

1 OFFICE OF THE CITY ATTORNEY
DANIEL L. BROWN, Acting City Attorney
2 State Bar No. 013778
200 West Washington, Suite 1300
3 Phoenix, Arizona 85003-1611
Telephone (602) 262-6761
4 Fax (602) 524-7524
Email: law.civil.minute.entries@phoenix.gov

RECEIVED
FEB 19 2015
BY: *[Signature]*

5 CYNTHIA S. CAMPBELL, State Bar No. 016874
6 Assistant City Attorney
Email: cynthia.campbell@phoenix.gov

7
8 BEFORE THE
9 ARIZONA NAVIGABLE STREAM ADJUDICATION COMMISSION

10		NO. 03-009-NAV
11	IN THE MATTER OF THE NAVIGABILITY OF THE VERDE RIVER.	CITY OF PHOENIX SUBMISSION OF DECLARATION OF JACK AUGUST, JR., PhD
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15 The City of Phoenix ("Phoenix") hereby submits the Declaration of Jack August, Jr.,
16 PhD. In addition to his Declaration, Phoenix submits Dr. August's Curriculum Vitae.
17 Phoenix intends to call Dr. August as a witness in this matter.

18 RESPECTFULLY SUBMITTED this 17th day of February, 2015.

19 DANIEL L. BROWN, Acting City Attorney
20 By *Cynthia S. Campbell*
21 CYNTHIA S. CAMPBELL
Assistant City Attorney
22 200 W. Washington, Suite 1300
Phoenix, Arizona 85003-1611

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ORIGINAL and SIX COPIES of the foregoing
Mailed and submitted electronically this 17th day of February, 2015:

Arizona Navigable Stream Adjudication Commission
1700 West Washington, Room B-54
Phoenix, AZ 85007

COPY of the foregoing sent via Email this 17th day
of February, 2015, to:

Fred E. Breedlove III
Squire Sanders
1 East Washington Street, Suite 2700
Phoenix, AZ 85004
Fred.breedlove@squiresanders.com
Attorney for Arizona Navigable Stream Adjudication Commission

Joy L. Hernbrode
1275 West Washington Street
Phoenix, AZ 85007-2997
Joy.Hernbrode@azag.gov
Attorneys for the Arizona State Land Department

John B. Weldon, Jr.
Mark A. McGinnis
Salmon, Lewis and Weldon, PLC
2850 East Camelback Road, Suite 200
Phoenix, AZ 85016-4316
mam@slwplc.com
Attorneys for the Salt River Project Agricultural Improvement and
Power District and Salt River Valley Water Users' Association

Cynthia M. Chandley
Robert J. Pohlman
L. William Staudenmaier
Christopher W. Payne
Snell & Wilmer
400 East Van Buren
Phoenix, AZ 85004-2022
wstaudenmaier@swlaw.com
Attorneys for Freeport-McMoRan Copper & Gold Inc.

1 Sean Hood, Esq.
Fennemore Craig, P.C.
2 2394 East Camelback, Suite 600
Phoenix, AZ 85016-3429
3 shood@fclaw.com
Attorneys for Freeport-McMoran Copper & Gold Inc.
4
Joy Herr-Cardillo
5 AZ Center for Law in the Public Interest
2205 East Speedway Blvd.
6 Tucson, AZ 85719-0001
jherrcardillo@aclpi.org
7 Attorneys for Defenders of Wildlife, Donald Steuter, Jerry Van Gasse
and Jim Vaaler
8
Joe Sparks
9 John H. Ryley
The Sparks Law Firm, P.C.
10 7503 First Street
Scottsdale, AZ 85251-4201
11 joesparks@sparkslawaz.com
julia@sparkslawaz.com
12 Attorneys for San Carlos Apache Tribe
13 John Helm
Sally Worthington
14 Helm, Livesay & Worthington, Ltd.
1619 East Guadalupe, Suite One
15 Tempe, AZ 85283-3970
office@hlwaz.com
16 Attorneys for Maricopa County
17 Steven L. Wene
Moyes Sellers & Sims
18 1850 North Central Avenue, #1100
Phoenix, AZ 85004
19 swene@lawms.com
Attorneys for Board of Regents/Arizona State University
20
21
22

1 William H. Anger
Engelman Berger, P.C.
2 Security Title Plaza, Suite 700
3636 North Central Avenue
3 Phoenix, AZ 85012
wha@engelmanberger.com
4 Attorney for City of Mesa

5 Charles L. Cahoy
Assistant City Attorney
6 City of Tempe
21 East Sixth Street, Suite 201
7 Tempe, AZ 85281
chuck_cahoy@tempe.gov
8 Attorney for City of Tempe

9 Michael J. Pearce
Maguire & Pearce PLLC
10 2999 North 44th Street, Suite 630
Phoenix, AZ 85018-0001
11 mpearce@mpwaterlaw.com
Attorney for Home Builders Association of Central Arizona

12
13 Carla A. Consoli
Lewis & Roca, LLP
40 North Central Avenue
14 Phoenix, AZ 85004-4429
cconsoli@lrlaw.com
15 Attorney for Cemex Cement, Inc.

16 James T. Braselton
Mariscal, Weeks, McIntyre & Friedlander
17 2901 North Central Avenue, #200
Phoenix, AZ 85012-2705
18 jbraselton@dickinsonwright.com
Attorney for Land Title Association of Arizona

19
20 Julie M. Lemmon
1095 West Rio Salado Parkway, Suite 102
Tempe, AZ 85281
21 jmlemmon@att.net
Attorney for Flood Control District of Maricopa County
22

1 Linus Everling
Thomas L. Murphy
2 Gila River Indian Community
P.O. Box 97
3 Sacaton, AZ 85247
thomas.murphy@gric.nsn.us
4 Attorneys for Gila River Indian Community

5 Sandy Bahr
202 East McDowell Road, Suite 277
6 Phoenix, AZ 85004
sandy.bahr@sierraclub.org
7 For the Sierra Club

8 David A. Brown
Brown & Brown Law Offices
9 128 East Commercial
P.O. Box 1890
10 St. Johns, AZ 85936
david@b-b-law.com
11

Susan B. Montgomery
12 Robyn Interpreter
Montgomery & Interpreter P.L.C.
13 4835 East Cactus Road, Suite 210
Scottsdale, AZ 85254
14 smontgomery@milawaz.com
Attorneys for Yavapai-Apache Nation
15

Dr. Carole Coe Klopatek
16 P.O. Box 17779
Fountain Hills, AZ 85269-7179
17 cklopatek@ftmcdowell.org
Director of Government Relations
18 Fort McDowell Yavapai Nation

19 Mr. Thomas Moriarty,
P.O. Box 17779
20 Fountain Hills, AZ 85269-7779
TMoriarty@ftmcdowell.org
21 Arizona Attorney of Record
Acting General Counsel
22 Fort McDowell Yavapai Nation

1 Michael F. McNulty
Deputy County Attorney
2 Pima County Attorney's Office
32 N. Stone Ave., Suite 2100
3 Tucson, Arizona 85701
4 michael.mcNulty@pcao.pima.gov

4

5



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1168789

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**Declaration of Jack L. August, Jr., Ph.D. on the Non-Navigability of the Verde
River at and Prior to Arizona Statehood, February 14, 1912**

History of Navigability of the Lower Verde River

The 170-mile Verde River begins its southeasterly journey in Yavapai County, near the confluence of the Big Chino and Williamson Valley washes. It forms its waters from snowmelt in the mountains, as well as from seasonal summer monsoons, beginning at an elevation of about 4,400 feet near Sullivan Lake, where the Big Chino Wash and the Williamson Valley Wash merge south of the city of Paulden in the Big Chino Valley of Yavapai County. The Verde River then flows south by southeast to its confluence with the Salt River, located about three miles east of Granite Reef Dam, just northeast of Scottsdale, and Phoenix. According to Rich Burtell, the Verde can be divided into five segments. Of interest here are Segment 4 (Verde Hot Springs to Horseshoe Reservoir) and Segment 5 (Horseshoe Reservoir to Salt River Confluence).¹ However, after reviewing the complete historical record, it is my opinion that none of the five segments of the Verde is navigable in its ordinary and natural condition prior to the State of Arizona's admission to the United States on February 14, 1912.

City of Phoenix and Lower Verde River

Phoenix maintains significant interest in the Lower Verde River (Segments 4 and 5). Municipal leaders appropriated waters from the Verde for beneficial use. Prior to statehood Phoenix undertook a fifteen-year odyssey to provide its citizens with a reliable supply of water.

¹ Plateau Resources, "Declaration of Rich Burtell on the Non-Navigability of the Verde River at and Prior to Statehood," (Phoenix: September 2014) 3. Burtell describes Segment 4 as "River located within several US National Forests and two Wilderness areas. Major tributaries include Fossil Creek and East Verde River. River flows through shallow canyons and narrow alluvial valley with small[er] rapids." Segment 5 is described as "River flows through broader alluvial valleys with some short canyon reaches and few small rapids. Major tributary is Sycamore Creek."

