























**1866(December 21)** Indicating the early commercial use of the Truckee River for logging, the *Territorial Enterprise* (Virginia City) reported that "Eastman & White, whose sawmill is at Truckee Meadows, have let a contract to furnish them with two million feet of saw logs...being cut now in Truckee Canyon some six miles above Crystal Peak and will be flooded down the river with the spring floods."<sup>(106)</sup> Eventually, Truckee Meadows mills would be replaced by a mill at Verdi, and numerous other lumber mills around Truckee, California.

**1867** The Truckee Lumber Company was established near Donner Lake. By 1868, this lumber mill alone had produced some 10,000 railroad ties and two million feet of bridge timber as part of a contract with the Central Pacific Railroad. The lumber mill also produced eight million board feet, a significant portion of the 66 million board feet produced by the dozen or so milling operations located in the immediate vicinity of Truckee.

**1867(March 29)** As reported in the *Gold Hill News* and the *Territorial Enterprise* (Virginia City): "This morning a wagon with 1,450 pounds of trout, arrived in Virginia [City] from Pyramid Lake. The whole wagon load was caught by the Indians...being the largest day's fishing ever made...we have never seen as many large trout...brought to market..." As a testament to the plentiful nature of the fish, it was noted that "...in the course of an hour an Indian will often take over 200 pounds..."<sup>(107)</sup>

**1867(April 5)** As noted in the *Territorial Enterprise* (Virginia City): "The Truckee...is about as full of fish as there is any sort of necessity for...trout of large size and choice quality are caught in any desired quantity." The first reference was also made to the now endangered cui-ui: "...besides which there is a species of fish resembling the smelt, which are found to be excellent eating...lower part of the river in the vicinity of Grand [Pyramid] Lake [supposedly they did not spawn above the "Big Bend" of the Truckee River at Wadsworth]...very peculiar fish is found called, we think, the 'Cuyo', a dark colored, scaly, homely looking fish...spawn...in such immense numbers that at time they almost seem to choke the passage of the waters...whole surface seems fairly alive with heads and fins...such a rushing noise as to stampede horses and cattle along the river."<sup>(108)</sup>

**1868(January 10)** In terms of an informal census, it was noted in the *Carson Daily Appeal* (Carson City) that Mr. H.G. Parker, Superintendent of Indian Affairs for Nevada reported that there were about 1,000 Piutes [sic] on the reservation at Pyramid Lake and that for every pound of fish sold by the Indians they receive two cents. Mr. Parker reported that "They come in possession of a good many dollars by this means..."<sup>(109)</sup>

**1868(January 30)** As reported in the *Territorial Enterprise* (Virginia City): "The Indians of the Reservation at Pyramid Lake, have again commenced spearing trout...there are other fine fish--even more delicious than the trout--in the waters of Pyramid Lake, but it is only at a certain (and very short) season that they venture from the lake into the river where they can be taken. A few of these fish--we have forgotten the name given them by the Paiutes [they were the cui-ui]--were offered in this market last year."<sup>(110)</sup>

**1868(March)** Myron Lake sold to the Central Pacific Railroad approximately 160 acres of land centrally located in what is now Downtown Reno. Two months later, on May 9th, the Central Pacific began auctioning townsites. The only structures of importance existing at that time included Lake's Hotel (located at the present Riverside Hotel site on the south side of the river) and a grist (grain) mill, located at the northern end of the bridge.<sup>(111)</sup>

**1868(Spring)** At the height of the bird breeding season, Robert Ridgway, a young, 17-year old naturalist and mentor of Spencer Fullerton Baird, who was the Director of the United States National Museum, accompanied a biological survey of the U.S. Geological Exploration led by Clarence King. The expedition explored wildlife along the 40th parallel<sup>(112)</sup> and traveled down the Truckee and Carson rivers. Ridgway identified 91 species of birds during a three-week trip to the lower Truckee River below Wadsworth, Nevada, an area relatively untouched at that time by the effects of modern society. Ridgway's accounting provided an important record of the flora and fauna of the "fertile valley of the river" and its "exceedingly dense willow-jungles...studded with fine large cottonwood trees..." This was lush and hospitable habitat that would be drastically altered through subsequent river channelization projects, draining of wetlands, increased use of adjoining lands for agriculture, and livestock grazing.<sup>(113)</sup> Despite having only a high school education, Ridgway went on to become one of America's most distinguished ornithologists<sup>(114)</sup> as Curator of Birds in the U.S. National Museum. Over one hundred years after Ridgway's visit, over a five-year period of 1972-1976, two University of Nevada, Reno, professors could identify only 65 species of birds in this same area, and of those, 17 were new to this area.<sup>(115)</sup> Consequently, by the 1970s, 42 of the original bird species identified by Ridgway in 1868 would completely disappear from the lower Truckee River.<sup>(116)</sup>

**1868** The Central Pacific Railroad connected the town of Truckee, California, and the city of Reno, Nevada, via the upper Truckee River canyon route. This represented the first transportation corridor which followed the route of the Truckee River between these two communities. Numerous other railroads prospered around this time throughout the area, thereby promoting the logging industry, paper and pulp mills, and other early forms of commercial enterprise.

**1868(April)** Judge E. B. Crocker, brother of Charles Crocker, superintendent of construction for the Central Pacific (CP) Railroad, put forth the name of "Argenta" for Lake's Crossing (i.e., Reno), a name which stressed the importance of silver to the area. Two

weeks later on May 9, 1868, the name was suddenly changed to Reno, named after a young (39 year- old) Union General, Jesse Lee Reno. Major General Reno was a native of Virginia, graduated from the U.S. Military Academy at West Point, and served in the Mexican War from 1846 to 1847. He was killed while leading his men in the Union victory of South Mountain, Maryland, on September 14, 1862. It was claimed that one of the CP's owners knew General Reno and insisted on the change. Reno subsequently became the junction for the Virginia & Truckee (V&T) Railroad track to be completed to Virginia City and the Comstock.<sup>(117)</sup> During its relatively brief history, Reno had been known as Jamison's Station (1852), Fuller's Ferry (1860), Lake's Crossing (1862), End of Track (1868), Argenta (1868), and finally, in May 1868, Reno.<sup>(118)</sup>

**1868(May 22)** In an early recognition of the need to establish Anaho Island in Pyramid Lake as a protected wildlife refuge, the *Carson Daily Appeal* (Carson City) wrote that "...returned yesterday from Pyramid lake...brought a great number of gull's and pelicans' eggs...gathered from the island...says that these eggs are to be found...in great abundance."<sup>(119)</sup>

**1868(May 31)** As reported in the *Territorial Enterprise* (Virginia City): "Mr. H. Hawes, who resides at the "Big Bend" of the Truckee [Wadsworth], and who brought the fish to this city, gives us some interesting particulars in regard to the fish. It is called by the Indians the "cooynea" [cui-ui], and is found in the waters of both Pyramid and Mud [Winnemucca] lakes,<sup>(120)</sup> which it only leaves in the spring for the purpose of spawning, when it comes up the Truckee River as far as the Big Bend, never farther, in schools of millions. They weigh from four to eight pounds, and have a head so ugly that all are beheaded before being brought to this market."<sup>(121)</sup>

**1868** Alfalfa seed, also known as "Chile clover," which had been grown in California since the 1850s, reached the Truckee Meadows and became an intensive forage crop to cover the expanding agricultural fields along the river. Alfalfa was found to tolerate salt saturation in soils, variable climates, drought, and insects. As a legume, it actually adds fertility to soils while producing three to six cuttings of hay during the average growing season. Once planted it needs little cultivation for six to ten years, although now the rotation of alfalfa fields is becoming more frequent.<sup>(122)</sup> Ervin Crane, a pioneer Steamboat rancher, proved that alfalfa thrived best on sagebrush bench lands plowed and irrigated. By the mid-1870s, alfalfa was the reigning staple crop of the Truckee Meadows.<sup>(123)</sup>

