

**Assessment of the Verde River's
Navigability on or before
the Date of Arizona's Statehood,
February 14, 1912**



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Previous Reports and Need for Revision

- Original report on the navigability of the Verde River prepared for ANSAC in 1997.
- Revised and brought up to date in 2005.
- Both reports and testimony submitted to ANSAC in 1997 and 2005.
- The report upon which this presentation is based has been expanded, especially in relation to historical newspaper accounts and historical photographs – made possible by the growth of online historical newspaper collections as well as by online archival finding aids for historical photograph collections.
- Updating is to conform with the opinion of the Arizona Court of Appeals' decision in *State of Arizona, et al., v. Arizona Navigable Stream Adjudication Commission, et al.* (1 CA-CV 07-0704, April 27, 2010) that a fuller awareness is necessary about how human activities and man-made structures on Arizona's rivers may have affected the stream's ordinary and natural condition, particularly in the years before statehood.

BACKGROUND



Navigability and the “Equal Footing” Doctrine

- Legal concept that states own the beds of navigable waterways – stems from English common law.
- In England, King had become owner of beds of navigable bodies of water to protect access for his subjects.
- When American colonies became independent in 1776, they took over rights and responsibilities of the King – including owning beds of navigable waterways.
- New states join the Union on an “equal footing” to the original 13 states.
- Thus, new states own the beds of waterways if those waterways were navigable at the time of statehood.
- For Arizona, this means February 14, 1912.
- Extensive research was necessary to determine the characteristics of the Verde River as of 1912 to determine navigability or non-navigability.

Research Locations

- Arizona State University Special Collections (Phoenix).
- Arizona State Archives (Phoenix).
- Arizona Historical Foundation (Phoenix – now closed).
- University of Arizona Special Collections (Tucson).
- Arizona Historical Society (Tucson and Phoenix).
- Water Resources Center Archives (University of California, Riverside).
- Bancroft Library (University of California, Berkeley).
- U.S. Bureau of Land Management (Phoenix).
- U.S. National Archives (Washington, D.C.).
- U.S National Archives II (College Park, Maryland).
- U.S. National Archives branch (Denver).
- Arizona State Land Department (Phoenix).
- Salt River Project Archives (Phoenix).
- Sharlot Hall Museum and Research Library (Prescott).
- Many online newspaper and historical photograph collections.

Published Research Sources

- U.S. Geological Survey (reports and Water Supply Papers).
- U.S. Bureau of Reclamation (annual reports and other publications).
- U.S. Department of Indian Affairs
- U.S. General Land Office (today, the Bureau of Land Management).
- Congressional materials (*Congressional Record*, Congressional reports, etc.).
- Arizona Territorial legislation.
- Many other published secondary sources.

Research and Writing Methodology

- Thousands of pages of historical records were reviewed and copied at archives, agencies, and libraries.
- Documents were abstracted into special database.
 - Tracked original source locations.
 - Tracked location of copies in historian's files.
 - Permitted test sorting for comparisons and analysis.
- Database sorted by date and subject matter.
- Resulting abstracts were then dropped into word processing to provide a rough draft of report.
- This presentation is derived from final version of the report that was submitted to ANSAC.

U.S. GENERAL LAND OFFICE SURVEYS

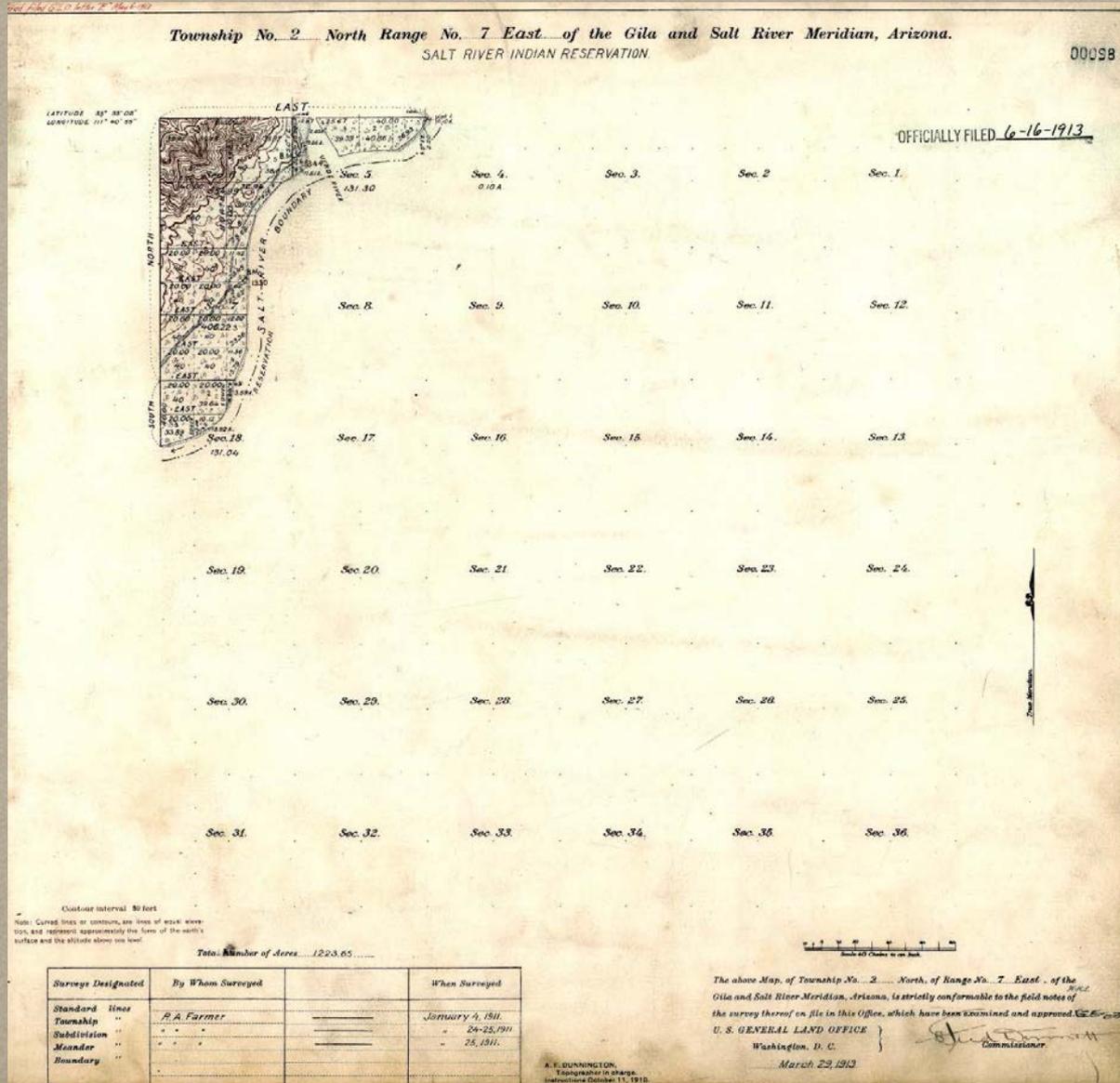


U.S. General Land Office Survey Field Notes and Plats

- Some of the most important records re: the Verde River before statehood – General Land Office survey field notes and plats.
- The surveys were done:
 - To prepare public domain for orderly settlement.
 - To record characteristics of public domain.
- Instructions set forth under different manuals over time.
- Earliest was 1851; others with slightly revised instructions published in 1855, 1864, 1881, 1890, 1894, and 1902.
 - Surveyors directed to record details of what they encountered on township, range, and section lines.
 - Roads, trails, ravines, fences, farmland, irrigation ditches, railroads, forests, etc.
 - *Specifically with regard to waterways, surveyors were to “meander” (measure by degree bearings the sinuosities) of all navigable bodies of water.*

- All General Land Office field notes and plats were examined for the Verde River from headwaters to confluence with the Salt River.
- Interiors of the townships through which the Verde River flows were surveyed over a wide range of years, mostly prior to statehood. Township surveys were done in general beginning in the early 1870s. Resurveys of some townships were done in 1909 and 1911. Because of the large number of different survey dates, cumulatively they were done according to many of the survey manuals.
- Significantly, while there were at least eight federal surveyors who mapped the Verde between the Salt and the Verde's headwaters prior to 1912 and while those surveys were done under the instructions of different survey manuals, at different times of year, and in different years, not one of the surveyors recorded information about the Verde River that would be consistent with a determination of navigability.
- Some sample survey plats follow.