In 1907, Phoenix converted its water supply from private to municipal control.² Water quality was a major public issue and one of the city's first goals after acquiring the water supply system was to secure better-quality water than was pumped from its groundwater supplies. Engineers focused on the possibility of pumping fresh Verde River water from an intake at Fort McDowell Indian Reservation. In 1915, a feasibility study confirmed that a gravity-fed system could be constructed and Phoenix filed for a right-of-way through Yavapai lands. After delays caused by World War I, a pipeline was constructed at a cost of \$1,525,282.62 which illustrated the value citizens placed on water.³ Much of the pipeline was above-ground, but some portions were buried. The line terminated at 12th and Van Buren Streets where a major pumping station was located. By February 1922 water from the Lower Verde River flowed to Phoenix consumers.⁴ The resulting gravity-fed pipeline was made of redwood staves and held together by steel straps. It was constructed like a series of barrels connected end to end for twenty-eight miles. One chronicler described the delivery system: it was "a 28-mile-long barrel."⁵

In 1927, wells were drilled near the Verde River water pipeline intake for additional water. A year later, however, the redwood pipeline began leaking and a study was

² In April 1889, several wells were drilled near 9th Street and Van Buren to make up what was then the first privately organized water company, known as the Phoenix Water Works Company. The new system could provide two-million gallons a day, through an eight-mile system of pipes. However, a severe drought hit the Salt River Valley between 1898 and 1904, and during this time, pressure on city officials to raise the issue of municipal ownership of the water utility began to build. In January 1899, the first of several failed bond elections took place. But in December 1903, the voters approved the bonds to create a municipal water system. And although the voters had approved the funding, three-and-a-half more years would pass before the political and legal red-tape was removed so the city could purchase of what was now known as the Phoenix Water Company for a cost \$150,000. And, on July 1, 1907, the city officially took over operation of the utility.

³ Gerard Giordano, *The Verde River: Bartlett and Horseshoe Dams* (Charleston, SC: Arcadia Publishing, 2010) 51.

⁴ The line had been completed in December the previous year, but a chlorination facility needed to be constructed before the water could be used.

⁵ Giordano, *The Verde River*, 49.

commissioned to assess the feasibility of replacing the pipeline with a larger and sturdier concrete line. By December, construction began on the new 42-inch concrete water line from the Verde, which was augmented by a 20-million gallon reservoir. This new delivery system was completed by 1931. In the 1930s, federal funding allowed water service to expand into the Phoenix suburbs, and during the 1940s, an increased use in evaporative coolers created a higher demand for water. In the last three months of 1940, wet weather created the largest runoff in seven years, and this runoff ended a record drought.

In September 1946, the City of Phoenix's water development committee presented the idea of making major improvements to the Phoenix water system, which would include improving the distribution system, the Verde River water intake, constructing spillway gates on Horseshoe Dam, and building the first water filtration plant. The Verde Water Treatment Plant began delivering water to Phoenix in 1949. Spillway gates, funded by Phoenix, were completed in June of 1950. Although the gates, which would provide an additional 23,000 acre-feet of water, took more than an additional year to complete, the effect of giving Phoenix additional water to utilize during the peak demands of summer benefitted Phoenix for many summers to come.

Prehistoric and Historic Uses of the Lower Verde River

After the Hohokam culture flourished along the Salt and the Gila rivers, developing an extensive irrigation and canal system, in approximately 700 AD they entered the lower Verde Valley. A major archeological study in the 1990s, the Lower Verde Archeological Project, undertaken by the United States Bureau of Reclamation, examined two major Hohokam periods in the Lower Verde, the pre-classic period (500-1150) and the classic period (1150-1450). At

least twenty-six separate settlements were identified in the areas of Bartlett and Horseshoe lakes. Water was the cornerstone for survival and as the population grew so too did the irrigation technology and their dependence upon it. A few sites, like Scorpion Point, were much larger than researchers anticipated. These sites included aqueducts, ball courts, canals, and multilevel compounds. These groups hunted beaver, whose dams were sophisticated, even employing arched construction. At their height, the Hohokam along the Lower Verde cultivated crops that included corn, tobacco, cotton, agave, and squash. They also gathered mesquite beans and cactus fruit. They traded with other peoples in Mexico and northern Arizona. These early inhabitants traveled by foot and there was no archeological evidence of boats or water-based transportation.⁶

About 1450, before the arrival of the Europeans, their civilization declined. The theories about the reason for the decline of the Hohokam in the Lower Verde and elsewhere have fueled numerous dissertations and scholarly tomes.⁷ Drought, floods, soil, disease, and warfare with hostile groups are among the most commonly cited causes for the disappearance of the Hohokam. Whatever the reasons for their decline, water, and its diversion onto land for irrigation purposes, was the primary reason for sustaining the Hohokam for several hundred years.⁸

Around 1300, while the Hohokam civilization was at its peak, another group migrated east from the Colorado River into the lower Verde Valley. Unlike the Hohokam, they were a hunter and gathering culture and led a nomadic existence. Indeed the Yavapai came to dominate

⁶ See Stephanie Whittlesey, ed., *Vanishing River: Landscapes and Lives of the Lower Verde Valley: The Lower Verde Archeological Project: Overview, Synthesis and Conclusions* (Tucson: SRI Press, 1998).

⁷ See J. Jefferson Reid and David E. Doyel, eds., *Emil Haury's Prehistory of the American Southwest* (Tucson: University of Arizona Press, 1986);

⁸ See, for example, David Doyel and Jeffrey Dean (eds.) *Environmental Change and Human Adaptation in the Ancient American Southwest* (Salt Lake City: University of Utah Press, 2006).

the Lower Verde as well as the Middle and Upper Verde regions. They were divided among five groups of which four exist today.⁹ Like their predecessors, the Hohokam, there is a lack of evidence that the semi-nomadic group used the Lower Verde for commerce or travel.

The Spanish and the Lower Verde

Two Spanish explorers, Antonio Espejo and Marcos Farfan, were the first Europeans to visit the river (1583 and 1599, respectively) after being led there in search of gold by Hopi guides. There they encountered the Yavapai. Espejo called the Verde, “El Rio de los Reyes” (River of Kings). Farfan called it “El Rio Sacramento.” According to their diaries and reports, neither discerned where the river originated nor where it went. They traveled overland, using horses and mules for transportation. In 1604, Juan de Onate made a visit to the Yavapai in his search for an overland route to the sea. After Onate, the Yavapai would not see Europeans in their lands for another two-hundred years.¹⁰

More than one hundred years after de Onate visited the Yavapai, Father Eusebio Francisco Kino drafted the first map of the river which was shown flowing south from the Hopi villages to the Gila River. Today, these villages are located approximately one hundred-twenty miles northeast of Flagstaff. In 1691, Father Kino, a Jesuit and remarkably skilled mapmaker, began establishing missions in what is now northern Mexico and southern Arizona. In 1702, after traveling through much of the province the Spanish called Pimeria Alta (Upper land of the

⁹ The four groups are the western group, the Tolkapaya; the northeastern groups, the Yavepe and the Wipukpaya; and the southeastern group, the Kewavkaapaya. Europeans often confused the similarities in appearance and lifestyle with the Apache, who actually arrived in the area much later than the Yavapai. Several early narratives refer to Yavapais as “Apache-Mohave.”

¹⁰ The two best volumes that cover Spain’s colonizing efforts in what is today the American Southwest is John Francis Bannon, S.J., *The Spanish Borderlands Frontier, 1513-1821* (Albuquerque: University of New Mexico Press, 1979); David J. Weber, *The Spanish Frontier in North America* (New Haven: Yale University Press, 1994).

Pima), including a visit to the confluence of the Salt and Verde in 1699, he produced the region's first remotely accurate map. By this time cartography played a significant role in Spanish exploration of the North American continent and Kino gained an international reputation for his skill. It is also worth noting that he was the first to demonstrate that California was not an island, one of those fanciful cartographic notions that appeared in virtually every previous Spanish map of the Southwest. On his 1702 map, Kino depicts a river entering the Gila from the north. He calls it Rio Azul or Blau Fluss (the Spanish and German translations for Blue River). The Verde would be called Rio Azul on maps for years to come, a name thought to have been connected to the legend of a mountain of gold, located somewhere in the vicinity of the Hopi villages, known as Sierra Azul.¹¹

Though no permanent missions or churches were established by Kino or his Jesuit brethren during this period, Kino left an imprint on the region. He traveled north to the region north of the Gila River in 1696, and Kino, according to his military escort Manje, issued names for the rivers. He wrote:

Here there are fertile lands, but the Indians plant only the lowlands of the river. The river carries sufficient water to justify digging ditches for irrigation in an event a mission should be established.With the idea of establishing a mission in view Father Kino started out on a series of continuous trips of discovery. He named this river [Gila] the Rio Grande de los Apostles. Another, due to the redness of the earth, he named the Colorado of the Martyrs. The Salt River (Rio Salado) he named and the Verde, and the two rivers of the Sobaipuris, which join with this, he named the Evangelists."¹²

¹¹ The best and most comprehensive work on Kino is Herbert Eugene Bolton, *Rim of Christendom: A Biography of Eusebio Francisco Kino, Pacific Coast Pioneer* (Tucson: University of Arizona Press, 1984). A more concise volume was written by one of Bolton's best students, John Francis Bannon, S.J., *The Padre on Horseback: A Sketch of Eusebio Francisco Kino, S.J., Apostle to the Pimas* (Los Angeles, Loyola Press, 1982). Another worthy, workmanlike account that addresses Kino's role in Arizona is Fay Jackson Smith, John L. Kessell, and Francis J. Fox, S.J., *Father Kino in Arizona* (Tempe: Arizona Historical Foundation, 1966).