**1868** The Central Pacific Railroad lines reached Wadsworth on the lower Truckee River and wholesale harvesting of Pyramid Lake cutthroat trout began with shipments both west to San Francisco and east (1869) to Ogden, Utah, via Wells Fargo Express.<sup>(124)</sup> Although fishing records are questionable and represent only those fish harvested along the lower Truckee River, by 1888 it was reported that some 250,000 pounds (125 tons) of fish were shipped by rail from Wadsworth alone. It was also estimated that this amount constituted only about one-half of the total catch along the entire course of the Truckee River.<sup>(125)</sup>

**1868(1868-1904)** The Central Pacific's Truckee-Wadsworth division was established at Wadsworth, Nevada (Big Bend). In 1882, work was begun on a new site across the Truckee River (on the south, or eastern side) and a fire on April 15, 1884, fanned by heavy winds, destroyed remaining buildings at the original site. Another fire at the new site in 1902, combined with a persistent lack of an adequate water supply, prompted the relocation of the division, with all buildings and even the workers' homes, to a new location east of Reno, a site which eventually became Sparks, Nevada.<sup>(126)</sup>

**1868** Reno's first sewer lines were built around this time and consisted of pipes connected with each storefront and then extended down alleys or streets to the Truckee River, where raw sewage poured directly into the river. During the summer, when the stream channel frequently dried up entirely, the area was rank with piles of untreated waste awaiting the fall rains to carry it away downstream. This condition existed well into the 1900s.<sup>(127)</sup>

**1868** Ice harvesting began in the Truckee, California, area, particularly on Donner Lake and on an earlier, and considerably smaller, Boca Reservoir. The Boca site was particularly well suited for this type of enterprise due to its location at the bottom of a depression where cold air would naturally sink, providing temperatures typically 10-20F colder than at Truckee.<sup>(128)</sup> Ice was used to cool the Comstock mines and for packing agricultural produce from early farming operations in California, thereby allowing California farmers in the Sacramento and San Joaquin valleys to rail ship agricultural production to eastern markets after 1869 when the transcontinental rail line was completed. At its peak, over 20 ice companies were active in the Truckee area. Ice harvesting operations would continue until approximately 1927 when natural ice was replaced by mechanical refrigeration.

**1869(March 20)** From the *Territorial Enterprise* (Virginia City): "Immense quantities of trout are being captured daily in the Truckee River. White men and Indians, with hook and line, spear and net, are busy in catching the speckled beauties, for fun and for profit. They weigh from half a pound to 15 pounds, and are cheaper than beef in the market at Reno and Wadsworth."<sup>(129)</sup>

**1869** A Nevada Legislature joint resolution recognized the interstate nature of pollution in the Truckee River and the endangerment of native fish species and called upon the California Legislature to protect upstream waters from the dumping of sawdust.<sup>(130)</sup>

**1869(May 10)** The Central Pacific Railroad met the Union Pacific Railroad at Promontory Summit, just south of Promontory, Utah.<sup>(131)</sup> The nation had now been connected by rail lines and overland migration westward would no longer be the hazardous and daunting task it was.

**1870(January 4)** In an effort to bring some realism to the Lake Tahoe fish stories (see entry for April 1, 1866), the *Gold Hill News* reported that "...on authority of Captain John McKinney, of Tahoe City, who has made fishing a profession...the largest fish ever taken from those waters...weighed twenty-seven pounds..."<sup>(132)</sup> [Even so, the modern-day record Mackinaw trout caught in Lake Tahoe weighed in at 37 pounds and 6 ounces, although this species of fish was reportedly not introduced into Lake Tahoe until 1887.]

**1870(January 15)** As noted in the *Reno Crescent*: "Our markets and restaurants...we notice... most delicious looking speckled trout, taken from the pure transparent waters of our own beautiful Truckee [River]." <sup>(133)</sup>

**1870(February 25)** The first indication of concern over the viability of the Truckee River and Pyramid Lake fisheries was raised by the *Territorial Enterprise* (Virginia City) when it reported that: "A correspondent writing from Reno, complains that parties residing in the vicinity of Pyramid Lake have built a weir across the Truckee River which prevents the trout and other fish from coming up the river, as they usually do about this season..."<sup>(134)</sup>

**1870(April)** During the 1869-1870 legislative session, the California Legislature authorized the Donner Lumber and Boom Company to improve the channel of the Truckee River from its source at Lake Tahoe to the eastern boundary line of the State of California. It was stipulated, however, that any floodgate at Lake Tahoe's outlet was not to be more than five feet in height and was to only facilitate floating saw logs downstream to the town of Truckee.<sup>(135)</sup> Also required under this contract was the construction of adequate fish ladders, yet none were ever constructed.<sup>(136)</sup> The lumber company would erect a rock-filled timber crib dam at Tahoe City which would remain in operation until its replacement in 1913 by a concrete structure with vertical gates.

**1870** Also during the 1869-1870 session of the California Legislature, the name Lake Bigler, which had been first assigned to Lake Tahoe in 1851 during an Indian expedition, was officially legalized in honor of California's third governor, John Bigler.<sup>(137)</sup> Even so, the U.S. Land Office continued to refer to the lake as Lake Tahoe on its maps, a name which eventually prevailed when the California Legislature officially rescinded the name Lake Bigler in 1945.<sup>(138)</sup>

**1870(July 9)** The *Reno Crescent* reported on "Something New" in the Truckee River: "We notice that the boulders in the bed of the Truckee are this season covered with a growth of moss [no doubt a euphemism for algae]--a phenomenon never before observed by the oldest inhabitant..."<sup>(139)</sup> This should hardly have come as any great surprise as only two years earlier, in 1868, Reno installed sewer pipes which dumped raw sewage directly into the river.

**1870** Alexis von Schmidt intensified his efforts to divert waters from Lake Tahoe (see 1865 entry) by offering to provide the City of San Francisco twenty million gallons of water daily in return for \$10 million and monopoly control of that city's water works by Schmidt's Lake Tahoe and San Francisco Water Works Company. By the end of 1870, Schmidt had acquired land at the lake's outlet at Tahoe City for \$3 per acre and constructed a small dam at the site.<sup>(140)</sup>

**1871(January 14)** As prophetically reported in the *Nevada State Journal* (Reno): "We learn that last week some parties were engaged in killing fish by means of exploding giant powder in the river. Though fish are plenty in the Truckee now, if this manner of killing them is not stopped promptly, the day is not far distant when the waters of our beautiful Truckee will have but very few fish in them..."<sup>(141)</sup>

**1871(February 25)** As a rebuke to the fishing practices taking place on the Pyramid Lake Indian Reservation, the *Nevada State Journal* (Reno) reported: "...[we] deplore the action of parties in placing obstructions across the Truckee River below Wadsworth, whereby the trout were prevented from ascending the stream...the dam at the [Indian] agency...is arranged with a chute through which the fish might ascend, were they not prevented by Indians employed to spear them as they attempt to pass through. So closely is this chute guarded that not a fish is able to pass above the dam..."<sup>(142)</sup>

**1871(March 2)** Legislation was passed making it unlawful for any person between the first day of January and the first day of September to catch any trout in any of the waters of Nevada with any seine, gillnet, or any spear, weir, fence, baskets, trap, explosive material or other substance or implements, or in any manner except by hook and line; and it was made unlawful at any time for any person to catch fish by any poisonous deleterious or stupefying drug, explosive material or other substance. The law also provided that fish ladders needed to be constructed within 30 days at mill dams, except that the Carson River (with its numerous dams, weirs, and stamping mills) was exempt from this provision. All other acts relating to fish were repealed.<sup>(143)</sup>