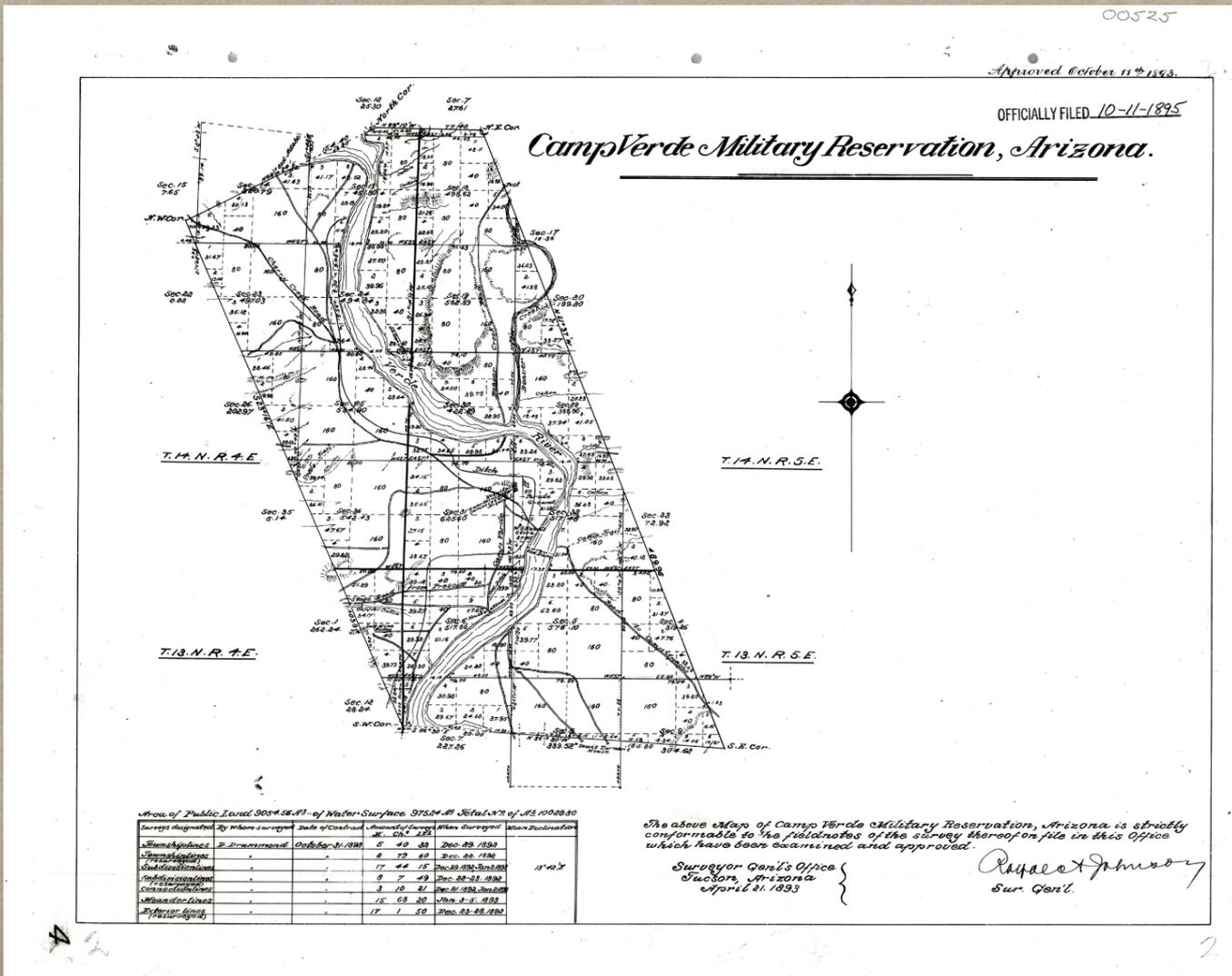
1911 Subdivision Survey of Township 2 North, Range 7 East (Near Phoenix; approved 1913)



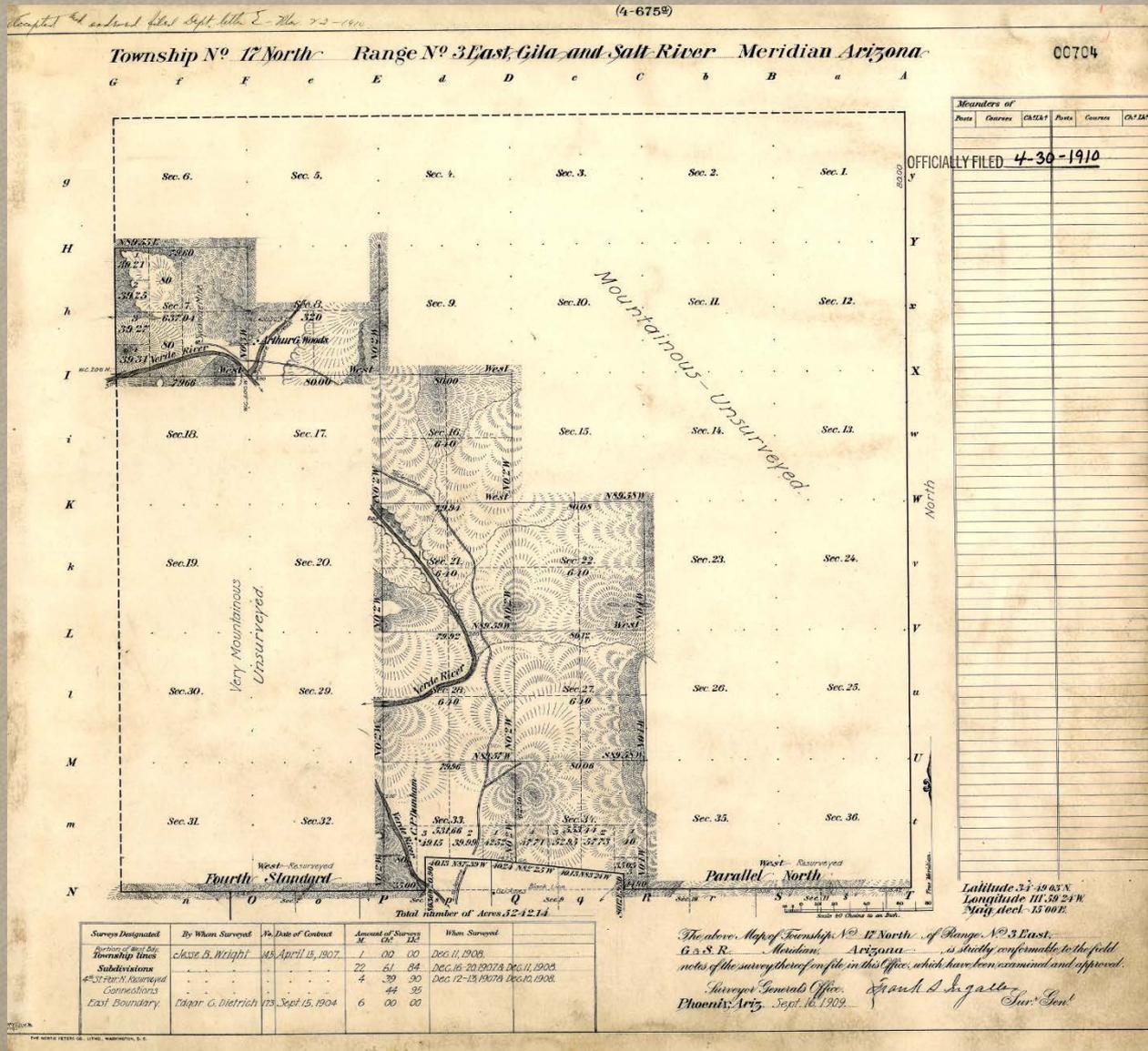
U.S. General Land Office Survey Plat, Township 13 North , Range 5 East (Approved 1874)



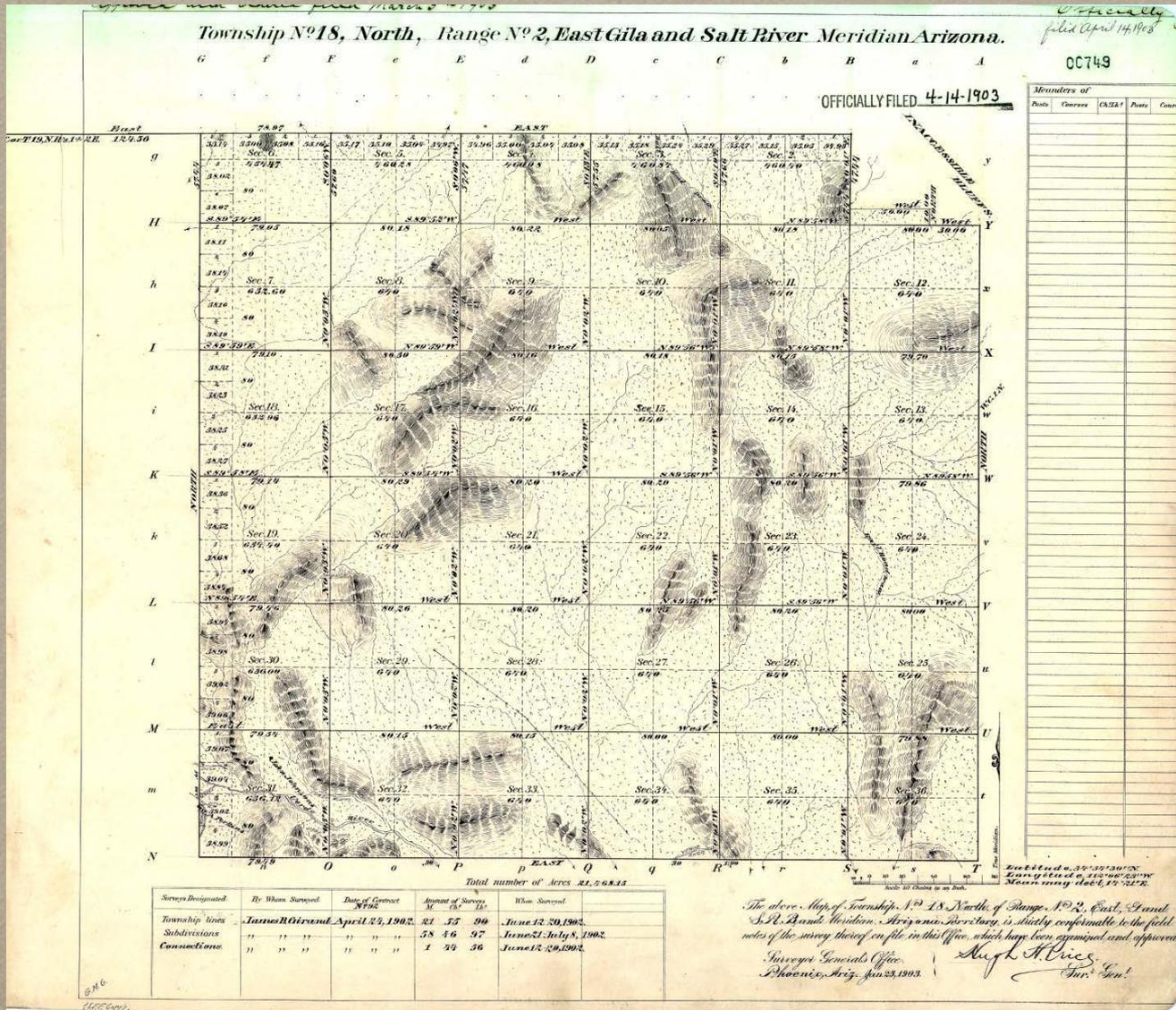
U.S. General Land Office Survey Plat, Camp Verde Military Reservation, Townships 13-14 North, Range 5 East, and Township 14 North, Range 4 East, (Approved 1893)