¹² Manje, *Tierra Incognita*, 121.

At one point Kino climbed a pass to the top of the Estrella mountains and from there his guides pointed out what Kino named the Rio Verde and the Rio Salado , which united and flowed west and joined the Gila.¹³ Manje added, “This Salado River runs from east to west and to the south of...the Verde River...and they merge, as I have said. To the very end and to the most easterly point of this Pimeria there are also two rivers called, more properly, *arroyos* (small streams). They do not have any particular names.”¹⁴ Kino’s brief encounter with the Lower Verde River offers no indication that he navigated the river for transportation or commerce, nor do his diaries suggest that he viewed the Lower Verde as susceptible for transportation or commerce.¹⁵

The Verde River’s name, Spanish for “green,” was derived from the malachite deposits along its shores. A Spanish priest, Father Luis Velarde, traveled throughout the area the Spaniards called the Pimeria Alta, which included the Verde River. He traveled via horseback and wrote in his recollections of his travels in 1716 that “the Verde gets its name perhaps because it runs along greenish slopes of rocks.” Velarde was also the first to note that the portion of the river flowing into the Gila was composed of two rivers flowing from the northwest (Verde) and one from the east (Salado or Salt).¹⁶

Another Jesuit priest, Father Juan Bautista Nentvig, published the first map that actually uses the name Verde, in 1764. Nentvig incorporated knowledge gathered from other Jesuit priests who, like Kino, had traveled overland extensively throughout Pimeria Alta. Nentvig, who traveled on horseback, also included information gleaned from the travels of Jesuit priests Father

¹³ For a comprehensive biography of Kino see Herbert Eugene Bolton, *Rim of Christendom: A Biography of Eusebio Francisco Kino, Pacific Coast Pioneer* (New York: Russell and Russell, 1960) 422.

¹⁴ *Ibid.* 124.

¹⁵ Herbert Eugene Bolton and John Francis Bannon, *The Padre on Horseback: A Sketch of Eusebio Francisco Kino, S.J., Apostle to the Pimas* (Chicago: Loyola University Press, 1982).

¹⁶ Velarde’s recollection of his travels in 1716 stands as the earliest documented use of the name for the river running south toward the Salt and Gila rivers. See Juan Nentvig, *Rudo Ensayo: A Description of Sonora and Arizona in 1764*, translated by Alberto Pradeau (Tucson: University of Arizona Press, 1980); Rufus K. Wyllys, ed., Padre Luis Velarde’s *Relacion of Pimeria Alta, 1716*,” *New Mexico Historical Review* 6 (1931) 139.

Jacobo Sedelmayr and Father Juan Keller, both of whom had visited the Verde at its confluence with the Salt River, twenty years earlier. These missionary/explorers traveled on horseback as well. Nentvig's book, *Rudo Ensayo*, was solid in its geographical assertions. "The Gila is joined by the Rio Asunción which, according to Father Jacobo Sedelmayr, S.J., is formed by the confluence of the Verde, so-called because of the verdant groves of poplars along its banks, and the Salado, so salty that for some distance after the Asunción joins the Gila the water remains undrinkable," Nentvig wrote. Sedelmayr's notion of calling the portion of Salt River between its confluence with the Verde and its confluence with the Gila (Rio Asunción) demonstrates the misunderstanding as to which river was the main stream.

In spite of the Spaniards traversing what is now central Arizona, they largely ignored the Verde. When Mexico gained its independence from Spain in 1821, the new country had to contend with incursions from its American neighbor to the north. In fact, American interest in the region predated the Mexican Revolution. The first American map to show the Verde River was produced following Zebulon Pike's expedition to the Spanish borderlands in 1806. The map, published in 1810, could be considered remarkable for someone who had never been to the Verde watershed, except that Pike copied the information from a map made by the German naturalist Alexander Von Humboldt (1769-1859). Von Humboldt had received an introduction to King Carlos IV and expressed his desire to visit the Spanish colonies in the New World. The King thought a good geologist—one of Von Humboldt's skills—might discover rich mineral deposits and readily assented to support Von Humboldt. He was given unlimited access to the

Spanish territories and from 1799 to 1804 explored and mapped much of Spanish Colonial America.¹⁷ As was also a common custom of mapmakers, Humboldt never received credit.

Pike's map shows the Verde flowing into the Rio Asuncion and, it is worth noting, still retains the notion of a Rio Azul (Rio Ozul on Pike's map), although draining an area further upstream on the Gila. Well into the American period, the Verde River continued to confound cartographers as to its course through central Arizona. This confusion suggests that mapmakers of this era, who were charged with noting travel routes, omitted or glossed over the Verde because it was not considered navigable as a route for transportation or commerce.

Mountain Men

The first Anglo frontiersmen who traversed the Verde Valley were a ragtag collection of adventurers, romanticized by later generations as "mountain men." From their headquarters in Taos, New Mexico they entered Arizona for one purpose: to trap beaver from every water course between the Upper Gila to the Colorado River delta.¹⁸ The first mountain men to set foot in Arizona were Sylvester Pattie and his son, James. They spent the winter of 1825-1826 trapping along the San Francisco (Verde), Gila, and San Pedro Rivers, travelling by horseback and on foot.¹⁹

¹⁷ http://libweb5.princeton.edu/visual_materials/maps/websites/thematic-maps/humboldt/humboldt.html. See also, Alexander Von Humboldt, *Political Essays on the Kingdom of Spain with Physical Sections and Maps Founded on Astronomical Observations and Trigonometrical and Barometrical Measurements*, Vol. 2, rev. ed. (Ulan Press, 2011)

¹⁸ Thomas Sheridan, *Arizona: A History* (Tucson: University of Arizona Press, 2012) 52. See also, Le Roy Hafén (ed.), *Fur Trappers and Traders of the Far Southwest* (Salt Lake City: University of Utah Press, 1997).

¹⁹ Richard Batman, ed., *Personal Narrative of James Ohio Pattie* (Missoula, Montana: Mountain Press Publishing, 1988). In June of 1824 James Ohio Pattie, then in his early 20's, left Kentucky with his father, Sylvester, and headed west. They traveled via horseback and on foot and at one point they had to eat one of their horses and later had to eat their dogs.

In 1828, Ewing Young, referred to by Mexican authorities as “Joaquin Jon” or “Joaquin Joven,” led a party to the Salt River to trap beaver. Young, who crisscrossed Arizona more than anyone else, was reviled as a smuggler and criminal by the New Mexican authorities, and epitomized the almost single minded ruthlessness of the trappers. He fought with Apaches and Mohaves and quarreled constantly with Mexican authorities. He pioneered a grueling overland trail up and down the Verde River and west to California across the Mohave Desert.²⁰ In order to circumvent Mexican authorities Young used a common tactic among foreign trappers. He led his men north from Taos, then shifted course to the southwest, skirting the New Mexico settlements and passing through Zuni, on his way to the Salt River. On the Salt the trappers “routed” the Indians who had bothered the earlier party and they continued trapping through the canyons of the Salt until they reached the Verde River.²¹ This expedition traveled overland and did not use the river as a mode for transportation or commerce. In October 1831, Young led another trapping expedition to the Salt River. He followed his previous route via the Zuni Pueblo, continuing to the Salt, thence followed that stream overland, setting traps as they progressed. The group also trapped for twelve days on the Lower Verde River. Significantly, the party did not use the Lower Verde for transportation, but only extracted beaver pelts from it.²²

The fur trade in the Southwest declined precipitously after 1833. In its wake the mountain men left streams depleted of beaver. Although they decimated beaver populations along the Lower Verde, those populations recovered by the mid-1840s when the next surge of Anglo Americans settled the area. The mountain men did not stay in Arizona long enough to transform

²⁰ Sheridan, *Arizona*, 52.

²¹ Harvey L. Carter, ‘*Dear Old Kit*’: *The Historical Christopher Carson* (Norman: University of Oklahoma Press, 1968) 44; Weber, *Taos Trappers*, 142-143.

²² J. Francis Dye, *Recollections of a Pioneer, 1830-1835* (Los Angeles, 1951) 23-24. See also the testimony of David E. Jackson in papers regarding the embargo of the furs of Ewing Young, July 12-July 15, 1823, Mexican Archives of New Mexico (MANM), Santa Fe, NM.

its economy or ecology. Nor did they use the Lower Verde as a form of transportation, trade, or commerce.²³ Though trapping continued well into the 1840s this vanguard of American expansionism did not use boats for travel along the Lower Verde or other streams in Arizona, and instead traveled by horses, mules, wagon, or foot along the sides of the rivers.