**1871(Spring)** Larger, mature female Pyramid Lake cutthroat trout loaded with eggs were first reported unable to reach the Truckee Meadows due to downstream dams and numerous nets, snares, and fish traps impeding their progress to upstream spawning beds.<sup>(144)</sup>

**1871(March 18)** In response to the numerous public concerns about the damming of the Truckee River below Wadsworth, George Balcom, Pyramid Lake Indian Agent, wrote a letter to the *Reno Crescent* in which he stated: "I am the newly appointed Indian

Agent...[the reservation dam has] not only a chute, but an open sluice about six feet wide, falling gradually over the tiers of brush and stone lapping each other, in such a manner that fish can pass up stream...that all the fish may come up the sportsmen may desire, and the Indians partly support themselves by the sale of what they catch..."(145)

**1871(March 20)** In a story from the *Reno Crescent* reprinted in the *Reese River Reveille* (Austin) it was noted that "...the Truckee River is being cleaned out of the delicious trout for which that stream is famous. Owing to the obstructions in the river, few if any fish succeed in making their annual trip to the head of navigation...no fish are to be seen in the upper portion of the river, while below the [Indian reservation] dam...they are being caught by the wagon load..."(146)

**1871** The first white-Indian violence along the Truckee River since the Pyramid Lake Indian War of 1860 erupted. During the spawning run of October 1870 through April 1871, the Pyramid Lake Indian Reservation's "irrigation" dam blocked much of the upstream run due to an inadequate fish ladder. Truckee Meadows residents felt this represented a deliberate action to allow the Indians to trap the spawning Pyramid Lake cutthroat trout for sale to Wadsworth fish wholesalers. The *Nevada State Journal* reported that "Wadsworth parties" were deliberately damming the river, preventing the fish from passing, while selling the catch along the railroad.<sup>(147)</sup> The annual run at Reno was reported to be far below normal. After receiving little satisfaction from the Indian Bureau and Nevada's Congressional delegation, some Truckee Meadows residents took matters into their own hands and dynamited the reservation dam.<sup>(148)</sup> On April 1st the *Reno Crescent* casually noted that "We understand that the Reservation dam...took a start one day this week and left its mooring..." It was also noted in this same edition: "Thursday night, 2,500 pounds of Truckee trout were unloaded at the Reno [railroad] Depot. A ton went west from this place and a ton east from Wadsworth. How long will it be before trout in the Truckee River will be as scarce as hen's teeth if this wholesale slaughter continues?"<sup>(149)</sup>

**1871(April 14)** The *Territorial Enterprise* (Virginia City) reported on the success of the demise of the [reservation] dam on the lower Truckee River: "...no new dam has been built across the Truckee in the place of the one lately blown up with giant powder by the Renoites...the river is alive with trout, all pushing up the stream...about 1,000 pounds of trout...were shipped from Wadsworth evening before last." As astutely noted later in the *Reese River Reveille* (Austin) on April 17th with respect to this matter: "...that the fish are prevented from spawning by whites instead of Indians does not improve matters."<sup>(150)</sup>

**1871(May 28)** In reporting on logging operations in the Truckee River, the *Territorial Enterprise* (Virginia City) reported that "The lumbermen on the Truckee River find it a difficult matter to float logs down that stream this season...Senator Eastman, who owns a mill (Eastman & White) 2-1/2 miles below Reno...that by building a plank dam nearly across the river he has been enabled to get a considerable lot of logs into his boom. On the Truckee the sawmill men wish to see the snow go off with a rush, while on the Carson [River] the quartz mill owners desire that it may be all summer about it."<sup>(151)</sup>

**1871** Alexis von Schmidt made a formal proposal to the San Francisco Board of Supervisors: For \$10 million Lake Tahoe waters could be diverted from the Truckee River to Squaw Valley, flow five miles through a tunnel to the North Fork of the American River, and then proceed through an aqueduct, a reservoir, and a pipeline to San Francisco. Along the way the system was to provide water to mining, farming, and municipal customers. The project was approved by the city supervisors, but was vetoed by the mayor who feared both the monopoly Schmidt proposed as well as legal suits over Lake Tahoe water rights.<sup>(152)</sup>

**1871(July 29)** The *Gold Hill News* provided one account of a popular fishing technique in Lake Tahoe by noting that "...the trout are not very plentiful in the lake, but in the brooks they just swarm...don't use hooks at all, but go for them with a big club..."<sup>(153)</sup>

**1872** The Orr Ditch was completed in the Truckee Meadows, taking water out of the Truckee River on its north side just downstream from the present-day Mayberry Drive Bridge. The ditch would then run in basically an easterly direction, paralleling the river for about two miles to Henry Orr's ranch located on the river's north bank.

**1872(September 1)** The first through train traversed the 52-mile route recently completed which linked Virginia City with Reno by rail. Chinese laborers had begun grading the roadbed from Reno south to Steamboat Springs in the summer of 1871. On August 24, 1872, Virginia & Truckee Railroad Superintendent Henry M. Yerington drove the last spike in the line a mile west of Carson City. The last train traversed the route on May 31, 1950.<sup>(154)</sup>

**1873** A group of farmers paid Henry Orr for his water rights and began to bring the Orr Ditch northward toward Spanish Spring Valley where the water was sold to ranches north and east of Reno.<sup>(155)</sup> The return flows eventually came back into the Truckee River via the North Truckee Drain at a point nearly opposite the confluence with the Steamboat Creek and the discharge point of the present-day Truckee Meadows Water Reclamation Facility.

**1873** A masonry diversion dam located at the foot of Sierra Street in downtown Reno and used by the Reno Flour Mill effectively blocked upstream spawning runs of Pyramid Lake cutthroat trout.<sup>(156)</sup> Five years after its construction, and only after a Washoe County Grand Jury ordered the owners prosecuted for violation of state fish protection laws, would the owners submit and add the required fish ladders.<sup>(157)</sup>

**1873(March 15)** As noted in the *Nevada State Journal*: "...trout are plenty in the Truckee and it is no more than right that all who live along the borders of the beautiful stream should have an equal show...the dam of the mill company [Reno Flour Mill]...has no aperture through which the fish can get above...they accumulated between the two bridges and are slaughtered unmercilessly..."<sup>(158)</sup>

**1873(April 8)** In noting the effectiveness of river impediments to prevent Pyramid Lake cutthroat trout from reaching their upper basin spawning beds, the *Truckee Republican* reported that "Scarcely any trout have made their appearance at Boca or Truckee...and our citizens are complaining...that there are artificial obstructions both at Reno and between Boca and Verdi which prevent their coming."<sup>(159)</sup>

**1873(April 17)** The *Territorial Enterprise* (Virginia City) provided an insightful account of the characteristics and habits of the now-endangered Pyramid Lake cui-ui fish species: "This peculiar fish is now to be seen in our principal markets in abundance...name 'Couoa,' is pronounced 'Kew-yew-way' by the Piutes [sic]...very singular kind of fish...are all decapitated before they are brought to our markets...reason given...the heads weight as much as their bodies, and are so repulsive in appearance that few who saw the head would care to eat the fish...are very round and solid...meat is white, sweet and of very fine grain...never seen for more than five or six days in the Truckee...suddenly disappear... seen no more till their next run...While in Pyramid Lake...never seen...remain altogether in deep water."<sup>(160)</sup>

**1873(July 18)** Reporting on the extensive logging operations taking place in the Lake Tahoe Basin, the *Gold Hill News* reported that "Some idea can be formed of the immense amount of lumber turned out by the Glenbrook [Nevada] mills, from the fact that every day or two, rafts of logs containing 250,000 [board] feet of lumber are towed across Lake Tahoe to the mills from Sugar Pine Point [California]..."<sup>(161)</sup>

