a term referring to a series of Pima and Maricopa villages along the middle Gila River. Throughout the 1850s, the Pima villages increased in importance and became the center of U.S. governmental activity for what would soon become Arizona Territory.

The first railroad route surveyed did not directly affect the Pima villages. Lieutenant Amiel Whipple—familiar with the Pima and Maricopa from his days as an astronomer with the Bartlett-Condé survey of 1851—surveyed the route along the 35<sup>th</sup> parallel (roughly where Interstate 40 crosses northern Arizona today). Whipple began the survey in Fort Smith, Arkansas and completed it in Los Angeles, California. In his report, he included a section entitled “Report upon the Indian Tribes,” in which he included references to what was already well known: the Pima and Maricopa were very successful agriculturalists. The “Pimas Gileños,” Whipple wrote, “cultivate the earth, and each proprietor lives near his field. They raise wheat, maize, cotton, and other crops, for the irrigation of which they have well-constructed canals. They have farms for the breeding of horses, sheep and poultry.”

More specific to the interests of the Pima and Maricopa, however, was the John G. Parke expedition, which generally followed the 32<sup>nd</sup> parallel along parts of the Southern Trail (approximately where the present-day Southern Pacific rail line passes through Tucson, Casa Grande and along the lower Gila River). Having previously surveyed along the 32<sup>nd</sup> and 35<sup>th</sup> parallels, Parke was appointed to investigate a possible railroad route between the Pima villages and El Paso, Texas. Receiving his orders on December 20, 1853, Parke assembled a team of fifty-eight men and set out. Because the United States had yet to acquire the Gadsden Purchase lands from Mexico, the engineer first was required to secure permission from Mexican President Santa Anna to enter Mexican territory. Parke arrived in the Pima villages in February 1854. He would return a second time in 1855, at which time he made a more detailed survey.

While Parke exhibited little interest in the Pima and Maricopa villages, geologist Thomas Antisell did. Passing through the forty-mile desert, Antisell noted the land was “a loose, stony conglomerate and feldspar sand, without water” and covered with mesquite, acacia and desert cactus, each of which—unknown to the geologist—was of important to the social culture of the Pima and Maricopa. Descending into Maricopa Wells from the west, Antisell wrote, “The river flows through these plains, which are broad and well supplied with course grass.” At Maricopa Wells, which consisted of “several holes dug 7 feet down, and in which the water rises to within 2 ½ feet of the surface,” the soil was “clayey and retentive, each well being a small body of water resting on yellow clay.” The effect of such a high water table was not lost on the geologist.

Near the wells was thick vegetation but “as soon as the hill slope commences” the land no longer was dominated by bear grass and mesquite, being covered instead with prickly pear and saguaro.

Continuing into the Gila River Valley, Antisell found the valley wide with a sandy-clay bottomland that was “only fertile where watered by sequias of the Pimas, when it produces abundantly.” On each side of the Gila, the Pima cultivated the lowlands, where the “sand and fine clay has a darker tint, from the presence of a small quantity of humus.” Individual fields were fenced, with each “being small, scarcely 150 feet each way; a sequia runs around half a dozen fields, giving off branches to each.” Cultivated crops included corn, cotton, pumpkins, melons and squash.

While only a portion of the valley was at that time in cultivation, Antisell recognized that a much larger area of the valley was “susceptible of being made productive much further away from the stream,” although to do so would require the extension of irrigation canals. At times, the entire river was dry as its water was diverted to irrigate Pima and Maricopa crops. “More care and economy in the use of water would be necessary,” the scientist opined, “under a greater breadth of cultivation.” Much of the low lying alluvial bajadas consisted of similar soils as those then cultivated by the Pima; at the point where the main emigrant road turned to the southeast towards Tucson, the soil still consisted of “fine sandy clay.”

If Antisell’s general descriptions sounded familiar, it was because they were largely the same sentiments of the emigrants passing through the Pima and Maricopa villages the previous decade. Field sizes of roughly a half acre correspond with Major William Emory’s description in 1846. Descriptions of canals drawing off nearly the entire flow of the Gila River matched with the emigrant statement of Asa Clark in 1849. The Pima and Maricopa had an intimate knowledge of irrigation and drainage, recognizing sufficient water was needed to irrigate in order to flush out the salts that might inhibit crop production.

In 1855, still another railroad survey took place when engineer Andrew B. Gray—who also had worked on the Bartlett-Condé survey line—was hired by the Texas Western Railroad Company to survey a possible route across southern Arizona. Gray’s route cut through Apache Pass and entered Tucson before following the well-worn trail from Tucson to the Pima villages and onward to Yuma. Gray, however, left no observations about the Pima and Maricopa other than possible rail routes.