Mapmakers

In the late 1840s, after the United States seized much of northern Mexico, another fanciful notion provided the Verde a new name. Following several government expeditions along the 35th parallel, notably the military surveys conducted by Amiel Weeks Whipple (1849-1850) and Joseph C. Ives (1857-1858), the Americans started calling it the San Francisco River. As noted earlier, American surveyors and explorers mistakenly believed that the Verde originated near the San Francisco Peaks. American map makers began designating the Verde River the “San Francisco” based upon the misguided notion that its headwaters were at the base of San Francisco Peak.²⁴ Because early settlers never attempted to navigate or visit it, many hedged their lack of certainty by giving the river both names. Several maps, including an official map of the New Mexico Territory from 1857, an 1864 map from the New Mexico Department of the Military, and a General Land Office map from 1866 show the main stream butting up to the San Francisco Peaks.²⁵

Several mapmakers at the time also believed that Oak Creek was the main branch of the river. The other branch, the portion of the Verde flowing west from its confluence with Oak

²³ Hampton Sides, *Blood and Thunder: The Epic Story of Kit Carson and the Conquest of the American West* (Doubleday: New York, 2006).

²⁴ Ibid.

²⁵ See Lewis B. Lesley, “The international Boundary Survey from San Diego to the Gila River, 1849-1850,” *California Historical Society Quarterly* 9 (March 1930), 6; Lt. Joseph C. Ives, *Report Upon the Colorado River of the West* (Washington D.C.: Government Printing Office, 1861), Ex. Doc. 148-A, 36 Cong., 1 Sess.

Creek, is often labeled as Granite Creek. One map, from 1861, produced following the Ives and Whipple expeditions, actually labels the area along the western boundary of the Verde as "unexplored." It stands alone in admitting that the Verde's course was virtually unknown. This continued uncertainty indicated that the watercourse elicited no interest as a source of navigation.

Nevertheless, the Ives-Whipple map still shows the Verde's drainage reaching the base of San Francisco Peaks along with Bill Williams Mountain. Just as the Verde had several names, so did its tributaries. The earliest map to show the Verde and all its tributaries in the correct order, relative position, and with modern names was the 1880 Territorial map, although even it shows a mysterious drainage between Beaver Creek and Clear Creek called Little Beaver Creek. Even America's consummate mapmaker, Rand McNally, had a difficult time sorting out the river's course. Its first accurate map appeared in 1889.²⁶ That various cartographers were unable or unwilling to map accurately the Verde's route through central Arizona suggests that it was not navigated, nor viewed as a watercourse conducive to navigation.

United States Military

The Mexican War (1846-1848) resulted in the Verde Valley becoming part of the United States and part of New Mexico Territory. In 1863, it became part of newly-created Arizona Territory. In the same year gold was discovered outside of modern-day Prescott and a flood of miners in military uniforms rushed into the Yavapai homeland. In order to protect these new settlers, Ft. Whipple was established in Chino Valley, just south of the Verde headwaters. Two more forts followed; Camp McDowell (soon-to-be renamed, Fort McDowell) situated along the

²⁶ "A Brief History of Verde River Cartography, *Camp Verde News*, January 19, 2010.

Verde, seven miles above its confluence with the Salt River and Camp Verde, established in 1866 and located upstream at the confluence of Beaver Creek and the Verde.

The establishment of a military installation in the Tonto Basin “on or near the confluence of the Rio Salado (Salt) or Verde Rivers” was authorized on May 21, 1865 by General John S. Mason. Mounted troops traveled overland, arriving on September 7, 1865 and, as noted above, the fort was initially named Camp McDowell, but a few months later it was changed to Fort McDowell in honor of Major General Irvin McDowell, who served under General Winfield Scott in the Civil War. Lieutenant Colonel Clarence E. Bennett was the first commander of this key military location. California Volunteers from the 7th Infantry Regiment—seven officers and 464 troops--led by Major Clarence Bennett, established Camp McDowell. Most of the soldiers’ attention during the first year was devoted to digging irrigation canals to bring water to about 250 acres of land near the fort. Some of these canals followed ancient Hohokam routes and are likely watering the same land on today’s Ft. McDowell Indian Reservation. However, Ft. McDowell could not raise sufficient crops to sustain the men, their families, and their livestock so innovative entrepreneurs began to branch out, further away from the banks of the Verde to secure necessary supplies. Despite the need for to move food, provisions, and supplies, none of these pioneer entrepreneurs used the Verde for travel.

One of the most enduring and vivid accounts of travel within Arizona Territory in the mid-1870s was written by New England native, Martha Summerhayes. Her *Vanished Arizona: Recollections of My Army Life* became an instant classic when it was released in 1908 and a

second edition had to be printed in 1911 to keep up with demand.²⁷ Her careful descriptions of travel, from Fort Yuma, to Fort Whipple, to Camp Verde, to Fort Apache and across to Fort McDowell, demonstrate that the military travelled overland, and often with great hardship, from one military outpost to the next. In one instance, as she and her husband, Lieutenant John “Jack” Summerhayes, decamped from Camp Verde to “Camp” Apache in 1874, she wrote:

The travelling was difficult and rough, and both men and animals were worn out by night....It did not surprise me that ours was the first wagon train to pass over Crook’s Trail. For miles and miles the so-called road was nothing but a clearing, and we pitched and jerked from side to side of the ambulance, as we struck huge rocks and tree stumps in some instances logs were chained to the rear of the ambulance to keep it from pitching forward onto the back of the mules. At such places I got out and picked my way down the rocky declivity.

Summerhayes noted that the military never utilized the Verde to move men, animals, or supplies, and stated that “We camped along at a basin, or a tank, or a hole on a spring, or in some canyon by a creek,” in order to secure potable water. “Always from water to water we marched,” she complained.²⁸ Though the detachment encountered the Verde in several instances, the military commanders never used the Verde to move material, munitions, men, or animals from one post to another.

One military veteran, John Y.T. Smith, “The man who went to the Salt River Valley before Phoenix was started,” took action to address the lack of sufficient supplies at the new

²⁷ See Marthy Summerhayes, *Vanished Arizona: Recollection of My Army Life* (Philadelphia: J. B. Lippencott, 1908). As Summerhayes put it in a preface to the second edition, “I have given simply the impressions made upon the mind of a young New England woman who left her comfortable home in the early seventies, to follow a second lieutenant into the wildest encampments of the American army.” Frederick Remington, the American painter, illustrator, sculptor, and writer who specialized in depictions of the 19th century American West, wrote Summerhayes shortly after the book’s publication, “Dear Mrs. Summerhayes: Read your book—in fact when I got started I forgot my bedtime (and you know how rigid that is) and sat it through. It has a bully note of the old army—it was all worthwhile—they had color, those days. I say—now suppose you had married a man who kept a drug store—see what you would have had and see what you would have missed.”

²⁸ *Vanished Arizona*, 51, 53, 54.

military installation on the Verde River.²⁹ At the outbreak of the Civil War, Smith enlisted in Company H. Fourth California Infantry, and with his regiment, went to Yuma, Arizona, where he remained for a year. During his military service he was promoted from the ranks to be First Lieutenant. In the fall of 1865 he traveled to central Arizona with the Fourteenth US regiment, as master of transportation, and continued for two years at Ft. McDowell. Afterward he received the appointment of post trader (sutler) at the outpost on the banks of the Verde. Significantly, Smith was closely identified with the early work of canal building in the Salt River Valley.³⁰ At the time the first ditch was started in 1866, not one house stood in the present site of Phoenix, and it was two years hence that the town sprang into existence.³¹

In 1867, Smith secured a contract to supply hay to Ft. McDowell. Rather than establishing the hay camp along the Verde River, he went to the banks of the Salt River. Smith agreed to supply Ft. McDowell with fodder for the needs of the cavalry; draft animals, and other livestock. He established his hay camp along the Salt River, on the eastern edge of what is now Sky Harbor International Airport. He constructed a primitive road from the camp to Ft. McDowell even though a river route would have been more expedient. Thomas Edwin Farish, in his classic *History of Arizona*, wrote "In the spring of 1867, John Y.T. Smith had a contract to deliver hay to Fort McDowell, which had been established in 1865. He built the first house in the valley as a hay ranch, laid out the road through the valley to Fort McDowell, and had a few cattle

²⁹ *Bisbee Daily Review*, July 16, 1903.

³⁰ Smith is credited with becoming the first non-Indian to live at what would become Phoenix. From February until June 1866, Smith oversaw a civilian workforce harvesting hay along the bank of the Salt River. By early 1867 he had built a hay camp and laid out a road between the camp and the fort. At the camp he built a house and had a small herd of cattle. Smith filed no claim to the land however and had abandoned the camp by late 1867. After leaving the camp, Smith became a post trader at Ft. McDowell.