U.S General Land Office Survey plat of township 17 north, range 3 east (Approved 1909)



U.S General Land Office 1902 Subdivision Survey of Township 18 North, Range 2 East (Approved 1903)



Conclusions about Federal Surveys

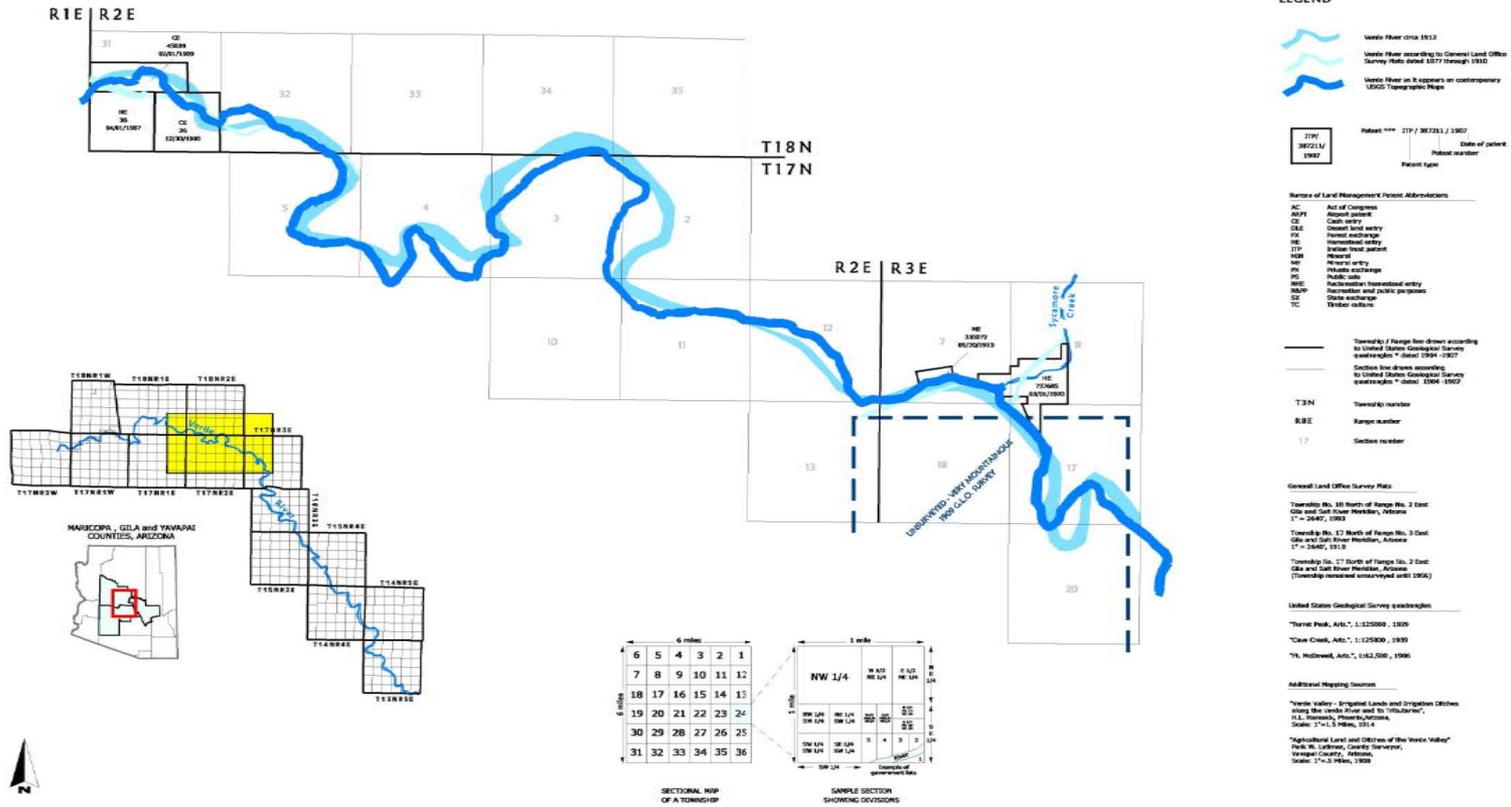
- Most federal surveyors along the Verde River did not meander the stream, thus indicating a lack of navigability in their opinions.
- Those few instances of meandering all are attributable to instructions in different surveying manuals for meanders of non-navigable bodies of water under certain special circumstances – not due to navigability.
- Thus, eight different federal surveyors – who were specifically charged with recording navigable bodies of water under federal statutes and who undertook surveys along the Verde in different years and at different times of year – indicated the Verde River was not navigable.

FEDERAL PATENTS



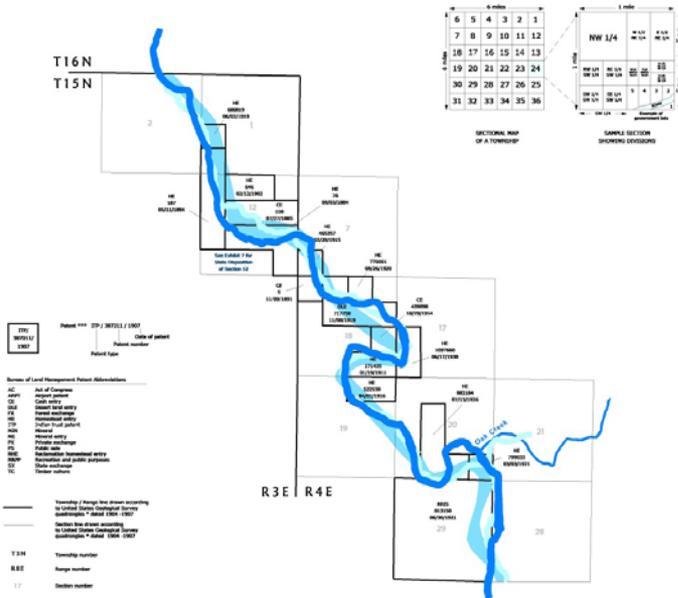
Exhibit 2, Federal Land Patents along the Historic Verde River Channel, T17N, R2E-R3E, and T18N, R2E

EXHIBIT 2 FEDERAL LAND PATENTS ALONG THE HISTORIC VERDE RIVER CHANNEL T17N R2E-R3E and T18N R2E



Prepared by Littlefield Historical Research and Salt River Project Cartographic & GIS Services
2005

EXHIBIT 4
FEDERAL LAND PATENTS ALONG THE HISTORIC VERDE RIVER CHANNEL
T15N R3E and T15N R4E



**Exhibit 4, Federal
 Land Patents along
 the Historic Verde
 River Channel, T15N,
 R3E, and T15N, R4E**

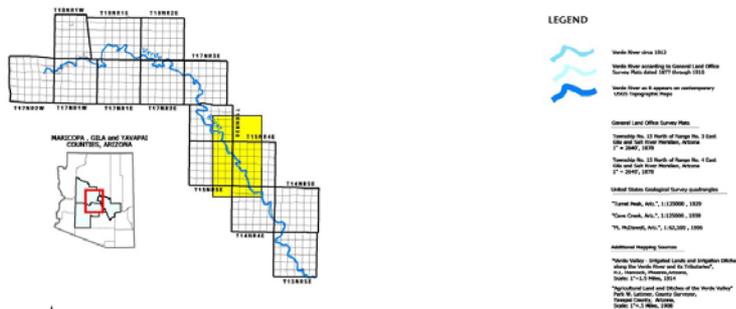
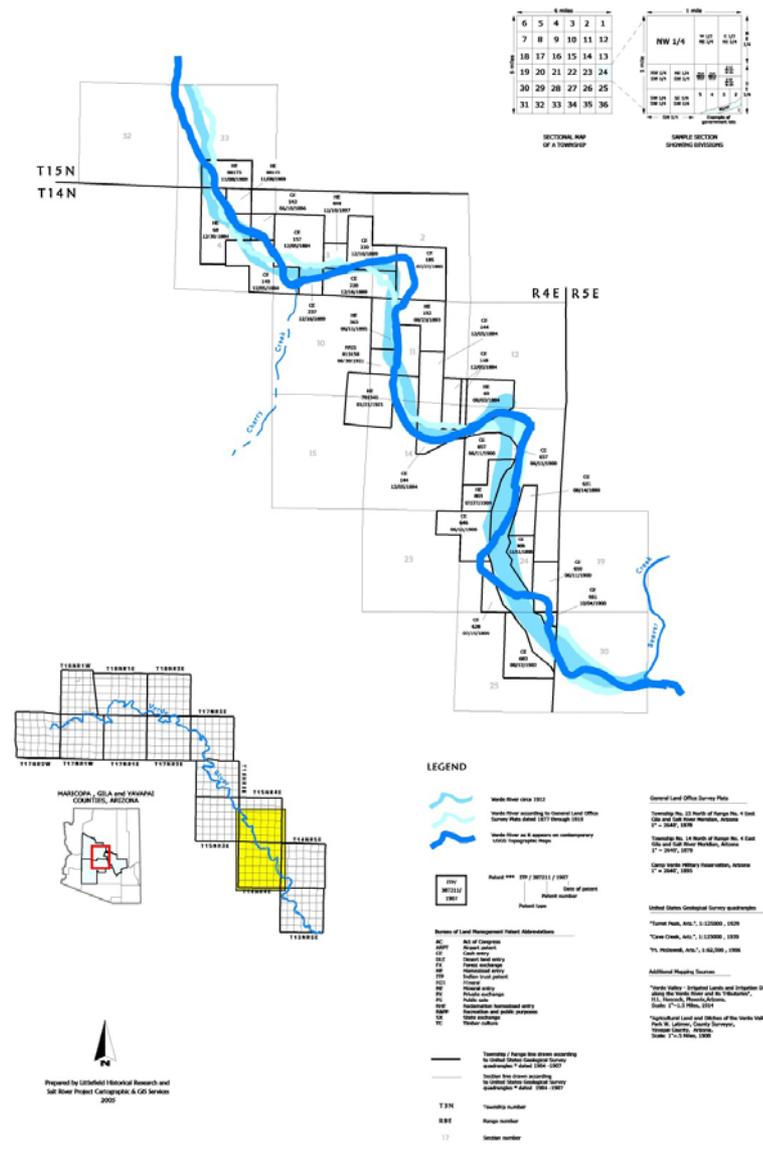