**1873(August 16)** In conflict with the reservation count of 1868 attributed to Mr. H.G. Parker, Superintendent of Indian Affairs for Nevada, in which the *Carson Daily Appeal* reported 1,000 Paiutes on the Pyramid Lake Indian Reservation, an article in the *Nevada State Journal* (Reno) made mention of "...a tribe of about 6,000 Indians, 400 of whom have their lodges along its [Pyramid Lake's] banks and live on the fish and game that throng its waters and shores...prolific with life...beneath the waters swarm the salmon trout, king of game fish...absolutely numberless in these virgin waters..."<sup>(162)</sup>

**1873(August)** The first waters from the Truckee River Basin reached Gold Hill and Virginia City, located in the Carson River Basin. The water system, over 21 miles in length, was capable of delivering 2.2 million gallons of water in 24 hours (6.75 acre-feet per day or almost 2,500 acre-feet per year).<sup>(163)</sup> The system consisted of a diversion dam below Hobart Creek Reservoir on Franktown Creek, which flows into Washoe Lake from the eastern slopes of the Carson Range. From this point of diversion, the water flowed through four miles of box flumes to a pressure pipe almost eight miles in length that transported the water across the Washoe depression (Washoe Valley) to the east to Five-Mile Reservoir in the Virginia Range, and finally through a 5.66-mile flume which took the waters to Gold Hill and Virginia City.

**1874(April 4)** The *Nevada State Journal* (Reno) reported on excellent, if not excessive, fishing conditions: "Phi Bates, of Long Valley...succeeded in pulling out 73 of the nicest trout ever mortal man set eyes upon...Phi and Ned Reed went out and together managed to corral over 200 pounds. If they keep up their luck there will soon be no trout in the river."<sup>(164)</sup>

**1874** The City of Reno petitioned the California Legislature to prohibit the dumping of sawdust in the upper Truckee River. A "delta" of sawdust from upstream milling had formed in less than ten years at the entrance to Pyramid Lake, effectively closing the mouth of the Truckee River to fish attempting to spawn upstream.<sup>(165)</sup>

**1874(August 20)** In an article providing insights into the early topography of the Truckee River through Reno and the Truckee Meadows before extensive flood control measures were taken by the U.S. Army Corps of Engineers in the 1950s and 1960s to remove islands and meanders, and straighten and deepen the river's channel, the *Nevada State Journal* (Reno) related a visit to Poor and Cossitt's islands, located about a mile and a half from Reno. The account noted "there are four islands, formed by the branching of the Truckee, from one to five acres in extent, thickly covered with willows and cotton wood...wild flowers, gooseberries and currants, grow abundantly...shade made so perfect by the overhanging trees that scarcely a ray of sunshine penetrated..."<sup>(166)</sup>

**1874(September 2)** The importance of farming and irrigation to the early Truckee Meadows economy was noted by the *Nevada State Journal* (Reno): "The farmers on the Truckee Meadows have reason to congratulate themselves on their hay crop this season...M.C. [Myron] Lake and Len Savage, two of our largest ranchers, have lately sold to the Virginia and Truckee Railroad 100 tons [of hay] each, receiving...market price."<sup>(167)</sup>

**1874(November)** In a letter from the Pyramid Lake Indian Agent to the Commissioner of Indian Affairs, it was reported that the entire Truckee River channel into Pyramid Lake was blocked by logging debris and sawdust, consequently diverting the river's entire flow into Mud [Winnemucca] Lake.<sup>(168)</sup>

**1875(January 9)** In the Governor's message to the Nevada Legislature, as reprinted in the *Nevada State Journal* (Reno), he noted "A subject of importance to many citizens of the State...is the preservation of the fisheries of the Truckee River...unless preventive measures are soon adopted and rigidly enforced, their certain destruction is imminent...The mouth of the Truckee [at Pyramid Lake]...is closed by a bar of sawdust at least a mile in length, three hundred yards in breadth and three feet in depth...I saw hundreds of fine trout dead and rotten upon the shores...The air was poisoned with the stench of their decay..."<sup>(169)</sup>

**1875(February 16)** In recognizing the importance of the Truckee River fishery to both the Pyramid Lake Indians and the railroad, the *Silver State* (Winnemucca) noted: "The Piutes [sic] are doing a lively business in Truckee trout...permitted to ride free of charge on trains...taking advantage of the free pass or dead-head system, bring fish from [the] Truckee [River] almost every day and sell it in this market."<sup>(170)</sup>

**1875(March 23)** By Executive Order, retroactive to November 29, 1859 when lands were first set aside for this purpose, President Ulysses S. Grant formally proclaimed the creation of the Pyramid Lake Indian Reservation for the Pyramid Lake Paiute Tribe.<sup>(171)</sup> The reservation occupied almost 477,000 acres with its dominant feature, the 108,000-acre Pyramid Lake, located at the terminus of the Truckee River.<sup>(172)</sup> Later, to halt the decline in Pyramid Lake's water level, the Paiute Tribe would attempt to show that since its cultural heritage was clearly one of fishing and not farming, the reserved water rights (federal "reservation doctrine") established for the reservation should have been based on the water necessary to sustain the lake's fishery, rather than a lesser amount of water based on agriculture and the concept of "practicably irrigable acreage."<sup>(173)</sup>

**1875** The "Bonanza Kings" of the Comstock completed their Pacific Lumber and Flume operation from the Lake Tahoe Basin to near the site of Huffaker's in the southern portion of Truckee Meadows, a small community which had been established in the valley in 1859. For fifteen miles "trestled logs were propelled by waters rushing faster than any train." At the terminus of the flume, the Virginia & Truckee Railroad opened a depot and telegraph office and constructed a spur where workers transferred timbers. From there, the timbers were transported to the Comstock via the rail line from Reno to Virginia City which had been completed in 1872.<sup>(174)</sup>

**1875** Work began on the Highland Ditch, which diverted Truckee River waters from a point just east of Verdi to serve the irrigation needs of the Truckee Meadows and Reno's growing municipal water requirements. This was a joint construction project of the Highland Ditch and Water Company and several large ranchers in the Truckee Meadows.<sup>(175)</sup>

**1875** Recognition of the doctrine of riparian ownership of water rights in Nevada was provided legal support through the early court case of *Barnes v. Sabron*. It would not be until 1885 that the Nevada Supreme Court would reject this concept and formally approve and adopt the prior appropriation doctrine for all the state's water supplies.<sup>(176)</sup>

**1875** A large dam was constructed on the Truckee River for the lumber mill at Verdi. This structure, which essentially diverted the entire flow of the river through a large holding pond for retaining logs flowing downstream, effectively closed the upper Truckee River to Pyramid Lake cutthroat trout spawning runs. Under threat of litigation, an inadequate fish ladder was eventually added to the dam in 1877.<sup>(177)</sup> This river impediment to spawning fish provided credible justification to upstream California log milling operators who questioned the need to install fish ladders on their dams as virtually no spawning fish ever reached their locations.<sup>(178)</sup>

**1875** Due to rapidly depleted stocks of native fish species in the Truckee River above Verdi, Nevada, the California Fish Commission released the first foreign fish species--brook trout and whitefish--into the Truckee River above Boca (the outlet of the Little Truckee River).<sup>(179)</sup>

**1875** A second flume and pipe system, diverting waters from the Truckee River Basin to the Carson River Basin, was constructed from Franktown Creek (a tributary of Washoe Lake and eventually Steamboat Creek) below Hobart Creek Reservoir, across Washoe Valley to Five-Mile Reservoir in the Virginia Range to serve the water needs of Gold Hill and Virginia City. Like the first system installed in 1873, the capacity of this system was also 2.2 million gallons per day.<sup>(180)</sup>