³¹ *Bisbee Daily Review*, July 16, 1903; *News-Herald* (Wickenburg, Arizona) July 25, 1903; *Coconino Sun* (Flagstaff, Arizona) July 18, 1903.

grazing near his camp.”³² At the same time Jack Swilling, at the behest of Smith, dug a canal near Smith’s newly-established hay camp. Thus began the reincarnation of irrigation along the Salt, originally undertaken by the Hohokam. As has been noted elsewhere, Smith and Swilling recognized the potential of the ancient ditches. They harvested Galleta hay, which grew wild along the Salt River. By clearing the ancient ditches they could grow more crops. The Swilling Irrigating Canal Company began construction of the first modern canal in December of 1867. Homesteaders began arriving and one year later, there were 100 permanent residents. Because of Fort McDowell and the Hohokam canals, the town of Phoenix originated as a hay camp.³³ By 1888 several more canals had been built and tens of thousands of acres were under cultivation.

By 1870, the Stoneman Road connected Ft. Whipple and Ft. McDowell, suggesting that transportation or the movement of troops on the Verde River was not considered by military leaders. Transportation, commerce, and military activity took place overland. Had the Verde been navigable, it would have been a much easier and efficient journey to get from Fort Whipple to Fort McDowell. The Stoneman Military Road provided a conduit for the movement of troops, supplies, military materiel, and couriers between Ft. Whipple, near Prescott, and Fort McDowell. The road was constructed on orders from Brevet Major General George Stoneman, the military commander of all troops in Arizona. It followed a network of established trails used by Yavapai and Apache bands for hunting, gathering, and raiding. The original road ran northwest from

³² Thomas Edwin Farish, *History of Arizona*, Vol. VI (San Francisco: Filmer Brothers, 1918) 70.

³³ According to one account, “In 1865, John Y. T. Smith located a hay cutting camp to supply Fort McDowell where 40th Street now meets the airport. About two years later a group of investors from Wickenburg led by Jack Swilling had two of the old canals cleaned out to irrigate wheat fields and supply a flourmill located on high ground about a mile east of where the downtown is today. Both Swilling and a friend named Darrell Duppa likely named the collection of farms and worker houses around the mill “Phoenix Settlement,” predicting a great civilization would rise from the ruins of the ancients. In May 1868, Yavapai County created the Phoenix election precinct in the valley.”

Camp McDowell, between twin buttes at Brown's Ranch, toward Cave Creek and eventually north through the Black Canyon. When completed, the road reduced the trip between Whipple and McDowell from 175 miles to 98. It was an important transportation artery for troops and supplies during the US Army's winter campaign of 1872-1873 which broke organized Yavapai resistance to American settlement in central Arizona.³⁴

Conclusion

Prior to February 14, 1912, the Lower Verde, in its ordinary and natural state, was not a navigable stream. No civilization, beginning with the Hohokam and extending into the Spanish, Mexican, and American territorial periods, used the river for purposes of travel or trade. The mountain men trapped beaver in the 1820s and 1830s, but did not use the Lower Verde for transportation or for the shipping of commerce. All of these peoples had need for travel and trade along the Verde, but consistently used overland routes despite the difficulties attendant to travel across the desert. The American military in the post-Civil War period constructed a 98-mile road between Ft. Whipple and Ft. McDowell following the overland trails used by native peoples instead of attempting to use the Verde River to transport troops, goods, or materiel between the two installations. Finally, when American settlers ultimately came to the area around the Lower Verde in the late nineteenth and early twentieth century, they followed the lead of their predecessors. Instead of navigating the Lower Verde, they made plans to construct dams and canals on the Lower Verde to focus on water storage and diversion.

³⁴ E.R. Hageman, "Scout Out From Camp McDowell," *Arizoniana* 5, No. 3 (Fall 1964) 29-47.

Vitae

Jack L. August, Jr., Ph.D.
Visiting Scholar in Legal History
Snell & Wilmer LLP
One Arizona Center
Phoenix, Arizona 85004

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Bioscience Historian
International Genomics Consortium
445 N. First Avenue
Phoenix, Arizona 85004

#

Scholar-in-Residence
Southwest Center for History and Public Policy
A Non-Profit Corporation
22. E. Jackson St.
Phoenix, Arizona 85004

Email: jaugust@swlaw.com; Jaugust@intgen.org

Phone: 602-620-1562

Education

Ph.D. University of New Mexico, History, with Distinction (1985)

M.A. University of Arizona, History

B.A. Yale University, American Studies

Current Activities and Brief Biography

Dr. Jack L. August, Jr. serves as Scholar-in-Residence for the Southwest Center for History and Public Policy, a non-profit and non-partisan 501 c 3 corporation dedicated to the collection, preservation, and dissemination of the history and culture of Arizona and the Greater Southwest. Since the formation of the Center in 2008 Dr. August has secured research grants in excess of \$800,000.00 from the Flinn Foundation, International Genomics Consortium, and Snell & Wilmer LLP, among others. He is also a faculty member in the Center for Civic Leadership at the Flinn Foundation and frequent faculty member for Continuing Legal Education (CLE).

At the current time, also, he is Visiting Scholar in Legal History at Snell & Wilmer. In addition, he is a feature writer and history columnist, for *Phoenix Magazine* (www.citieswestpublishing.com). Previously, a historian in Northern Arizona University's Statewide Programs, he taught courses in Western Water Policy and the New American West for the Master's in Liberal Studies Program and undergraduate history courses about the American Environment, American West, Far Southwest, and Arizona via interactive instructional television and satellite cable. He is a former

Fulbright Scholar (Canada), National Endowment for the Humanities Research Fellow (University of Oregon), Pulitzer Prize nominee in the history category in 2000, and in 2007 he was awarded the Southwest Book Award for Literary Excellence and Cultural Enrichment of the Southwest given annually by the Border Regional Library Association headquartered at the University of Texas El Paso.

In 2014 Arizona Secretary of State Ken Bennett appointed Dr. August to the Advisory Board of the Arizona Department of State Library, Archives, and Public Records. This board advises the Secretary of State in the supervision of the State Library, Archives, Capitol Museum, the online Arizona Memory Project, and county libraries throughout Arizona. The advisory board consists of the President of the Senate, the Speaker of the House, one member who is appointed by the Speaker of the House of Representatives and who is a member of a different political party than the Speaker and seven members who are appointed by the Secretary of State. He will serve a three-year term and become a member of a Task Force to help form the State Library Foundation.

He has recently been engaged as an expert witness for the City of Tombstone on litigation concerning their water supply system, the Salt River Project regarding water rights dating from the 1920s, and the City of Phoenix, the City of Mesa, and the City of Tempe in the Arizona Navigable Stream Adjudication hearings on the Lower Salt River and in the case of the City of Phoenix, the Lower Verde River. He maintains another expert witness role with Resolution Copper Company (a division of Rio Tinto Ltd.) on issues concerning natural resource history and mineral rights. Also, he was engaged as historian and expert witness in the Natural Resources Section of the Arizona Attorney General's Office where his work focused on Indian versus non-Indian water issues and state trust lands. Additionally, he has served as expert witness for GRUPO MEXICO (ASARCO), Arizona State University, the City of Tempe, the City of Tucson, the Buckeye Water Conservation and Drainage District, Farmer's Investment Corporation (FICO) of Sahuarita, Arizona and private law firms representing clients with land and water rights claims. He also served as water resources consultant to the City of Page and historical consultant to the Hopi Tribe, where he secured a Department of Interior grant for \$50,000 for an oral history project on Hopi elders. In 2012, Dr. August was served as Humanities Advisor for the proposed PBS documentary, "Sandra Day O'Connor."

Dr. August has appeared on numerous television and radio programs, including "Horizon," "Horizonte," "Arizona Illustrated," "Books and Co.," the KAET/PBS Documentary "Arizona Memories from the 1960s," the HBO Documentary, "Barry Goldwater: Mr. Conservative," KTAR's "Think Tank" (92.3 FM) and National Public Radio features, including "All Things Considered" with Robert Siegel. He is a frequent contributor to newspapers, magazines and historical journals including the *Arizona Republic*, *Arizona Highways*, *Phoenix Magazine*, *Journal of Arizona History*, *Pacific Historical Review*, *Western Historical Quarterly*, and many others, and writes a popular monthly column, "Around Arizona History" which carries the tagline, "You Need Your Food, You Need Your Water, and You Need Your History" for the *Arizona Food Industry Magazine*. Often sought as a speaker at conferences and conventions, in 2012 he served as keynote speaker at the University of Arizona's annual Water Research

Resources Center Conference, “Urbanization, Uncertainty, and Water: Planning for Arizona’s Second Hundred Years,” as well as the jointly sponsored Membrane Technology Conference and Exposition hosted by the American Water Works Association and American Membrane Technology Association. Recently, he was the keynote speaker at the Thurgood Marshall Inn of Court, chaired by Special Master George Schade, Jr., concerning the ongoing Gila River System Adjudication, where he discussed the historical context for these crucial legal processes.