Exhibit 5, Federal Land Patents along the Historic Verde River Channel, T14N, R4E, and T15N, R4E

EXHIBIT 5 FEDERAL LAND PATENTS ALONG THE HISTORIC VERDE RIVER CHANNEL T14N R4E and T15N R4E



Desert Land Act of 1877

- In 1877, Congress passed the Desert Land Act.
- Designed to make homesteading in desert areas easier by permitting settlers to acquire larger blocks of land (640 acres instead of 160 under Homestead Act).
- The law required that claimants provide irrigation water to their lands.
- Such water had to come from a non-navigable stream:

“Provided however that the right to the use of water by the person so conducting the same, on or to any tract of desert land of six hundred and forty acres shall depend upon bona fide prior appropriation: and such right shall not exceed the amount of water actually appropriated, and necessarily used for the purpose of irrigation and reclamation: and all surplus water over and above such actual appropriation and use, together with the water of all, lakes, rivers and other sources of water supply upon the public lands and not navigable, shall remain and be held free for the appropriation and use of the for irrigation, mining and manufacturing purposes subject to existing rights.” [Emphasis added.]

- U.S. General Land Office issued over 50 Desert Land Patents in the vicinity of the Verde River, thus indicating U.S. officials believed the Verde to be non-navigable. 24

STATE PATENTS



EXHIBIT 7
 STATE LAND PATENTS ALONG THE HISTORIC VERDE RIVER CHANNEL
 T14N R4E and T15N R3E

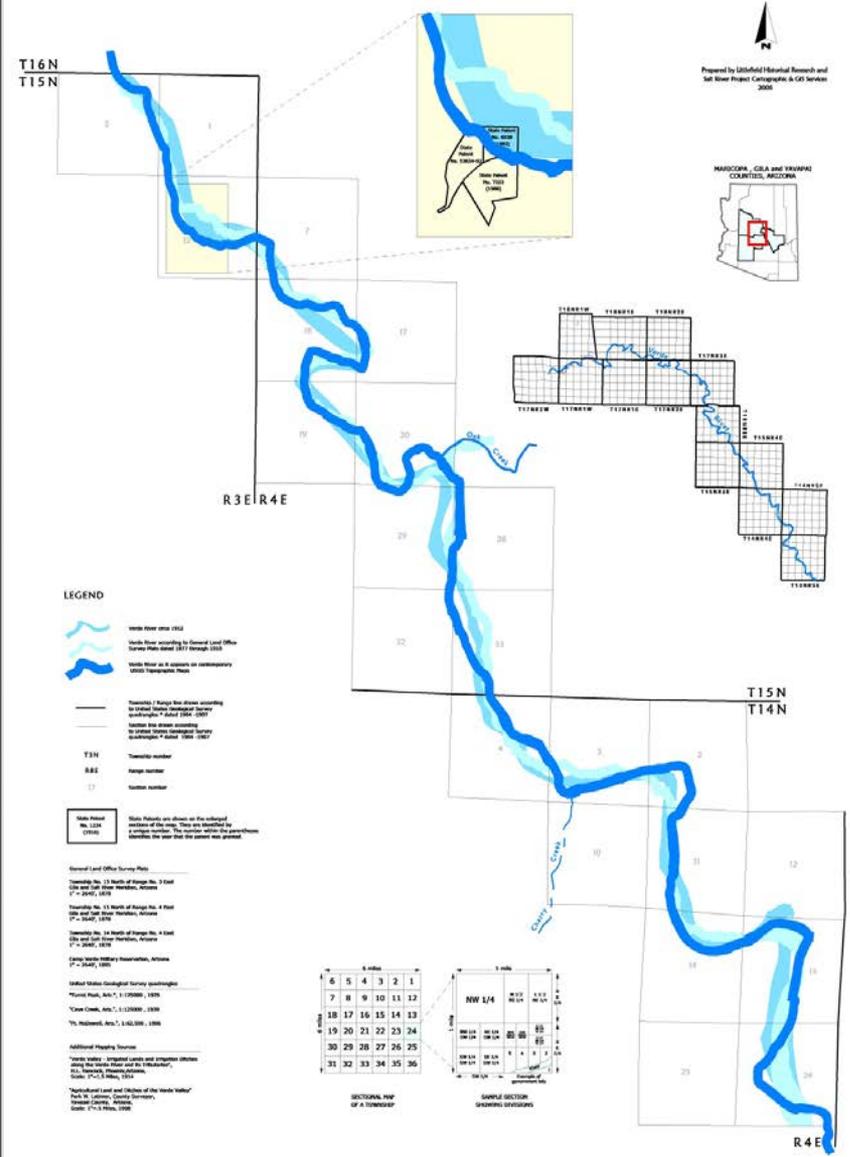


Exhibit 7, State Land Patents along the Historic Verde River Channel, T14N, R4E, and T15N, R3E

Conclusions about Patents

- Over 100 patents were issued by the United States that touched or overlay the Verde River.
- Fifty of these were Desert Land Act patents that expressly had to take water from a non-navigable stream.
- In not one instance did the U.S. Government in granting any type of patent along the Verde River indicate a belief that the stream was navigable by withholding acreage for the bed of the river.
- Indeed, many of the patent applicants and their witnesses specifically noted in sworn affidavits that their patent claims included the bed of the Verde River.
- In addition, Arizona authorities sold three parcels as state patents for lands lying over the Verde River.
- Cumulatively, therefore, hundreds of individuals involved in the patenting process for either the United States or the State of Arizona (officials and patentees alike) held the view that the Verde River was not navigable.

**DESCRIPTIONS OF THE
VERDE RIVER IN GOVERNMENT
REPORTS AND DOCUMENTS**



1872 Wheeler Survey

“One of the urgent wants felt in the promotion of our mining industry is that of increased and cheapened inland transportation. River transportation upon our western coast is, to a great extent, a failure, as beyond the Columbia and Colorado Rivers, that furnish somewhat irregular avenues of connection with the interior, no streams of considerable magnitude exist; river transportation, even in this very American age, loses its great power when pitted against railroads.”

-- George M. Wheeler, Report on Exploration of the Public Domain in Nevada and Arizona, H. Ex. Doc. 65, 42 Cong., 2 sess. (Washington, D.C.: U.S. Government Printing Office, 1872)

Twelfth Annual Report of the United States Geological Survey, 1891

The *Twelfth Annual Report of the United States Geological Survey* (1891) described the Verde, Salt, Hassayampa, San Pedro, and Agua Fria rivers as sources of potential irrigation water:

“Water is derived from the Gila River and its tributaries by means of canals and ditches, which distribute it to the fields of each farmer. These streams fluctuate greatly, being at times subject to sudden floods, especially during summer rains, when they often sweep out bridges, dams, and canal head works, while at other times they may diminish until the water almost disappears.” [Emphasis added.]

*Nineteenth Annual Report of the United States
Geological Survey to the Secretary of the
Interior, 1897-98*

- The author of the *Nineteenth Annual Report of the United States Geological Survey to the Secretary of the Interior, 1897-98* wrote that the bed of the Verde River at McDowell station, approximately a half mile above the stream's mouth:
- *“is similar to the one of Gila River – sandy and liable to change during a slight rise. . . . The bed of the river evidently changed during the last freshet, scouring out [the channel]. . . . The river fluctuated in this channel until August 23.”*

U.S.G.S. Water Supply Paper No. 73 (1903)

In addition to detailing the unpredictable flows of the Verde River in tables, the U.S. Geological Survey's Water Supply Papers also offered textual descriptions of the stream's characteristics. Water Supply Paper No. 73 (1903), for example, offered a detailed picture of the Verde River:

“Verde River drains the central portion of Arizona, and Upper Salt River the east central portion. Both streams are more or less torrential in character, the combined flow dwindling at times to about 100 cubic feet per second, and at other times reaching a volume more than one hundred times as great. . . . [T]he greater portion of the basin, however, is of a mountainous character, being cut with profound canyons and dotted by rugged mountains. . . .”

U.S.G.S. Water Supply Paper No. 85 (1903)

Frederick H. Newell, then an employee of the Geological Survey but later the head of the Reclamation Service, reported in 1903 in Water Supply Paper No. 85, that the:

“channel [of the Verde River] is similar to that of Salt River – sandy and liable to change during a slight rise.”

Proposal for Horseshoe Reservoir, 1914

Early controversy over the possible construction of Horseshoe Reservoir on the Verde River was especially revealing in relation to the navigability or non-navigability of the stream. For example, in 1914, Reclamation Service Engineer F.W. Hanna wrote regarding why Horseshoe Reservoir should not be built:

“There are several years in which there would be absolutely no water available for storage. Moreover, in the series of years from 1896 to 1904, inclusive, there are four years, three of which are consecutive, in which there would be no water supply for storage in the Horseshoe Reservoir, and there would be very little available water for the whole period of nine years. It appears, therefore, that the water supply even though the Horseshoe Reservoir is not constructed for the Salt River Project would be very unreliable for additional lands which would have to depend upon this source of supply alone.”

U.S. Indian Service Report, 1905

Reporting to the Secretary of the Interior on irrigation at the Camp McDowell Indian Reservation in 1905, Indian Service Inspector W.H. Code commented on the impact of flooding on the channel of the Verde River:

“The narrow valley of the Verde River embraced within the boundaries of this reservation has a steep gradient toward the river, and the Jones Canal [which served the reservation] winding its way around the base of foot hills for a distance of nearly six miles, intercepts many drainage lines, which, in times of heavy storms, run vast quantities of water which sweep out canal banks and fill sections of the ditch with a heavy sand deposit. To further increase the difficulties, the banks of the Verde River at the head of ditch have suffered great erosion . . . and the river channel seems to have scoured down to a considerable depth, leaving the present canal grade elevated a distance of several feet above the grade of river.”