By the time the railroad surveys were completed, the United States had formally acquired the land south of the Gila River. On June 25, 1856, the United States formally took possession of the Gadsden Purchase lands. By then several railroad surveys had been completed and plans were afoot to construct a transcontinental railroad through the area. When construction on the railroad began in 1878, it passed to the south of the Pima villages. When construction ended for want of supplies, in the summer of 1879, the town of Casa Grande was established. In the meantime, two mail and stage lines began service through the Pima villages: The Butterfield Overland Mail Company and the San Antonio and San Diego Mail Line, with Maricopa Wells a prominent and important way station along the route.

## ***The Pacific Railroad Surveys and the Pima Villages***

Find the words in the grid. Words can go horizontally, vertically and diagonally in all eight directions.

D	F	O	R	T	Y	M	I	L	E	D	E	S	E	R	T
N	Q	D	H	G	K	R	L	G	Q	Y	X	S	S	N	R
T	R	B	R	C	M	P	C	L	R	N	Q	L	E	B	A
X	J	T	X	A	B	T	K	K	O	K	B	L	G	T	N
G	R	L	K	Q	I	H	T	I	T	O	D	E	A	K	S
P	K	E	F	Y	T	N	T	F	T	F	R	W	L	L	C
N	W	K	E	P	M	A	A	T	X	M	F	A	L	N	O
K	K	V	G	N	V	R	O	G	C	L	Y	P	I	X	N
H	N	H	J	I	I	M	L	R	E	J	W	O	V	D	T
K	T	N	T	M	L	G	H	N	C	M	C	C	A	V	I
T	K	L	T	A	K	L	N	T	T	L	T	I	M	M	N
Z	U	B	N	J	Q	T	C	E	D	Q	Y	R	I	R	E
C	C	D	F	V	K	T	N	L	W	L	Y	A	P	J	N
L	S	R	N	F	K	G	L	T	W	V	W	M	H	M	T
J	Z	I	R	R	I	G	A	T	I	O	N	V	Z	R	A
Y	E	V	R	U	S	T	Z	K	N	C	G	F	B	K	L

Maricopa Wells  
Survey  
Drainage  
Forty mile desert

Bottom lands  
Engineer  
Transcontinental

Cultivation  
Irrigation  
Pima villages

## Teacher Plan for “The Pacific Railroad Surveys and the Pima Villages”

### Terms to know and understand

- Astronomer
- Humus
- Geologist
- Bajada
- Transcontinental
- Conglomerate

### Students will be able to:

1. Explain why the transcontinental railroad was constructed through the lands of the Pima and Maricopa.
2. Identify soil types within the reservation and understand how soil types affect crop production.

### Objectives

### Critical Thinking:

- Look at a geological and/or a topographical map. Why was the Southern Pacific Railroad (today called the Union Pacific) constructed through the territory of the Pima and Maricopa? What made the Pima villages of such importance to the railroad survey crews? How might the railroad—and increased road traffic—have affected Pima and Maricopa agriculture? What about their way of life? Were there benefits to having a major transcontinental road and railroad pass through or near the villages?

### Activities

- The Pacific Railroad surveys did not provide any new information—other than geological—about the Pima and Maricopa villages. In large measure, the survey reports repeated what was already well known. Have students compare 49'er emigrant journal descriptions with railroad survey reports and have them identify commonly held descriptions of the Pima and Maricopa villages. Inform students that these descriptions reflect what the writers viewed as important. What was not described in these reports and why might this be important to note?
- Have students research soil types within the reservation. Contact the Pima-Maricopa Irrigation Project for soil surveys and analysis. What types of soils are most conducive to agriculture? Where are these lands generally located? Are these the traditionally irrigated lands of the Pima and Maricopa? Be sure students understand the difference between sandy, sandy-loam, loamy clay and bedrock.

### About P-MIP

The Pima-Maricopa Irrigation Project is authorized by the Gila River Indian Community to construct all irrigation systems for the Community. When fully completed, P-MIP will provide irrigation for up to 146,330 acres of farmland. P-MIP is dedicated to three long-range goals:

- Restoring water to the Akimel O’otham and Pee Posh.
- Putting Akimel O’otham and Pee Posh rights to the use of water to beneficial use.
- Demonstrating and exercising sound management to ensure continuity of the Community’s traditional economy of agriculture.