**1876(January 21)** As concerns over the viability of the Truckee River fishery intensified, it was noted in both the *Nevada State Journal* (Reno) and the *Truckee Republican* that "...[Legislation is needed] that will prevent white men from employing Indians to catch trout...fish business is increasing because more cunning and diabolical contrivances... brought into requisition... fish in the Truckee is decreasing each year, notwithstanding the increased shipments... Unless stopped soon trout-fishing will be a thing of the past...In 1872 the total amount of fish shipped from the Truckee River was 109,812 pounds; in 1873, 150,657 pounds; in 1874, 161,696 pounds; making a total in three years of 422,165 pounds. No trout stream in America could stand such a drain for any considerable length of time...fish ladders are worse than useless...constitute a narrow raceway...in which the Indians...catch every single trout."<sup>(181)</sup>

**1876(January 22)** The *Nevada State Journal* (Reno) reported that part of a stock of one half million young salmon were placed in Lake Tahoe and Donner Lake. The batch was procured from the U.S. Fishery on the McCloud River and donated to the State of



**1876(April 1)** The *Reno Evening Gazette* provided a report from a Mr. John Whitehead of Pyramid Lake, who informed the paper that sawdust and sediment had formed a delta at the mouth of the Truckee River such that most of the river's water was being diverted into Mud [Winnemucca] Lake, thereby resulting in a scarcity of fish in the river. It was noted that due to the diversion, Mud Lake had risen 12 feet above its high water mark while Pyramid Lake had fallen a similar proportion.<sup>(183)</sup>

**1876(August 12)** As an indication of the munificence of Pyramid Lake, the *Nevada State Journal* (Reno) noted that "A gentleman from Pyramid Lake says that in places on the lake are to be seen thousands of pelicans, gulls, ducks, geese and other waterfowl...pelicans often so gorge themselves with fish that they will hardly attempt to fly when approached... may be shot by scores within 50 yards of the shore...trouble is...the pelicans...are worth nothing...unless a market could be found for their feathers and skins."<sup>(184)</sup>

**1876** As the water diversions from Franktown Creek and Hobart Creek Reservoir rapidly proved insufficient for the growing needs of the Comstock, the Virginia and Gold Hill Water Company received permission to draw water from Marlette Lake, a body of water located in the Carson Range and which drained into Lake Tahoe.<sup>(185)</sup> This action would directly divert the waters of the Lake Tahoe Basin to Virginia City and the Carson River Basin. This would not be an easy task, however, as Marlette Lake lay on the western slope of the Carson Range and the water would have to be transported around (or through) to the eastern slope where the Franktown Creek flume and pipe system was already in place.

**1877(January 20)** The *Nevada State Journal* (Reno) provided a report from Mr. A.J. Barnes, U.S. Indian Agent for the Pyramid Lake Indian Reservation to the effect that "...prosperous fishing season...commenced about the middle of October and will last until April...Indians are taking about 1,200 pounds of trout daily from the river and lake...sell to the trader for ten cents a pound...ships to Wadsworth...supplies outside markets..."<sup>(186)</sup>

**1877(February 24)** As noted in the *Truckee Republican*: "We see by the Reno papers that the trout have begun their annual pilgrimages up the [Truckee] river...We suppose they will get up as far as Jack Foulk's dam, at Verdi, and will be slaughtered by the thousands as they were last year...We do not believe that fifty pounds of fish were caught in the river above that point, all last spring."<sup>(187)</sup>

**1877(March 3)** The Desert Land Entry Act (Desert Land Act) was passed by Congress in recognition of the limited application of the 1862 Homestead Act. As first approved, it provided that title to 640 acres (one section) of arid land could be procured by conducting water to the land and reclaiming 20 percent (128 acres) of it. In 1890, the total acreage was reduced to 320 acres. In order to receive a patent, at least 40 acres (12.5 percent) had to be irrigated.<sup>(188)</sup>

**1877(March 5)** In an Act to provide for the preservation of fish in the waters of Nevada, it was apparent why the railroads [illegally] employed the Indians to catch fish: Section 4 provided that "shall not be lawful for any person...between the first days of January and June of each year, to catch or kill, any...trout...with any seine, gill-net, or any spear, grab-hook, weir, fence, basket, trap, explosive material...or in any manner except by hook and line..." On the other hand, the Indians were afforded somewhat different and more preferential treatment. According to Section 9 of this Act: "Nothing in this Act... construed to prohibit or prevent Indians from taking trout...at any time...by the same means as heretofore usually used and employed by them [including all of the above prohibited means, except, possibly, explosives]; provided that the same are for their own use..."<sup>(189)</sup> In this case, apparently, "own use" was loosely interpreted to also include the sale of fish by the Indians to the railroads.

**1877(March 10)** As reported in the *Nevada State Journal* (Reno): "Since the 25th of last October, when the fish season commenced, there has been shipped from Wadsworth by M. Rahael 110,000 pounds of trout. During the same period other parties have shipped from the same place nearly 20,000 pounds. The season will close in about 40 days more."<sup>(190)</sup>

**1877** The original Donner Lake Dam was constructed.<sup>(191)</sup>

**1877** Another petition of anti-sawdust Joint Resolution of the Nevada Legislature was sent to Sacramento, California.<sup>(192)</sup>

**1877** The office of the Nevada Fish Commissioner was created and Nevada fish planting began in the Truckee River.<sup>(193)</sup> As was noted in the *Nevada State Journal* (Reno) on April 22nd about the appointment of the first fish commissioner: "Fish Commissioner H.G. Parker was in town...looking after the interest and welfare of the fish in the Truckee...do all possible to prevent unlawful destruction of fish...that 35,000 salmon has been placed in the Truckee...taking measures to stock Washoe Lake with cat fish... pay personal attention to those Verdi dams and see that the fish ladders are put in...the mill men hereafter burn their sawdust...keeping it out of the river."<sup>(194)</sup>

**1877(August)** Myron Lake's wooden bridge across the Truckee River at the South Virginia Street site was replaced by a modern iron bridge.<sup>(195)</sup>

**1878 (October 1)** Reported in the *Gold Hill News*: "Two large boxes of salmon eggs arrived at the freight depot in Virginia [City] yesterday, consigned to Fish Commissioner Parker... when hatched the young salmon will be placed in the Carson River, the Truckee, and other of our rivers and lakes. A few will also be placed in the large reservoirs of the Virginia and Gold Hill Water Company, by way of experiment."<sup>(196)</sup>

**1878 (October 30)** The *Nevada State Journal* (Reno) provided a valuable account of the existence of Duck Lake near Pyramid Lake: "...situated just west of the Pyramid Lake Indian Reservation [actually on the reservation], and immediately south of Pyramid Lake, the two being divided by a strip of land something over half a mile in width...no connection with each other...no body of water flowing into it...Duck Lake...two miles wide and five in length...The day we saw it was almost entirely covered...must have been twenty thousand of them...majority being mallard [ducks], though there were a few teal, also a large number of mud hen, and around the shores were many snipe...feast for the hunters..."<sup>(197)</sup>

**1878 (December 5)** The *Nevada State Journal* (Reno) reported that the fishermen around Pyramid Lake wanted a law to prevent the trout from being taken out of the lake during the months of June, July, and August. It was noted that every summer "thousands of pounds" of fish were destroyed on account of the hot weather.<sup>(198)</sup>

**1879 (January 10)** The *Nevada State Journal* (Reno) made reference that according to their reliable informants, there existed four dams in the Truckee River between Wadsworth and Reno without fish ladders, hence making it impossible for the trout to come upstream.<sup>(199)</sup>

**1879 (July 2)** After many years of controversy over fishing rights on Pyramid Lake, the *Nevada State Journal* (Reno) reported that on July 1st the [U.S.] Supreme Court "rendered a decision in the Pyramid Lake case...The decision...is to the effect that Pyramid Lake is within a valid Indian reservation...This decision leaves the Indians in peaceful possession of the contested fishing lands."<sup>(200)</sup>

**1879** The original Independence Lake Dam was constructed on Independence Creek, a tributary of the Little Truckee River. The dam had a storage capacity of 3,000 acre-feet and was used primarily for logging operations along that stream's course.<sup>(201)</sup>

**1879 (February 5)** Quote in the *Reno Evening Gazette*: "Since the high water, the river has been a mley [turbid], whirling, tumbling mass of sawdust . . . A poor lonesome little fish wouldn't know his own mother two feet away and many of the citizens have been measuring their drink by the board [foot] measure."<sup>(202)</sup> While no doubt an example of journalistic zealotism, it was a fact that extensive upstream logging and milling operations, with direct discharge of sawdust and other milling debris, had severely degraded the quality of the waters of the Truckee River, frequently making it unfit to drink by Reno's residents. Furthermore, the numerous flumes used to float the logs off the steep hillsides and then down the river to the mills were lubricated with tallow, dogfish oil, or rancid butter, much of which also ended up in the river. In the winter of 1879, it was reported that the Truckee River looked like melted butter as it flowed under the Virginia Street Bridge in downtown Reno.