**MISCELLANEOUS DOCUMENTS
AND NEWSPAPER ARTICLES**



1865 Arizona Territorial Legislature

As early as 1865, the Arizona Territorial Legislature, meeting in its second session, reached the conclusion that the Verde River was not navigable. On December 28, 1865, the legislators passed a “Memorial Asking Congress for an Appropriation to Improve the Navigation of the Colorado River.” Seeking \$150,000 to remove obstacles such as sand bars, snags, boulders, and other obstructions in the Colorado’s bed, the memorial declared that:

“The Colorado River is the only navigable water in this Territory[.]”

Weekly Journal-Miner, August 8, 1874

Prescott's *Weekly Journal-Miner* carried comments about a Verde River flood in 1874 that demonstrated the stream's extreme unpredictability:

“Albert Jackson and another man arrived here recently from the Verde River and say that while hunting and fishing below the settlements on said stream they were driven from the narrow bottom lands by a great rise in the river, which rise was caused by a water-spout or cloud-burst. They say that the river rised [sic] about fifty feet in a short space of time.”

Weekly Arizona Miner, January 22, 1875

The *Weekly Arizona Miner* carried another story on January 22, 1875, illustrating how swiftly the Verde River could change:

“The Rio Verde River commenced rising yesterday morning, and rose three feet during yesterday. This morning the angry torrent is rushing southward with terrific force and the muddy water has overflowed the meadows, making it dangerous to ford or attempt to cross.”

Weekly Arizona Miner, April 2, 1875

“Tuesday last, as Geo. Cary and Otto Webber attempted to cross the Verde River in a light wagon drawn by two horses; both men and horses found more water than they could well navigate. So, abandoning wagon and team, Cary and Webber paddled for the nearer shore, which they reached, while the horses were swept downstream and would have perished had it not been for a friendly snag which freed them from the wagon and so enabled them to reach the ‘other shore,’ where, after a short run, they were caught up and taken care of by some soldiers at Camp Verde. Loss, by this ‘ducking,’ eight pair of blankets, a fine rifle, etc., etc., belonging to Cary and Webber; and to J.H. Marion, the unfortunate owner of the ‘rig,’ about one hundred dollars, in loss of horse flesh, bolts, and other wagon rigging. Solemneholy [sic] fact – the ‘boys’ were sober when they walked into the watery trap.”

Weekly Journal-Miner, September 24, 1875

“Our mountains contain fine, clear gravel-bottomed streams and lakes, valleys of great beauty and varying in length and width spread out in every direction among the mountains. The San Francisco or Verde River and the Colorado Chiquito (Little Colorado or Flax River) together with the Great Colorado with its wonderful Cañon, are the most important rivers of Yavapai, but there is no navigable water in the county; all freight is moved by large trains of pack mules or heavy wagons drawn by from four to twenty mules to the wagon.” [Emphasis added.]

Weekly Journal-Miner, October 16, 1889

“The above-named [Etta] dam, constructed for the purpose of raising the Verde River, to supply water to the Etta mill, two miles below, was finished last Saturday, October 5th. All the gates were closed, and for the first time there was no Verde River running below. No leaks were to be seen, and the works were all pronounced first-class in every respect. To relieve the pressure and prevent the river from flowing over the dam, a sluiceway with two gates is built in the middle of the river. The gates are shut sufficient to send water enough down the ditch to supply the mill.”

Weekly Journal-Miner, February 19, 1896

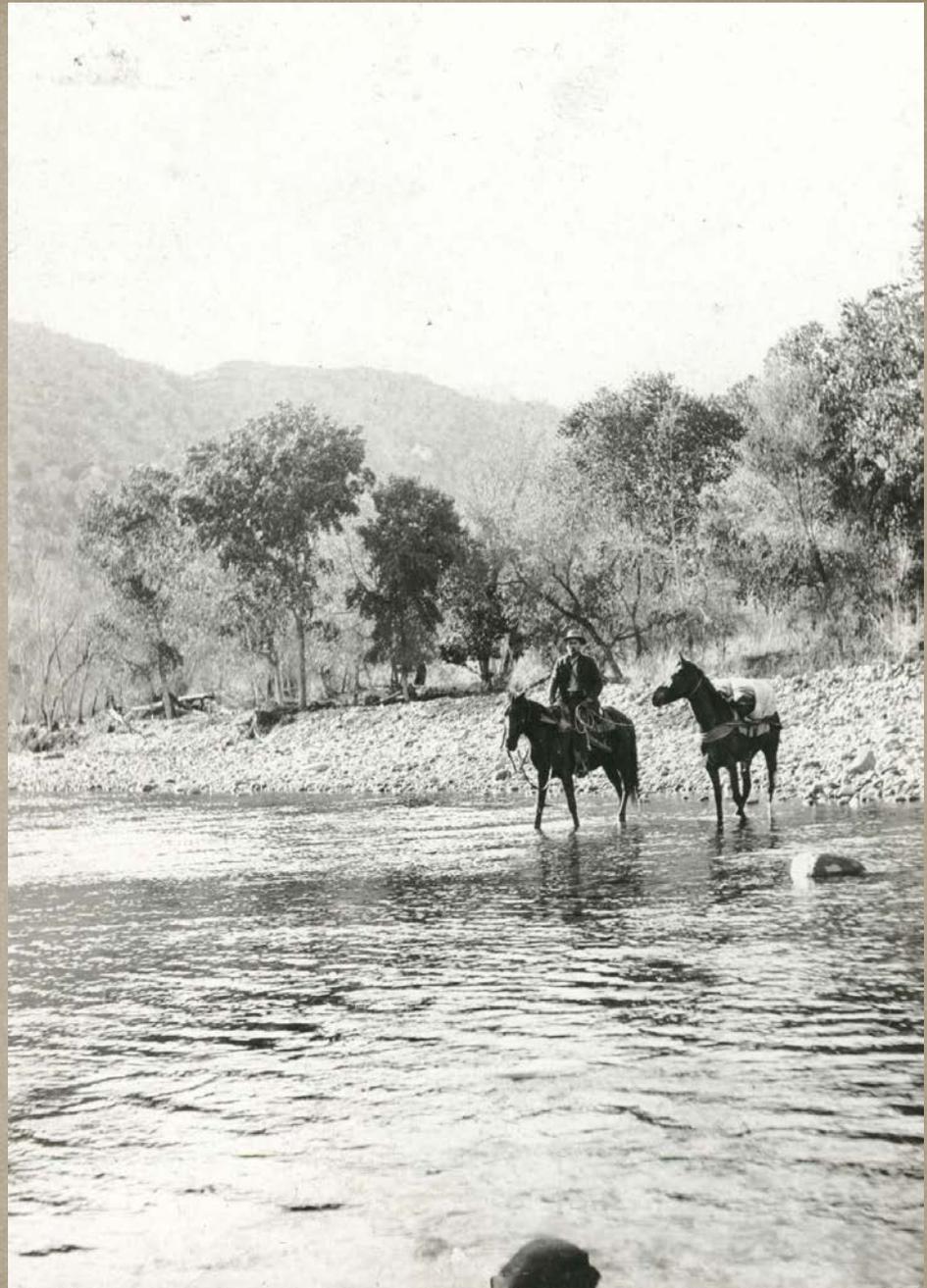
“Some dark morning you hear a roar like a mighty wind tearing through a forest, and here it comes – a solid head of water – swift by reason of its great incline, and dark with the soil of the ranchers’ valuable land. Then, when it falls, the work of destruction still goes on. The high banks, having become saturated, crumble from beneath, and day and night one can hear the sound of large portions of land falling into the water. I tell you this quiet little Verde River is a brilliant deception. Every flood we have it changes its current. One year it ripples up against this side, and the next it purrs and murmurs its deceptive little song clear across on the other side, and so back and forth, back and forth, always demanding a toll, and taking it too, with a lavish and liberal hand. The great question now when one wants to buy a ranch is, will the river take it? This too is the question in locating [irrigation] ditches, everything must be put as far out of the way of the river as possible.”