His book, *Vision in the Desert: Carl Hayden and Hydropolitics in the American Southwest* (Ft. Worth: Texas Christian University Press, 1999) was considered by distinguished historian Howard Roberts Lamar, President Emeritus and Sterling Professor of History Emeritus at Yale University, a groundbreaking analysis that filled a major gap in the history of the Southwest. Another book, *Senator Dennis DeConcini: From the Center of the Aisle* (Tucson: University of Arizona Press, 2006) was coauthored with former three-term U.S. Senator from Arizona, Dennis DeConcini, and was recently awarded the Southwest Book Award for Literary Excellence and Cultural Enrichment by the Border Regional Library Association. His volume, *Dividing Western Waters: Mark Wilmer and Arizona v California* (Ft. Worth: Texas Christian University Press, 2007), was released to universally outstanding reviews. His recent book, *Adversity is My Angel: The Life and Career of Raul H. Castro* (Ft. Worth: Texas Christian University Press, 2009) appeared in May 2009. Stellar Productions in Hollywood has optioned this book for film adaptation. His recent, award-winning book, *Play by Play: Phoenix and the Building of the Herberger Theater* (Ft. Worth: Texas Christian University Press, 2010) emphasizes the important role that arts and culture play in the urban history of the New American West. *The Norton Trilogy: A History of Water and Agribusiness in the American Southwest* (Ft. Worth: Texas Christian University Press, 2013), which features a foreword by former Arizona Senator Jon Kyl, has just been released to positive reviews, is a finalist in the New Mexico-Arizona Book Awards in the Biography category, and has been nominated for several other awards, including the Southwest Book Award for Literary Excellence and Cultural Enrichment. He has completed a new manuscript, *Law in the New West: The Story of Snell & Wilmer*, which has been through peer review and accepted by Texas Christian University Press and the Texas A&M University Press Consortium.

Professional Experience

2014-present, features writer and history columnist for *Phoenix Magazine* (www.citieswestpublishing.com).

2014-present, Expert Witness for the City of Phoenix, City of Tempe, and City of Mesa pertaining to the Arizona Navigable Stream Adjudication Commission (ANSAC) hearings on the Lower Salt River.

2014-present, Expert Witness for the City of Phoenix pertaining to the Arizona Navigable Stream Adjudication (ANSAC) hearings on the Lower Verde.

2012-present, Expert Witness for City of Tombstone on ongoing litigation with the U.S. Forest Service, Department of Agriculture concerning that city's water delivery system.

2011-present, Expert Witness for Salt River Project (SRP) on current litigation concerning dam applications, water, and power on SRP lands 1920-present.

2008-present, Litigation Consultant and Expert Witness for Resolution Copper Company, a Division of Rio Tinto and BHP, concerning pending federal land exchange that includes one of the largest copper mines in the world located in Gila and Pinal Counties in eastern Arizona.

2008-present, Expert Witness for Farmer's Investment Corporation (FICO) and the Green Valley Pecan Company in southern Arizona concerning water rights to the San Ignacio de la Canoa Land Grant of 1820.

2007-present, Visiting Scholar in Legal History at Snell & Wilmer L.L.C. to research and write a comprehensive history on the topic, "Law in the New West: The Story of Snell & Wilmer."

2007-present, Historian and Expert Witness for the Buckeye Water Conservation and Drainage District pertaining to private ownership of the Buckeye Irrigation Canal and appurtenant lands.

2005-2007, Historian and Expert Witness for GRUPO MEXICO via the law firm of Squire, Sanders, and Dempsey in the matter of *ASARCO v Olmos* in Gila County Superior Court and Pinal County Superior Court.

2004-2007, Historian for the law firm of Snell and Wilmer (Phoenix, Arizona) to write a book on Arizona attorney Mark Wilmer and *Arizona v California* (1963), with the resulting publication of *Dividing Western Waters: Mark Wilmer and Arizona v California* (Ft. Worth: Texas Christian University Press, 2007).

2003-2007, Executive Director, Arizona Historical Foundation, Arizona State University. Secured \$529,000 appropriation from the Arizona State Legislature for processing the Personal and Political Papers of Senator Barry Goldwater.

2003-present, Expert Witness, Moyes Storey Law Firm, and Meyer, Bivens, and Hendricks Law Firm for Buckeye Irrigation District, Paloma Farms before the Arizona Navigable Stream Commission (ANSAC), for the Middle Gila River.

2003-present, Expert Witness, Moyes Storey Law Firm, Arizona State University and City of Tempe, before the Arizona Navigable Stream Adjudication Commission (ANSAC), for the Lower Salt River.

2003-present, Expert Witness, Moyes Storey Law Firm, Arizona Navigable Stream Adjudication Commission (ANSAC) for the Santa Cruz River and Gila River Confluence to the Headwaters.

2002-present, Expert Witness, City of Tucson, *Qwest v City of Tucson* in United States Ninth Circuit Court of Appeals.

2002-2003, Arizona Humanities Council Lecture Series Speaker on *Moving Waters* National Endowment for the Humanities Grant and *Parched Arizona* Lecture Series.

2000-2003, Water Resources Consultant, City of Page, Arizona.

2000-2005, Historical Consultant, Hopi Tribe, Cultural Preservation Office.

1999-2002, Expert Witness and Historian, Natural Resources Section, Office of the Attorney General, State of Arizona.

1993-2004, Historian, Northern Arizona University-Yavapai, teaching courses statewide through interactive instructional television and other distance learning technologies.

1994-1996, Historian, Graduate Advisor, and Grants Coordinator, Prescott College.

1994-1995, Historian and Writer for *Arizona Highways* Book Division; soft-cover book, *We Call it Preskit: A Guide to Prescott and the Central Arizona High Country*.

1994, National Endowment for the Humanities Faculty Research Fellow, Oregon Humanities Center, University of Oregon, Eugene, Oregon, Summer Fellowship.

1993-1994, U.S. Fulbright Scholar and Fulbright Professor of History and Environmental Studies to Canada. Teaching and research areas: Comparative Frontier History, the American West and the Canadian West, Environmental History.

1992-1993, on leave with Presidential Research Fund Grant, Assistant Professor of History and Associate Director of Public History Institute, University of Houston.

1992-1993, Editor and Chief Analyst, *Arizona Career Ladder Program: A Critical Analysis* (15 vols.) Arizona Department of Education, Phoenix, Arizona.

1987-1988, IPA Fellowship Program Officer and Academic Administrator, Division of Research Programs, National Endowment for the Humanities (NEH), Washington, D.C.

1986-1987, Assistant Director, Southwest Center, Adjunct Assistant Professor of History, Department of History, University of Arizona.

1985-1986, Visiting Assistant Professor of History, University of Arizona, Tucson, Arizona.

1985-1986, Visiting Assistant Professor of History, University of New Mexico, Albuquerque, New Mexico. (Summer Sessions).

1983-1986, Department Head and Field Historian, Hayden Library, Arizona State University, Tempe, Arizona.

1983-1984, Chief Editor, Carl Hayden Family Letters Project, Hayden Library, Arizona State University, Tempe, Arizona.

1981-1984, Project Director and Author, *From Horseback to Helicopter: A History of Forest Management on the San Carlos Apache Indian Reservation*, U.S. Department of Interior, Bureau of Indian Affairs (BIA) Contract History.

1981, Historian, U.S. Department of Interior, National Park Service (NPS), Santa Fe, New Mexico. Analyzed the architectural and social history of the Lyndon Baines Johnson National Historic Site for NPS and completed numerous National Register Forms.

Teaching

2012-present, Faculty Member, Center for Civic Leadership, Flinn Foundation, Phoenix, Arizona.

2005, Graduate Course: Water Policy and Management, School of Planning, College of Architecture and Environmental Design, Arizona State University, Tempe, Arizona.

1993-2004, Northern Arizona University, Department of History, Office of Statewide Programs. Undergraduate Courses: The Making of the American West, 1500-1850, The American West Transformed, 1850-present, History of the Far Southwest, Recent America, 1919-present. Graduate Courses: Public History, History of Western Water Policy, New American West.

1994-present, Prescott College, Graduate Professor of History in Humanities Program. Courses: The American West: Historical Perspectives on Environmentalism, History of the American West, Public History, Historic Preservation.

1993-1994, University of Northern British Columbia, Fulbright Professor of History and Environmental Studies, Faculty of Graduate Studies. Courses: Environmental History of the Western Hemisphere, Environmental History of the American West, Comparative Frontiers: The American West and the Canadian West.

1988-1993, University of Houston, Assistant Professor. Undergraduate Courses: U.S. History to 1877, U.S. History 1877-present, History of the Trans-Mississippi West to 1900, The American West in the Twentieth Century, American Indian History. Graduate Courses: Public History, History of the American West.

1985-1987, Visiting and Adjunct Assistant Professor, University of Arizona. Courses: History of the Hispanic Borderlands, 1503-1848, History of Arizona, History of the Southwest, American West in the Twentieth Century.

1985-1986, Visiting Assistant Professor, University of New Mexico. Course: American West in the Twentieth Century.

Publications: Books

Law in the New West: The Story of Snell & Wilmer (Ft. Worth: Texas Christian University Press, accepted and in editing phase prior to publication).