**1879** Congress created the U.S. Geological Survey (USGS) as part of the U.S. Department of the Interior with a mission to undertake serious exploration, mapping, and scientific study of the nation's resources, particularly water resources of the West.<sup>(203)</sup>

**1880 (January 24)** Attesting to the widespread appeal of the bounty of the Pyramid Lake and Truckee River fisheries, from the *Eureka Sentinel* it was noted that "...fully 1,500 pounds of fresh and salt water fish are consumed in Eureka weekly...Nearly all the trout used are brought from Wadsworth."<sup>(204)</sup>

**1880 (February 2)** As noted in the *Nevada State Journal* (Reno): "The sawdust in the [Truckee] river is keeping the trout from making their annual pilgrimage up to their spawning grounds. But if you speak to a mill man about it, he will swear upon a stack of black cats that no sawdust is thrown into the water. Queer." And later, on March 17th, this same paper reported that "The sawdust is so thick in the river that the mixture has about the consistency of mush, and unless the fish invent "snow plows" they will hardly get up this far." The following day the paper reported that "The fish have reached Clark's [present-day location of Sierra Pacific Power Company's Tracy-Clark Power Plant] down at the canyon and are plowing their way through the sawdust mush, trying to reach the spawning grounds."<sup>(205)</sup>

**1880 (March 11)** First mention is made of efforts to begin canning Truckee River trout. The *Nevada State Journal* (Reno) reported that Eugene Griswold was trying the experiment of canning Pyramid Lake cutthroat trout by "putting up" 2,000 cans, and if the scheme works well Mr. Griswold would engage in the business on a large scale at Wadsworth.<sup>(206)</sup>

**1880 (March 21)** The *Nevada State Journal* (Reno) reported on a new fish law before the California Legislature which would make it a misdemeanor for any person to put lime, gas-tar, or any other substance deleterious to fish in the waters of that state, and provides that sawdust shall not be deemed deleterious." It was noted in this article that "The fish laws of California and Nevada are so timed that one goes into effect about the time the other [state's law] goes out..." and that it would be wise for the fishermen to keep this paper away "...from Lake Tahoe trout, for they might study the thing out and keep on the safe side by crossing the [state] line."<sup>(207)</sup>

**1880 (March 25)** More mention is made of efforts to can Truckee River [Pyramid Lake cutthroat] trout. The *Nevada State Journal* (Reno) reported that the Griswold Trout Cannery at Wadsworth, Nevada, "...is not likely to prove successful...may not prove objectionable in the start, but be of temporary benefit...experience of other parts of the country...demonstrates that they are not the kind that will benefit regions with limited supplies of fish...Truckee River cannot meet the demand of an extensive cannery for more than two seasons..."<sup>(208)</sup>

**1880** The timber-cribbed dams constructed at the mouth of Gray Creek, a Truckee River tributary located approximately three miles below Hirschdale and two miles above Floriston, were washed out due to severe flooding within the Gray Creek watershed. These dams were used to create ice ponds for supplying ice to Reno and San Francisco. This was the first reported extensive damage created by this hydrologically unstable watershed and tributary to the Truckee River, but it would certainly not be the last.<sup>(209)</sup>

**1880(July)** The Truckee & Steamboat Irrigating Canal Company, organized in 1877, completed the 33-mile long Steamboat Ditch along the western side of the Truckee Meadows to provide irrigation water to farmlands as far south as Steamboat and Pleasant Valley, where the ditch emptied into Steamboat Creek.<sup>(210)</sup>

**1880(August 30)** In speaking to the issue of the primary purpose (see 1908 Winters Rights Decision) of the Pyramid Lake Paiute Indian Reservation, at least in the late 1800s, in his annual report to the Secretary of Interior, Indian Agent James E. Spencer noted that "Of much more value...than all the farming-lands on Pyramid Lake Reservation are its fisheries in the Lake and in the Truckee River, provided they could be thoroughly protected from trespassers...lake and river are very prolific in a most valuable fish...commands a high price...brings them annually a large revenue...chief means of support...most available source of income...propose to spare no efforts to give this fishery complete protection...enter my solemn protest, against such a proposed dismemberment of any of the reservations under my charge"<sup>(211)</sup>

**1880** The total disappearance of Pyramid Lake cutthroat trout above the Verdi dam was recorded. The California Fish Commission replaced this species of cutthroat trout in California waters by an imported species of McCloud River (Alaska) trout, Eastern brook trout, and other non-native trout varieties.<sup>(212)</sup>

**1880** At Lake Tahoe, a 4,000 foot-long tramway was built by the Sierra Nevada Wood and Lumber Company up a steep grade near present-day Incline Village, Nevada. A unique steam-powered cable railway carried cordwood and lumber a vertical height of 1,800 feet to the summit, at which point the logs were dumped into a V-flume and sluiced to lumber mills in Washoe Valley. From there they were carried by wagons up to the Comstock. <sup>(213)</sup> This began a period of extensive deforestation of the Lake Tahoe Basin. By 1896 most suitable trees within the basin (estimated at up to 60 percent of all mature trees) were cut down and the tramway and flume operation was shut down.<sup>(214)</sup>

**1880** The Highland Reservoir, served by an extension of the Highland Ditch (originally constructed in 1875) to Peavine Creek,<sup>(215)</sup> was constructed to the north of Reno and began providing municipal and industrial water to the City of Reno. As an open, unfiltered water system, taking water directly from the Truckee River by an open canal which was easily fouled by feedlots and decaying carcasses of range stock, it was not surprising when Reno residents often complained that their municipal water "looks thick and nasty, and tastes and smells just as nasty as it looks, having the flavor of rotten wood, dead fish and general staleness." Making matters even worse, a strainer at the Highland Reservoir outlet frequently came loose, admitting trout and other fish into the municipal water system's distribution pipes. As the pipe diameters through the network narrowed, the water subsequently transformed the contents of the pipes into infamous "Reno chowder" by the time it reached the kitchen sink.<sup>(216)</sup>

**1880(September 18)** Dr. Henry De Groot published an article in the *Mining and Scientific Press* on the origin and meaning of the term "Tahoe," a name which early Washoe (Washo) Indians had used for this lake. The original pronunciation-"Tah-hoe-ee," meaning big lake or water--was abbreviated on his suggestion to "Tā-hoe."<sup>(217)</sup> And so, finally, Lake Tahoe came by its name. Even so, the State of California continued to cling to its Lake Bigler naming until 1945, at which time the California Legislature finally and officially adopted the Lake Tahoe name as well.<sup>(218)</sup>