HISTORICAL PHOTOGRAPHS



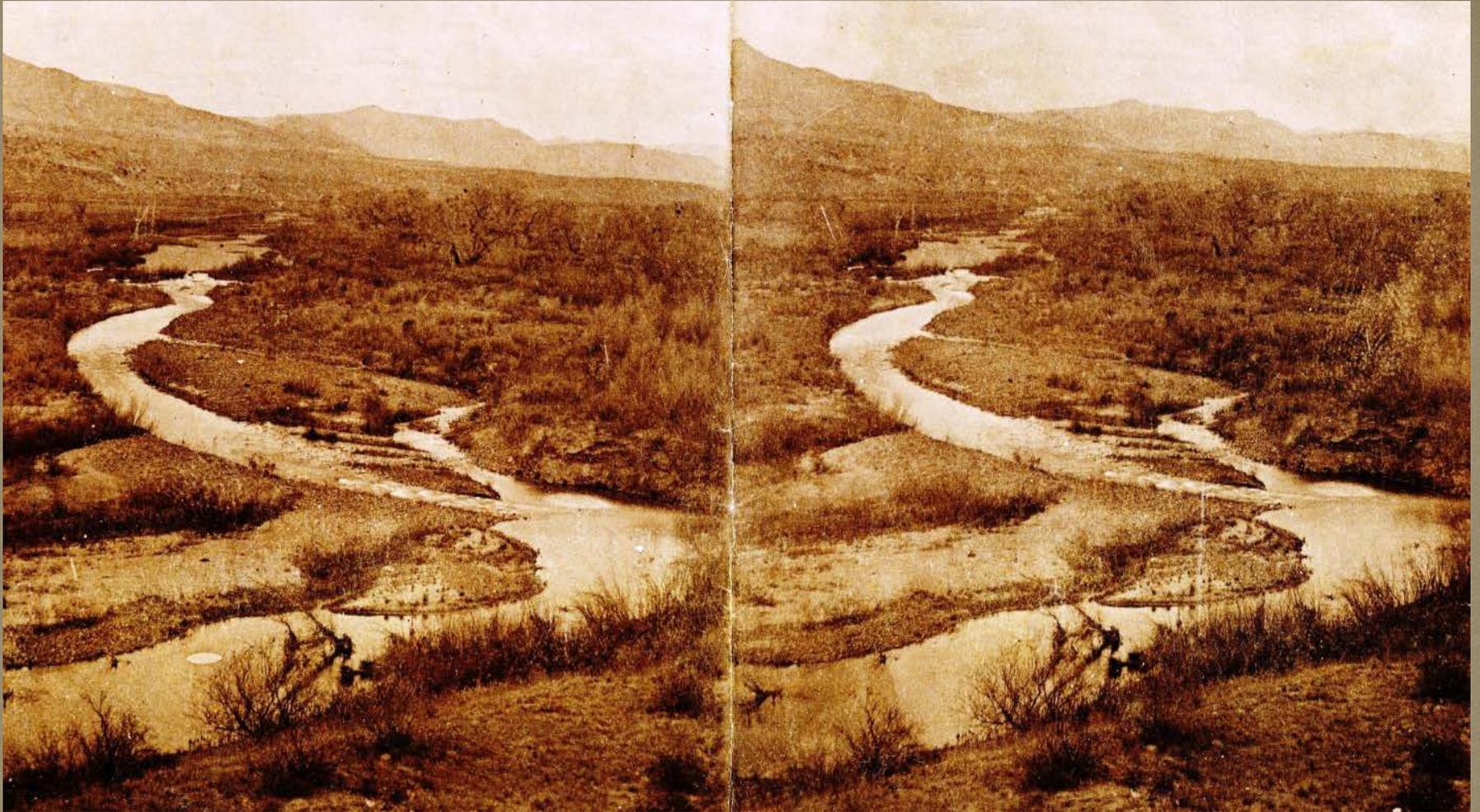
**Man on horseback
crossing the Verde
River, date and site
unknown.**

**Source: Jerome
Historical Society,
Jerome Arizona.**

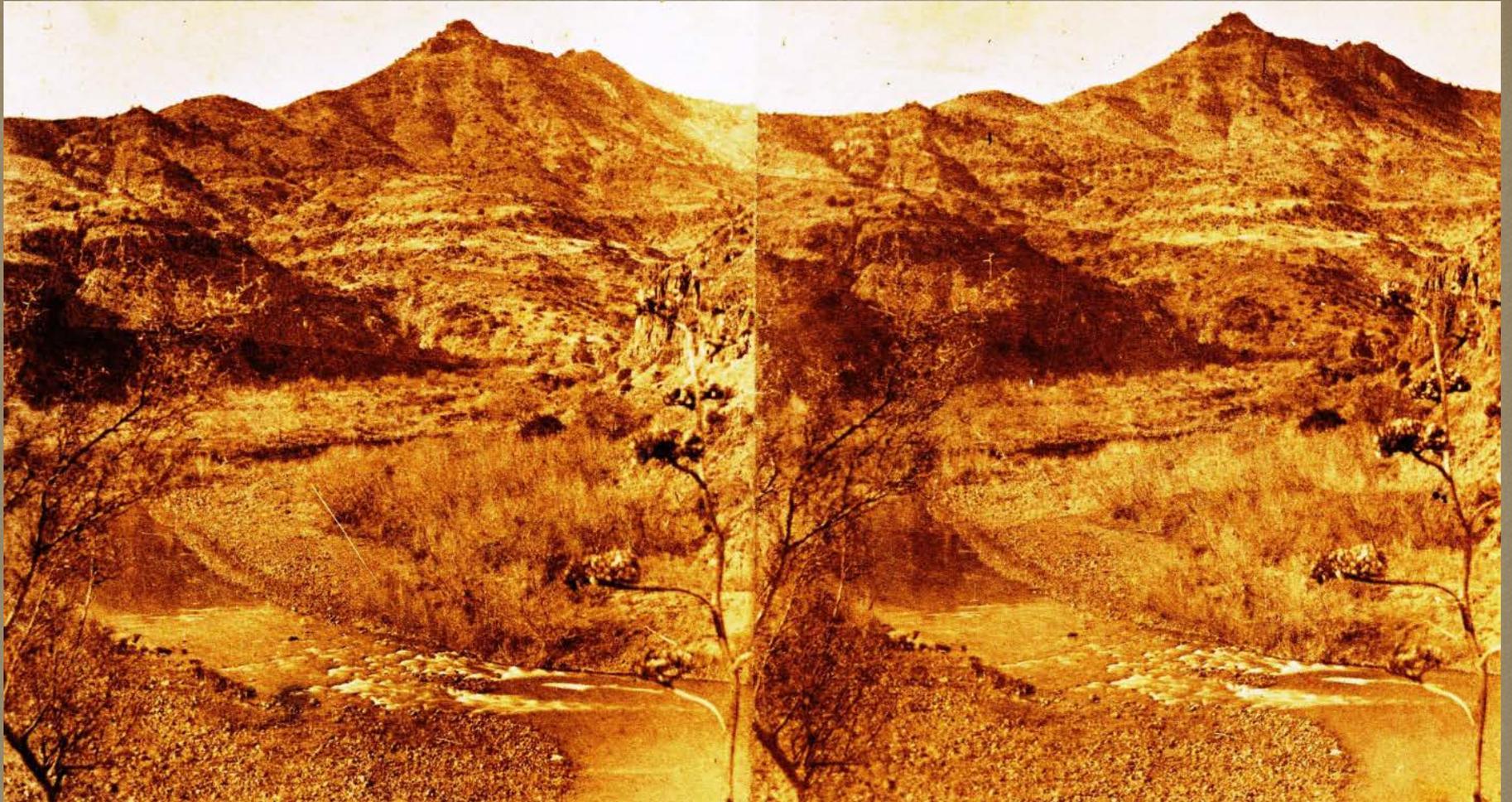


Prehistoric ruins at the confluence of the Verde River and Oak Creek, ca. 1880. Source: Fort Verde State Historic Park, Camp Verde, Arizona.





Stereographic photo of Verde River, site unknown, ca. 1880. Source: Sharlot Hall Museum, Prescott, Arizona.



**Stereographic photo of Verde River, site unknown, ca. 1880.
Source: Sharlot Hall Museum, Prescott, Arizona.**



Stereographic photo of man and two horses crossing the Verde River, site unknown, ca. 1880.

Source: Sharlot Hall Museum, Prescott, Arizona.

**Fort Verde residents on sand bar in Verde River, ca. 1885.
Source: Fort Verde State Historic Park, Camp Verde, Arizona.**



**Soldiers from Fort Verde in a boat on the Verde River, ca. 1885.
Source: Fort Verde State Historic Park, Camp Verde, Arizona.**





**Cottonwood Ford near Fort Verde, ca. 1885.
Source: Fort Verde State Historic Park, Camp Verde, Arizona.**



**Verde River near Clarkdale, March 1914.
Source: Special Collections, Arizona State University,
Tempe, Arizona.**



**Cars Fording the Verde River near Bridgeport, 1914.
Source: Jerome Historical Society, Jerome, Arizona.**



**Verde River flood, January 28, 1916.
Source: Jerome Historical Society, Jerome, Arizona.**

Horseshoe dam site, ca. 1920.

Source: Records of the Bureau of Reclamation,
U.S. National Archives Branch, Denver, Colorado.



Camp Verde dam site, ca. 1920.

**Source: Records of the Bureau of Reclamation,
U.S. National Archives Branch, Denver, Colorado.**



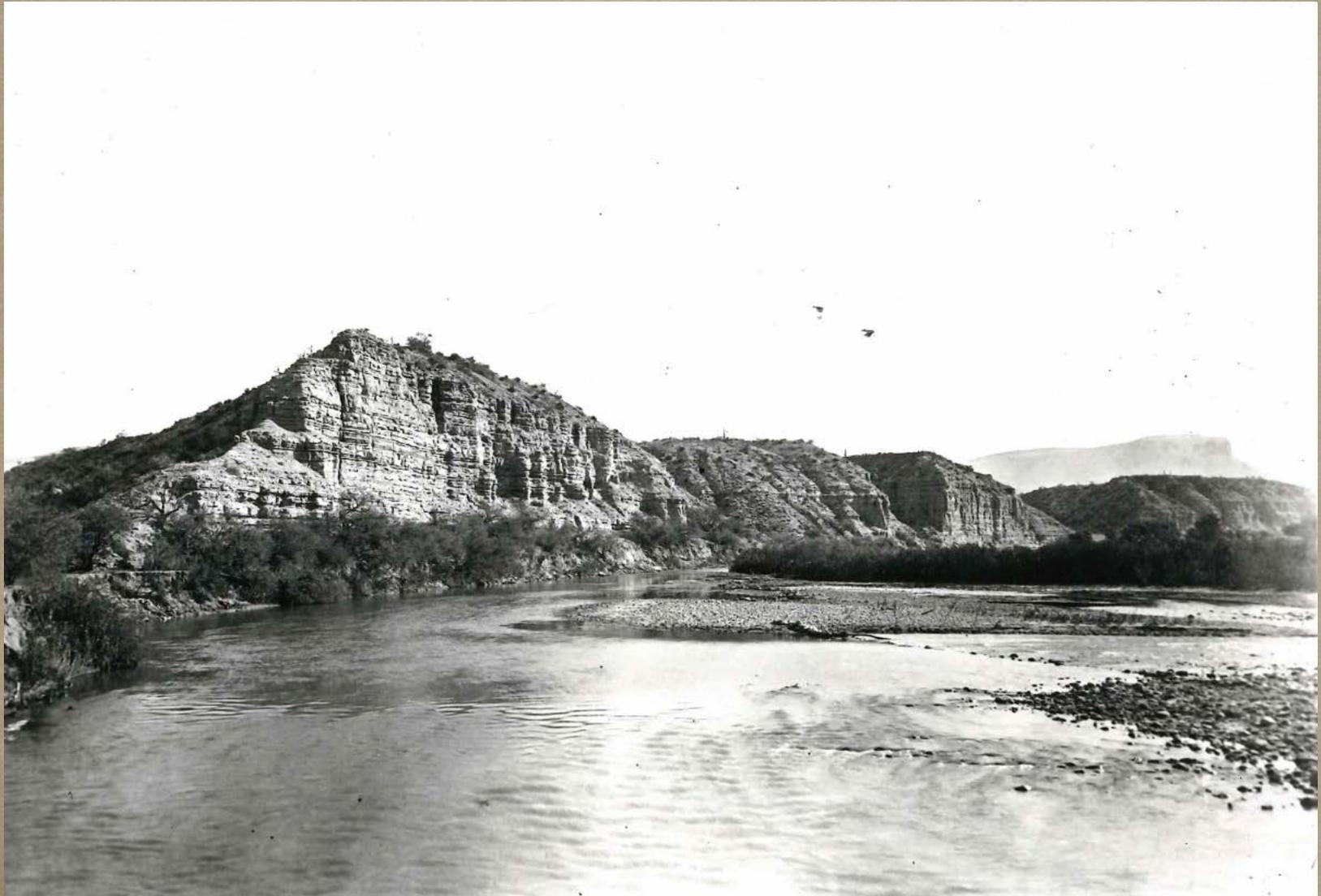
Camp Verde dam site, ca. 1920.