The Norton Trilogy: A History of Water and Agribusiness in the American Southwest (Ft. Worth: Texas Christian University Press, 2013). Finalist for New Mexico-Arizona Book Award in Biography and submitted for several other literary awards.

Play by Play: Phoenix and the Building of the Herberger Theater (Ft. Worth: Texas Christian University Press, 2010).

Adversity Is My Angel: The Life and Career of Raul H. Castro (Ft. Worth: Texas Christian University Press, 2009). This book has been optioned by Stellar Productions in Hollywood to be adapted for a feature film.

Dividing Western Waters: Mark Wilmer and Arizona v California (Ft. Worth: Texas Christian University Press, 2007).

Senator Dennis DeConcini: From the Center of the Aisle, with former Arizona Senator Dennis DeConcini, (Tucson: University of Arizona Press, 2006). This book won the Border Regional Library Association (BRLA) Southwest Book Award for Literary Excellence and Enrichment of the Cultural Heritage of the Southwest.

Vision in the Desert: Carl Hayden and Hydropolitics in the American Southwest (Ft. Worth: Texas Christian University Press, 1999), with a foreword by former U.S. Secretary of the Interior, and Arizona Governor Bruce Babbitt. This book was nominated for Pulitzer Prize in history category (2000).

We Call it Preskit: A Guide to Prescott and the High Country of Central Arizona (Phoenix: Arizona Highways Books, 1996).

Editor, *Arizona's Career Ladder Program: A Critical Analysis*, 15 vols. (Phoenix, Arizona Department of Education, 1993).

From Horseback to Helicopter: A History of Forest Management on the San Carlos Apache Reservation, (Mesa, Arizona: American Indian Resource Organization, 1985).

Publications

Scholarly Chapters/Scholarly Articles in Peer-reviewed Journals/Features/Columns

“Carl Hayden and the Case of the Beardless Boy Bandits,” *Phoenix Magazine*, December 2014.

“Enemy Mine,” *Phoenix Magazine* (Feature), November 2014.

“Thinking in Time: Two Examples of Civic Leadership,” *Civic Leadership for Arizona’s Future* (Phoenix, Arizona, Arizona Town Hall, 2012).

“Hydropolitics in the Far Southwest: Carl Hayden, Arizona, and the Fight for the Central Arizona Project,” in U.S. Bureau of Reclamation, *Essays in American Reclamation History* (Washington, D.C.: Government Printing Office, 2008).

“The Most Important Man in Arizona History,” *Phoenix Magazine* (Phoenix: Cities West Publishing, October 2007).

“Shaped by Water: An Arizona Historical Perspective,” chapter co-authored with Grady Gammage, Jr. in *Arizona Water Policy: Management Innovations in an Urbanizing, Arid Region* (Washington, D.C.: Resources for the Future Press, 2006).

“Graham County Summers,” with Dennis DeConcini, *Journal of Arizona History* (Summer 2006).

“The Other Side of the Mirror: My Political Education,” with Dennis DeConcini, *Journal of Arizona History*, (Summer 2004).

“The Colorado River and the Grand Canyon,” *Moving Waters* (Flagstaff: Grand Canyon Institute, 2003).

“Carl Hayden and the Legislative Quest for the Central Arizona Project, 1952-1968,” *Bureau of Reclamation Centennial* (Washington, D.C., 2003).

“Arizona’s Legislative Watermaster: Carl Hayden and the Central Arizona Project,” *Arizona Insight*, (Phoenix: Arizona Humanities Council, 2002).

“Old Arizona and the New Conservative Agenda: The Hayden versus Mecham Senate Campaign of 1962,” *Journal of Arizona History* (Winter 2001).

“Diamond Valley Lake and the East Side Reservoir: A Short History,” Metropolitan Water District of Southern California (April 8, 2000).

“Water, Politics and the Arizona Dream: Carl Hayden and the Modern Origins of the Central Arizona Project, 1922-1963,” *Journal of Arizona History* (Winter 1999).

- "Desert Bloom or Desert Doom? Carl Hayden and the Modern Origins of the Central Arizona Project, 1922-1952," *Cactus and Pine*, Vol. 8 (Summer 1996).
- "A Vision in the Desert: Charles Trumbull Hayden, Salt River Pioneer, *Journal of Arizona History* (Summer 1995).
- "Carl Hayden," *Encyclopedia of the American West* (New York: MacMillan Publishing Company, 1995).
- "Carl Hayden and Arizona," *Encyclopedia of the United States Congress*, edited by Roger Bacon, Morton Keller, and Roger Davison (New York: Simon and Schuster, 1995).
- "The Navajos and the Great Society: The Strange Case of Ted Mitchell and DNA," *Canon: The Journal of the Rocky Mountains American Studies Association* (Winter 1994).
- "Carl Hayden's 'Indian Card': Environmental Politics and the San Carlos Reclamation Project," *Journal of Arizona History* (Winter 1993).
- "Carl Hayden, Arizona, and the Politics of Water Development in the Southwest," *Pacific Historical Review* (May 1989).
- "A Sterling Young Democrat: Carl Hayden's Road to Congress, 1900-1912," *Journal of Arizona History* (Autumn 1987).
- "Law Enforcement on the Arizona-Sonora Border," *Arizona Town Hall* (Tucson: University of Arizona Press, 1987).
- "The Future of Western History: The Third Wave," *Journal of Arizona History* (Spring 1986).
- "The Formation of the Bar: Americanization and Cultural Accommodation in New Mexico," *Journal of the New Mexico Bar Association* (November 1985).
- "Phoenix: Desert Metropolis," in *Arizona: Its Land and Resources* (Tucson: University of Arizona Press, 1986).
- "Carl Hayden: Born a Politician," *Journal of Arizona History* (Summer 1985).
- "Balance of Power Diplomacy in New Mexico: Governor Fernando de la Concha and the Indian Policy of Conciliation," *New Mexico Historical Review* (Spring 1981).
- "The Anti-Japanese Movement in Arizona's Salt River Valley," *Arizona and the West* (Summer 1979).

Publications: Selected Book Reviews

The Frontier of Leisure: Southern California and the Shaping of Modern America, by Lawrence Culver for *Journal of Arizona History* Autumn 2012).

Innocent Until Interrogated: The Story of the Buddhist Temple Massacre and the Tucson Four, by Gary Stuart, for *Journal of Arizona History* (Autumn 2011).

Stealing the Gila: The Pima Agricultural Economy and Water Deprivation, 1848-1920 by David De Jong for *Journal of Arizona History* (Spring 2011).

The Political Culture of the New West, ed. By Jeff Roche for *Journal of Arizona History* (Spring 2010).

Wayne Aspinall and the Shaping of the American West, by Stephen Schulte for *Western Historical Quarterly* (Fall 2004).

Acequia Culture: Water, Land, and Community in the Southwest by Jose A. Rivera for *New Mexico Historical Review* (Winter 1999).

Barry Goldwater: Native Arizonan by Peter Iverson for *Journal of Arizona History* (Winter 1999).

Reclaiming the Arid West: The Career of Francis G. Newlands by William Rowley for *Journal of Arizona History* (Winter 1997).

Politics in the Postwar American West, edited by Richard Lowitt for *Journal of Arizona History* (Winter 1996).

The Last Water Hole in the West: The Colorado-Big Thompson Project by Dan Tyler for *Canon: the Journal of the Rocky Mountains American Studies Association* (Winter 1996).

Carl Hayden: Builder of the American West, by Ross Rice for *Pacific Historical Review* (February 1996).

Turning on Water with a Shovel: The Life of Elwood Mead by James Kluger for *Pacific Historical Review* (January 1996).

The Legacy and the Challenge: A Century of Forest History at Cowichan Lake by Richard Rajala for *Forest and Conservation History* (October 1995).

Flooding the Courtrooms: Law and Water in the Far West by M. Catherine Miller for *Canon: The Journal of the Rocky Mountains American Studies Association* (Winter 1995).

To Reclaim a Divided West: Water, Law, and Public Policy by Donald Pisani for *Journal of Arizona History* (Summer 1995).

Cadillac Desert: The American West and its Disappearing Water by Marc Reisner for *Prince George Citizen*, Prince George, B.C., Canada, (December 17, 1994).

Phoenix: The History of a Southwestern Metropolis by Bradford Luckingham for *Southwestern Historical Quarterly* (Summer 1991).

New Courses for the Colorado River: Major Issues for the Next Century by Gary Weatherford and F. Lee Brown for *Journal of the Southwest* (Fall 1988).

Rayburn: A Biography by D.B. Hardeman and Donald Bacon for *Western Historical Quarterly* (Summer 1985).

The Politics and Economics of Racial Accommodation: The Japanese of Los Angeles, 1900-1942 by Thomas Modell for *Arizona and the West* (Spring 1979).

Selected Awards: Fellowships

2009, Golden Bear Champion Award recognizing individuals and organizations for their support and contributions to Phoenix College students, employees, programs, services, and the community college community.

2007, Southwest Book Award for Literary Excellence and Cultural Enrichment in the Southwest from the Border Research Library Association for *Senator Dennis DeConcini: From the Center of the Aisle* (Tucson: University of Arizona Press, 2006).