**1881(1881-1896)** Beginning in this year, Sand Harbor at Lake Tahoe near present-day Incline Village, Nevada, played an important role in the operations of the Sierra Nevada Wood and Lumber Company, one of the three large combines harvesting lumber from the Lake Tahoe Basin for use by the Comstock mines. The steamer "Niagara" towed log rafts from company land at the south end of Lake Tahoe to Sand Harbor where they were loaded on narrow-gauge railway cars and transported two miles north to a sawmill at Mill Creek. From that point they were transported over the incline tramway and down a V-flume to Washoe Valley for transport to the Comstock.<sup>(219)</sup>

**1881** With the waning fortunes at the Comstock mines, Nevada's Twenty-Year Depression began.<sup>(220)</sup> Eventually, this depression (1881-1900) caused Nevada's population to fall by 32 percent from 62,266 persons in 1880 to only 42,355 persons by 1900. Storey County's population (Virginia City) fell from a peak of 19,528 persons in 1875 to only 3,673 persons by the turn of the century.<sup>(221)</sup>

The railroad and (irrigated) agriculture, however, fostered continued development in the Truckee Meadows. Washoe County's population rose from 3,953 persons in 1875 to 9,141 persons by 1890.<sup>(222)</sup> From 1890 until 1950 Washoe County would remain the most populous county in the state, but by 1951 Clark County would assume, and thereafter retain, that title.

**1881(August 31)** In another testament relative to the importance of the Pyramid Lake fishery to the Paiute Indian Tribe, the new Indian Agent, Joseph M. McMaster noted in his annual report to the Secretary of Interior that "The most important means of livelihood to the Indians besides working for white people is their fisheries, the trout from Pyramid Lake and Walker Lake being accounted the very finest, and bring as high a price as any known to the writer." With respect to the numerous acts of trespassing on reservation lands, Mr. McMaster wrote: "And now if the department would order a survey of the reservation so that the lines could be positively defined, and authorize a sufficient force of Indian police, trespassers could be kept off or made to suffer, and the Indians get the benefit which is their due from the fisheries in these waters which have been reserved to them."<sup>(223)</sup>

**1882(April 17)** As noted in the *Elko Independent*: "The shipment of fresh Truckee River trout from Wadsworth, thus far this season, amounts to 140,500 pounds." Later it was reported in the *Nevada State Journal* (Reno) on January 24, 1883, that for all of 1882, 200,000 pounds of Pyramid Lake cutthroat trout were shipped from Wadsworth.<sup>(224)</sup>

**1882(June 28)** In an illuminating, if not imaginative, account of the food chain of Pyramid Lake, the *Nevada State Journal* (Reno) reported that "a few days ago a man caught a 16-pound trout at Pyramid Lake. Inside the trout was a 4-pound sucker [cui-ui], and in the sucker was a half-pound chub. Singular to say, there was nothing inside the chub but worms."<sup>(225)</sup>

**1882(August)** The problem of waste disposal continued to plague the City of Reno and the Truckee Meadows. Raw sewage was dumped directly into the Truckee River in downtown Reno or, even worse, into the dry riverbed during the late summer months. As the *Nevada State Journal* so eloquently put it: "There has been a great deal of talk lately both in print and personally about the fearful stenches that greet the uncultured nose at almost every point in Reno."<sup>(226)</sup>

**1882(August 29)** In his annual report to the Secretary of Interior, Indian Agent Joseph M. McMaster noted that the "...[Pyramid Lake Indians] have an important fishery, which last season furnished over 70,000 pounds [of trout], for which the price was 8 cents per pound, or \$5,600..."<sup>(227)</sup>

**1882(August 30)** As agriculture continued to expand in the Truckee Meadows, the scarcity of Truckee River water relative to needs became ever more apparent, particularly by late summer. As noted by the *Nevada State Journal* (Reno) one hot, dry August day: "The scarcity of water in the river bed is very marked, though easily accounted for in the many ditches taking water above the town. It only needs one more ditch to finish the business and convert the raging Truckee into a totally dry creek."<sup>(228)</sup>

**1882(August-September)** Israel Cook Russell surveyed Pyramid Lake. Records of this and earlier visits (Frémont, 1844, and King, 1878) indicate that the under natural conditions the lake covered approximately 140,000 acres (220 square miles) and its lake level fluctuated as much as 20 feet between wet and dry periods. This surface area would correspond to a lake surface elevation of approximately 3,863 feet above mean sea level (MSL) and a lake volume of approximately 29,600,000 acre-feet.<sup>(229)</sup> After diversions began at Derby Dam in 1905, Pyramid Lake's surface elevation would begin a more or less steady decline and eventually reach its recorded low point (nadir) in 1967 (February 6 and March 6) at a surface elevation of 3,783.9 feet MSL. This level corresponded to a surface area of 106,800 acres (170 square miles) and a volume of 19,980,000 acre-feet.

**1882** A sample of Pyramid Lake water recorded a total dissolved solids (TDS) content of 3,500 milligrams per liter (mg/l). By comparison, TDS concentration of seawater is about 35,000 mg/l while TDS concentrations in the Truckee River just below the Lake Tahoe dam are typically 100 mg/l. By the mid-1990s, Pyramid Lake TDS concentrations had risen to approximately 5,100 mg/l,<sup>(230)</sup> reflecting the combination of effects from high levels of lake-surface evaporation and reduced Truckee River inflows.<sup>(231)</sup>

**1882(September 23)** As reported in the *Nevada State Journal* (Reno) and reprinted from the *Truckee Republican*: "...understands that *tons of trout* [italics added] are being caught in Pyramid and Mud [Winnemucca] Lakes daily. At the latter place a number of white men, Italians and Chinese are fishing, while none but Indians are allowed to take trout from Pyramid Lake. The fish sell for eight cents per pound at the lakes. They are mostly shipped to Sacramento and San Francisco. A few find their way to the Comstock."<sup>(232)</sup>

**1883(January)** A new Pyramid Lake Indian Reservation irrigation dam (see 1871 entry) built the previous summer became blocked by ice, thereby preventing passage of Pyramid Lake cutthroat trout from the reservation and allowing the Indians to sell up to one ton of trout per day to shippers at Wadsworth.<sup>(233)</sup> As was prophetically reported in a Reno newspaper: "To keep the fish out of the river at this time will cause an immense depletion in their number next year, and if followed up for a few years would render them nearly extinct."<sup>(234)</sup> Unfortunately, this prophesy proved true in less than 60 years. Even so, no drastic measures were precipitated this time as in 1871 when the objectionable dam was dynamited by Truckee Meadows residents.

**1883(January 26)** The *Elko Free Press* reported that "It is said that 200,000 pounds of trout were shipped from Wadsworth last

year."<sup>(235)</sup>

**1883(February 1)** The *Reese River Reveille* (Austin) reported that the "Griswold Trout Cannery at Wadsworth is doing good business...The supply of fish in the great lakes of Nevada is practically unlimited...success...depends wholly upon how the market is cultivated."<sup>(236)</sup>

**1883(February 5)** Passed by the Nevada Legislature: Assembly Joint Resolution requesting that the State of California quit depositing sawdust in the Truckee River, because of the detrimental impact on fish.<sup>(237)</sup>

**1883(March 2)** The *Nevada State Journal* (Reno) noted that the "...trout canning establishment of Griswold & Co., of Wadsworth has been closed down for a few days on account of a scarcity of [Pyramid Lake cutthroat] trout."<sup>(238)</sup>

**1883(August 11)** In his annual report to the Secretary of Interior, Indian Agent Joseph M. McMaster noted that "...Their [Paiute Indians'] fishing at Pyramid Lake is of great value to them, as it affords them employment for half the year, and last year sales were something over 75,000 [pounds of trout]...the average price, seven cents [per pound], \$5,250...actual sales to outside parties..."<sup>(239)</sup>

**1884(February 24)** In an informative account of the state of Reno's water treatment process, the *Nevada State Journal* (Reno) reported on the clogging of Reno's water pipes with fish, noting that "The accumulation of fish in the pipes has effectually shut off the water from a number of places in town."<sup>(240)</sup>

**1884(August 4)** A cloudburst in the Sierra Nevada Mountains caused flood waters from Gray Creek to wash out the main trestle of the Central Pacific Railroad at Iceland, located between Hirschdale and Floriston in the upper Truckee River canyon.<sup>(241)</sup> The Gray Creek watershed is characterized by extremely steep terrain, unstable soil conditions, extensive logging, and over-grazing by livestock.