**Source: Records of the Bureau of Reclamation,
U.S. National Archives Branch, Denver, Colorado.**



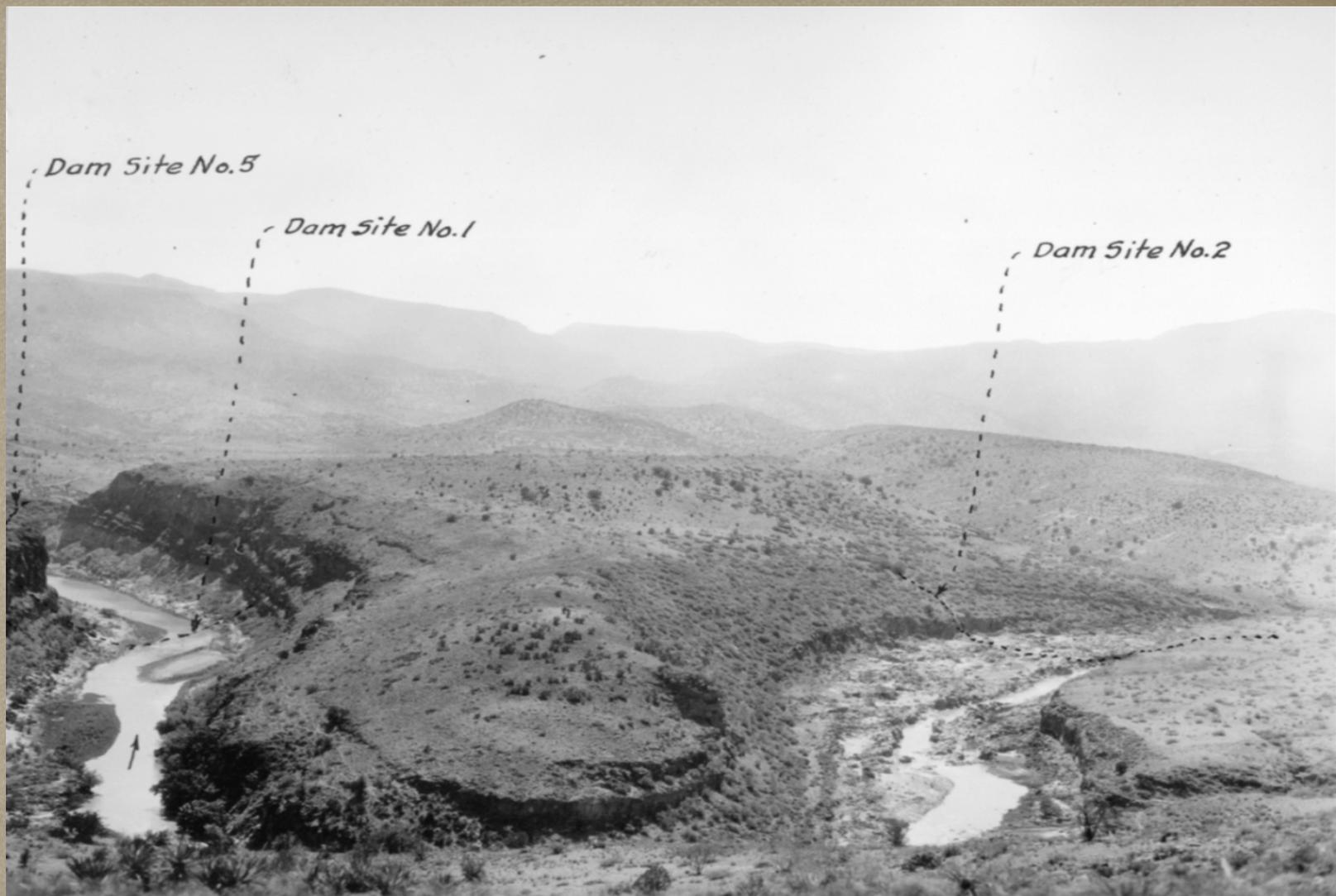
Lower Verde River, ca. 1932.

Source: Arizona Historical Society, Tucson, Arizona.



**Verde River, site unknown, ca. 1932.
Source: Arizona Historical Society, Tucson, Arizona.**

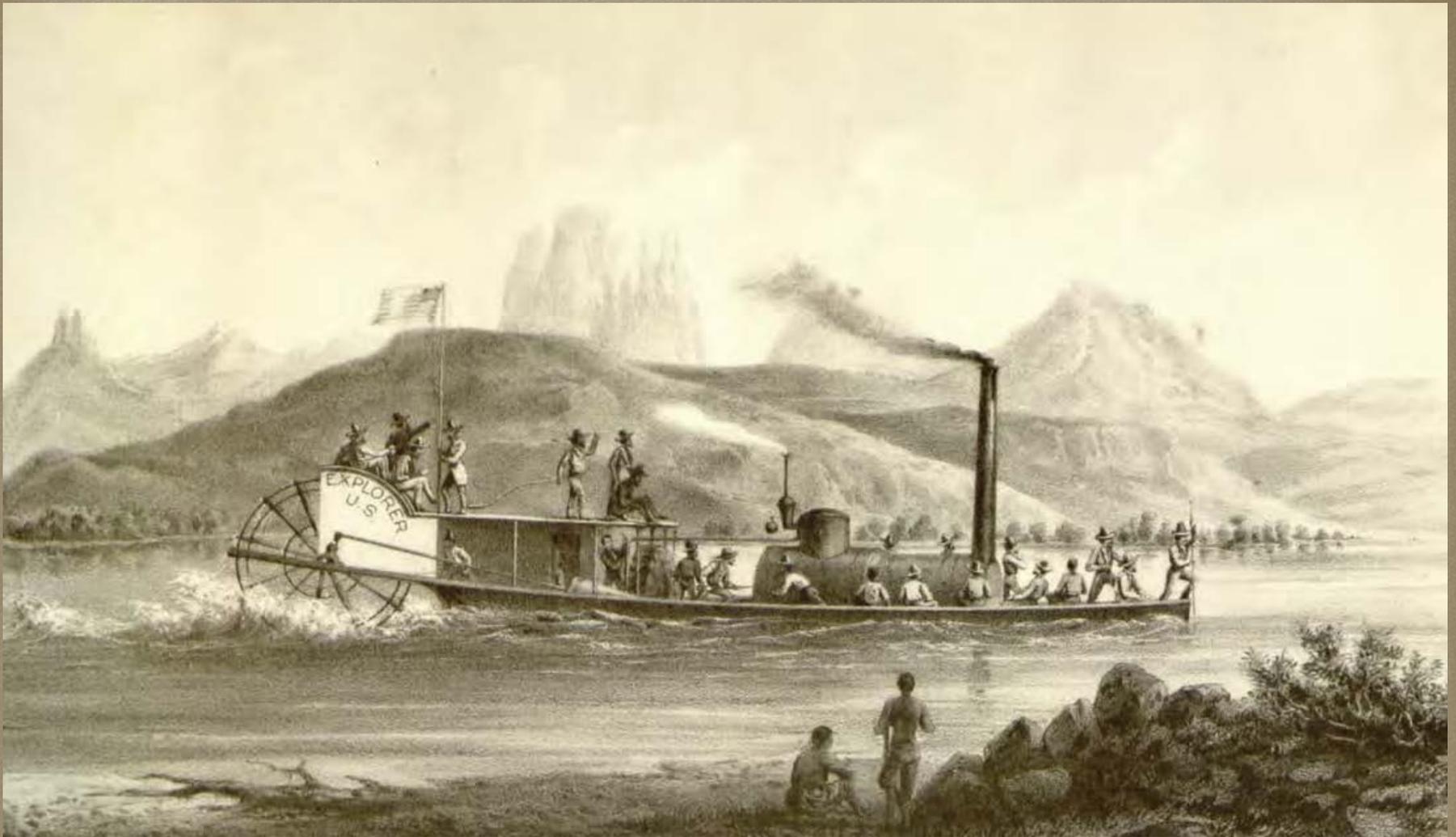




**View of possible dam sites, 1934. Annotations are on original.
Source: Records of the Bureau of Reclamation, U.S. National
Archives Branch, Denver, Colorado.**