2002, Margaret T. Morris Foundation and Kiekhefer Foundation Grant for Study of Arizona Cattle Industry.

2002, Hopi Oral History Grant, U.S. Department of the Interior, wrote and secured \$50,000 grant for Hopi Tribe.

2001, University of Arizona College of Law, Dennis DeConcini Education Grant for research into the public career of former Arizona Senator Dennis DeConcini.

2000, Nominee for the Pulitzer Prize in the History Category.

1998, Far West Foundation Grant for study into the business and public career of former governor Evan Mecham.

1996, nominee to the Center for Advanced Study in the Behavioral Sciences at Stanford University, funded by the MacArthur, Guggenheim, and Ford Foundations.

1994, National Endowment for the Humanities Summer Research Fellowship to Oregon Humanities Center.

1993, U.S. Fulbright Scholar Award to Canada in Comparative Frontiers and Environmental History, University of Northern British Columbia, Prince George, B.C.

1992, Presidential Research Scholarship Fund Grant (PRSF), University of Houston.

1992, Limited Grant-in-Aid (LGIA) Award, University of Houston.

1989, Research Initiation Grant (RIG), University of Houston.

1987, Intergovernmental Personnel Act (IPA) Grant to serve at National Endowment for the Humanities.

1986, New Mexico Legal History Grant, New Mexico Bar Association.

1984, New Mexico Humanities Council Grant, "Urban Growth and Economic Development in Northern New Mexico."

1983, Lyndon Baines Johnson Presidential Library, Moody Grant for research into the public career of U.S. Senator Carl Hayden of Arizona.

1982, University of New Mexico, Dorothy Woodward Memorial Fellowship in Hispanic Borderlands/U.S. Southwestern History, University of New Mexico Foundation.

Selected Scholarly Papers Presented

2015, "The Education of J. Fife Symington, III," Arizona Historical Convention, Tucson, Arizona.

2011, "John R. Norton and Corporate Water," Arizona Historical Convention, Yuma, Arizona.

2006, "Burros, Bullets, and God: The Republican Primary for the U.S. Senate in Arizona," Arizona Historical Convention, Tucson, Arizona.

2005, "The Arizona Navigable Stream Adjudication Commission," McFarland Plenary Lecture, Arizona Historical Convention, Flagstaff, Arizona.

2005, "The Central Arizona Project: Fuel for Business Growth in Arizona," Lecture for the Annual Barry M. Goldwater Lecture Series, Arizona Historical Foundation, Kerr Cultural Center, Scottsdale, Arizona.

2005, "Arizona Treasures: Locating Arizona History," Keynote Speaker, Annual Meeting of the Arizona Historical Society Board of Directors, Tempe, Arizona.

2004, "Ernest McFarland, *Arizona v California*, and the Central Arizona Project, Arizona Historical Convention, Safford, Arizona.

2002-2003, Arizona Humanities Council Lectures: "Parched Arizona: The Colorado River and the Future of the Southwest," papers presented in Tucson, Casa Grande, Tempe, Peoria, Prescott.

2001-2002, National Endowment for the Humanities Lectures: "Carl Hayden and the Central Arizona Project," papers presented in Tucson, Tempe, Grand Canyon.

2002, "Carl Hayden and the Legislative Quest for the Central Arizona Project, 1963-1968," Centennial Celebration Conference for the U.S. Bureau of Reclamation, Las Vegas, Nevada.

2000, "The American Southwest: Hydraulic Society at the Crossroads of History," Nineteenth Annual Maricopa Community College Honors Forum Lecture Series, Phoenix, Arizona.

2000, "The Hayden versus Mecham U.S. Senate Election of 1962: Old Arizona and the New Conservative Agenda," Arizona Historical Convention, Yuma, Arizona.

1995, "Alcan: Mission to the North," British Columbia Studies Conference, Okanagan, B.C., Canada.

1994, "Carl Hayden and the Origins of the Central Arizona Project," Arizona Historical Convention, Casa Grande, Arizona.

1991, "A Comment: The Third Great Age of Discovery," Johnson Space Center, NASA, Houston, Texas.

1986, "The Formation of the Bar: Americanization and Cultural Accommodation in New Mexico," Annual Meeting of the New Mexico Bar Association, Ruidoso, New Mexico.

1985, "Carl Hayden, Regionalism, and the Politics of Water in the Southwest, 1920-1928," Western History Association Conference, Sacramento, California.

1983, "Recent Interpretations of the Twentieth Century American West," Western History Association Conference, Salt Lake City, Utah.

1983, "The Progressive Impulse and the Navajo Soil Conservation Program," Arizona Historical Convention, Prescott, Arizona.

Other Professional Activity: Selected

2014, Advisory Board, Secretary of State, Arizona, Department of Library, Archives, and Public Records.

2012, Keynote Speaker, Annual Conference of American Engineering Association, Glendale, Arizona.

2012, Keynote Speaker at annual Water Resources Research Center Conference at the University of Arizona.

2011, Board of Directors, Grand Canyon Institute.

2011, Arizona Centennial Courts Commission.

2010, Luncheon Speaker at Water Resources Research Center, University of Arizona.

2010, Board of Directors, Raul Castro Institute, University of Arizona/Phoenix College.

2010, Keynote Speaker, Western Water Well Drillers Association Annual Conference, Prescott, Arizona.

2009, Keynote Speaker, Arizona Food Marketing Alliance Annual Education Scholarship Awards, Phoenix, Arizona.

2009, Keynote Speaker, Arizona Law Library Association Annual Conference, Phoenix, Arizona.

2009, Keynote Speaker, 82nd Annual Arizona Water & Pollution Control Association Conference and Exhibition, Glendale, Arizona.

2007, Keynote Speaker, Annual Meeting of the Environmental and Natural Resource Law Section, Arizona State Bar Association, Phoenix, Arizona.

2003, Keynote Speaker, Annual Meeting of the Environmental and Natural Resource Law Section, Arizona State Bar Association, Phoenix, Arizona.

2003-present, Arizona Historical Convention Board of Directors.

2003, Plenary Speaker at the Annual Arizona Hydrological Society Convention, Mesa, Arizona.

2002, Keynote Speaker and Presenter, Biltmore International Water Conference, sponsored by the Arizona Philosophical Society and Salt River Project, Phoenix, Arizona.

2000, Keynote Speaker, Maricopa County Community College Honors Program, "Water and the West in the New Millennium," Phoenix Arizona.

2000, Historical Consultant for Metropolitan Water District of Southern California for Dedication of East Side Reservoir at Diamond Valley Lake, Riverside, California.

1999, Chair of Distinguished Arizonans Panel consisting of U.S. Secretary Bruce Babbitt, Grady Gammage, Arizona Water History Celebration, Tempe, Arizona.

1999, Featured Speaker at Valley Citizens League Luncheon, "Hydropolitics in the American Southwest," Phoenix, Arizona.

1999, Featured Speaker at Library of Congress Affiliate, Arizona Center for the Book, Lake Havasu and Prescott, Arizona.

1999, Keynote Speaker for Annual Legal Counsel Meeting for the Metropolitan Water District of Southern California, Los Angeles, California.

1999, Keynote Speaker for Phi Theta Kappa Awards hosted by Northern Arizona University, Bullhead City Campus, Bullhead City, Arizona.

1993-present, contributing author to *Arizona Highways*.

1990-present, editorial referee/reader for several scholarly presses, including University of Arizona Press, University Press of Kansas and *Journal of Arizona History*, *Western Historical Quarterly*, *New Mexico Historical Review*, *Pacific Historical Review*, among others.

1989, Evaluator of Senator Ernest McFarland editing project, Florence, Arizona.

1983-present, Commentator and Speaker at various scholarly and historical conferences.

Professional References

Dennis DeConcini
U.S. Senator Retired
Arizona Board of Regents
5686 Dolphin Place
La Jolla, California 92037
858-459-5460
d.deconcini@att.net

Senator Steve Pierce
District 1
Majority Whip
Arizona State Senate
1700 W. Washington
Phoenix, Arizona 85007
602-926-5585
spierce@azleg.gov

Richard Mallery
Senior Partner
Snell & Wilmer LLP
One Arizona Center
Phoenix, Arizona 85004-2202
602-382-6194
rmallery@swlaw.com

Cynthia Chandley
Partner
Snell & Wilmer LLP
One Arizona Center
Phoenix, Arizona 85004-22202
602-382-6000
cchandly@swlaw.com

Patrick Paul
Partner
Snell & Wilmer LLP
One Arizona Center
Phoenix, Arizona 85004
602-382-6000
ppaul@swlaw.com

John R. Norton III
Chairman and Owner
J.R. Norton Companies
P.O. Box 44015
Phoenix, Arizona 85064-4015
602-840-8806
jmorton@cox.net

Stewart Koyiyumptewa
Tribal Archivist
Cultural Preservation Office
Hopi Tribe
P.O. Box 123
Kykotsmovi, AZ 86043
skoyiyumptewa@gmail.com

Other references available upon request.