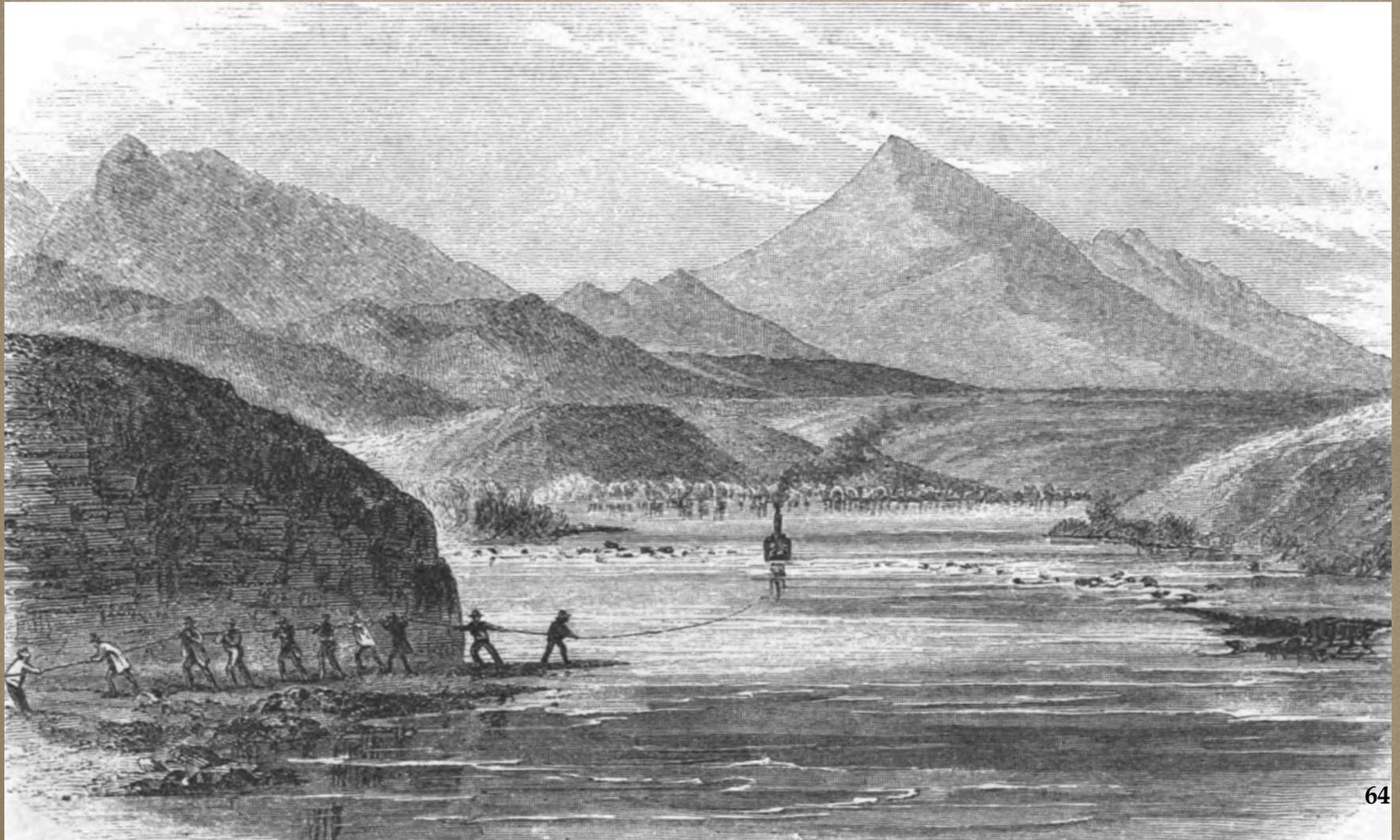
NAVIGATION ON THE COLORADO RIVER





J.C. Ives's sketch of the *Explorer* navigating the Colorado River, ca. mid-1850s. Source: Joseph C. Ives, *Report upon the Colorado River of the West* (1861).

Drawing of Ives's exploration of the Colorado River – lining the boat through rapids, mid-1850s. Source: Joseph C. Ives, *Report upon the Colorado River of the West* (1861).





**John Wesley
Powell in 1874.**

**Source: U.S.
National Park
Service online
photograph
collections.**

Photograph of Powell's dories on the Colorado River, 1871-1872.

**Note the lashed-on armchair on the boat in the foreground;
Powell commanded the expedition from the chair. Source: U.S.
National Park Service online photo collection.**



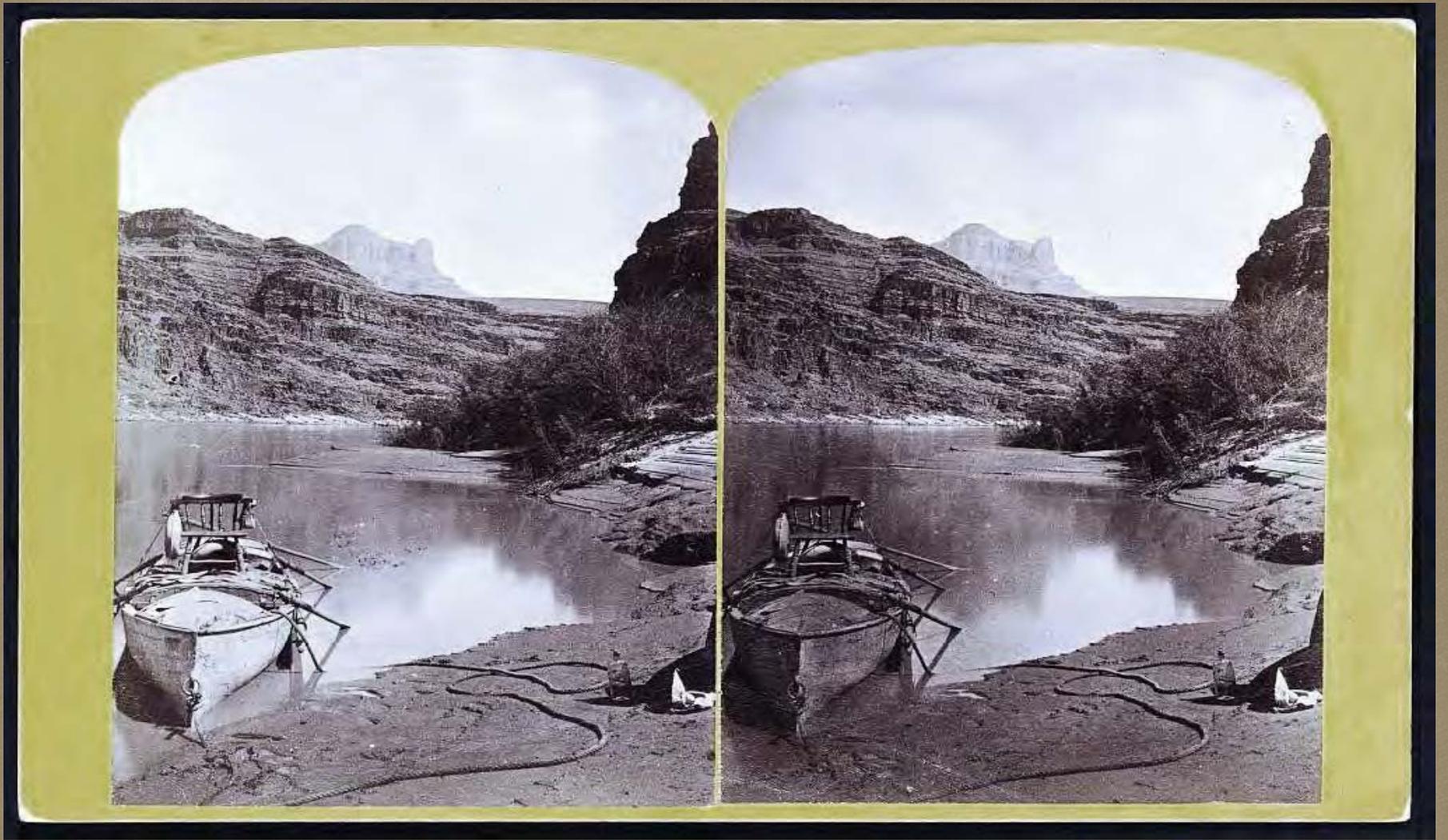
**Powell's crew with dories in the Grand Canyon, 1871-1872.
Source: U.S. National Park Service online photo collection.**





**John Wesley Powell's second expedition through the
Grand Canyon, 1871-1872.**

Source: U.S. Library of Congress, Washington, D.C.



Stereographic photograph of the dory used by John Wesley Powell on the second expedition through the Grand Canyon in 1871-1872. Source: U.S. Library of Congress, Washington, D.C.⁶⁹



**One of Powell's boats at
rapids in the Grand
Canyon, 1871-1872.**

**Source: U.S. National
Park Service online
photograph collection.**



**“Our First Camp,” Powell expedition through the Grand Canyon,
1871-1872.**

Source: U.S. National Park Service online photograph collection.



**Photograph of George
M. Wheeler's
upstream Colorado
River expedition
leaving Camp Mohave,
Arizona Territory,
1871.**

**Source: U.S. Library
of Congress,
Washington, D.C.**

Stereographic photograph of Wheeler expedition up the Colorado River at Black Canyon, 1871.

Source: U.S. Library of Congress, Washington, D.C.



**Photograph of
Wheeler expedition up
the Colorado River,
1871, at Camp Big
Horn. Note boats on
the beach.**

**Source: U.S. Library
of Congress,
Washington, D.C.**



CONCLUSIONS

- **Multitudes of historical documents describe the Verde River at many points in time before and near Arizona statehood in 1912.**
- **A wide spectrum of published and unpublished sources, including U.S. Government and state (and territorial) materials, archival records, historical newspapers, and photographs.**
- **From this wealth of information, covering a huge array of documentary sources, only one conclusion can be reached – a conclusion also reached by literally hundreds of contemporaneous observers:**
- ***The Verde River was not navigable or susceptible of navigation on or before February 14, 1912.***
- **It is especially important to note that this conclusion comes from literally hundreds of documents, maps, and illustrations created by people who knew the Verde River as it existed in their own time – not a reconstruction of the past looking backward in time.**

END