**1885(March 25)** As reprinted in the *Silver State* (Winnemucca) and based on a story in the *Truckee Republican*: "...trout have never been more plentiful in the Truckee River than during the present season. Over 160,000 pounds of trout have been shipped from Wadsworth... Indians carry away, free of charge, on the various trains, nearly one-fourth as much fish as is shipped..."<sup>(242)</sup>

**1885(April)** In the case of *Jones v. Adams* in which the 1870 lower court case of *Van Sickle v. Haines* was affirmed,<sup>(243)</sup> the Nevada Supreme Court formally approved the doctrine of "prior appropriation" for all the state's water supplies, rejecting an earlier (1875) lower court decision which had given recognition to the doctrine of riparian ownership along Nevada's streams.<sup>(244)</sup>

**1885(August 20)** In his annual report to the Secretary of Interior, the new Indian Agent, W.D.C. Gibson, noted that the "...[Paiute Indians'] catch in the lake amounted to 80,000 pounds, and netted them \$5,600..."<sup>(245)</sup>

**1886** The Reno Reduction Works, a modern custom mill for complex metallurgical ore separation, erected a high masonry dam on the Truckee River east of the Central Pacific Railroad yards in Sparks. Lacking any fish ladder as was required under Nevada law, this structure completely blocked upstream transit of fish on spawning runs from Pyramid Lake. Furthermore, the mill discharged its chemical wastes and rock residues directly into the Truckee River, an activity fully legal in Nevada at the time.<sup>(246)</sup>

**1886(September)** J.L. Stevenson founded the Reno Electric Light Company using rented space at the Reno Reduction Works, located about a block east of the present Wells Street Overpass and on the north bank of the Truckee River. The company installed a water powered dynamo using the dam recently erected at the site and began selling electrical power to the City of Reno for street lamps and other public buildings.<sup>(247)</sup>

**1886(October 25)** Providing an indication of the extensive wetland area that existed prior to the 1960s in the Truckee Meadows from approximately the present-day Truckee River Bridge on East McCarran Avenue all the way to Vista, the *Carson City Free Lance* reported on this area: "Glendale, a place on the borders of the Truckee River a few miles below Reno is the present mecca of sportsmen. In the vicinity are several small lakes and chains of grass-bordered ponds, pools and sloughs, such as are loved and hunted by the mallard duck. Teal and other ducks abound...coming down from the stormy north...to refresh themselves and to be shot."<sup>(248)</sup> This area was largely drained between 1963 and 1968 when the U.S. Army Corps of Engineers undertook extensive flood-control work and river channelization through the Truckee Meadows and destroyed the Vista reefs, a natural obstruction at the entrance to the lower Truckee River canyon which allowed the river's waters to seasonally inundate much of the eastern portion of the Truckee Meadows.

**1887(January 26)** Senate Joint Resolution was passed by the Nevada Legislature requesting action be taken by the State of California to prevent sawdust from being dumped in the Truckee River.<sup>(249)</sup>

**1887(February 18)** Assembly Concurrent Resolution was passed by the Nevada Legislature appointing a committee and appropriating

necessary funds to meet with California to resolve the sawdust matter in the Truckee River.<sup>(250)</sup>

**1887** Tapping the waters of Marlette Lake in the Lake Tahoe Basin,<sup>(251)</sup> a third pressure pipe was installed across Washoe Valley in essentially the same location as the first two (see entries under 1873 and 1875).<sup>(252)</sup> When completed, the water system constituted the most extensive interbasin transfer of water within the state. The completed system, serving the municipal and mining water needs of Virginia City and Gold Hill with waters from the Lake Tahoe Basin and a Truckee River tributary (Franktown Creek, which enters the Truckee River via Washoe Lake and Steamboat Creek), consisted of three reservoirs (Marlette Lake--Lake Tahoe Basin, Hobart Creek Reservoir--Truckee River Basin, and Five-Mile Reservoir--Carson River Basin), over 21 miles of pressure pipes across the Washoe depression (Washoe Valley), approximately 46 miles of covered box flume, and a tunnel through the Carson Range some 3,994 feet in length.<sup>(253)</sup>

**1887** It is generally believed that in this year H.H. Bence, a Nevada land surveyor, first located a possible canal route which would link the lower Truckee River Basin and the lower Carson River Basin when he was surveying government land in the Carson and Humboldt sinks.<sup>(254)</sup>

**1887** The California Fish Commission conducted an inspection of the lower Truckee River, noting dams without fish ladders and the existence of other man-made impediments to upstream fish passage.<sup>(255)</sup>

**1887(May)** Public meetings were held in Reno to address a petition to the Washoe County Commissioners about local health hazards. In testimony before the commissioners, Colonel George Waring, a San Francisco engineer hired to plan a new Reno municipal waste system, recommended that all the city's wastes be combined and dumped directly into the Truckee River, noting that this would "...not affect the stream to any noticeable extent, [since] nearly all the particles of matter will be devoured by the fishes."<sup>(256)</sup>

**1887** The first recorded introduction of the Mackinaw (lake) trout (*Salvelinus namaycush*) into Lake Tahoe was made. Additional plantings were made at various times in the late 1800s. Small plants in the Truckee River and Walker Lake in 1907-1908 failed due to the lack of suitable water conditions. The Mackinaw trout requires deep, cool waters and rocky bottoms with little or no decaying organic matter to deplete the oxygen content. As a bottom spawning fish, its propagation was relatively immune from the over-fishing taking place in Lake Tahoe's spawning streams which were used by other trout species. The Mackinaw would soon become the dominant sport fish in Lake Tahoe, and there was some speculation that the eventual demise of (Pyramid Lake) Lahontan cutthroat trout in Lake Tahoe was attributed to an epizootic carried by this trout upon its introduction.<sup>(257)</sup>

**1887** The Nevada and Lake Tahoe Water and Manufacturing Company proposed a four-mile tunnel through the Carson Range of the Sierra Nevada Mountains to connect Lake Tahoe and the Carson Valley to the east. Rivalries among potential water users in Nevada prevented any effective cooperative efforts on this project.<sup>(258)</sup>

**1888** The Highland Ditch, originally constructed in 1875 and then extended in 1880 to Peavine Creek and the Highland Reservoir to serve as the primary domestic water service for Reno, was further extended to its full 14-mile length.<sup>(259)</sup>

**1889** A second dam was constructed at Donner Lake by Francis G. Newlands.<sup>(260)</sup> Later, as a United States Senator from Nevada, Newlands would promote the passage of the Federal Reclamation Act of 1902 and the construction of the Truckee-Carson (Newlands) Irrigation Project in Churchill County, Nevada, which would eventually use a portion of the stored waters in this lake for irrigation purposes.

**1889** The U.S. Geological Survey began limited measurement of Nevada streams.<sup>(261)</sup>

**1889(March 9)** The Nevada Legislature enacted Chapter 113 of the Nevada Revised Statutes, a very lengthy and comprehensive act designed to regulate the use of water for irrigation and other purposes, to settle the priority of water rights, to provide for the condemnation of land for reservoirs, to record claims to water rights, and to appoint water commissioners. The act, which contained 33 sections, clearly indicated the state's increased interest in enhancing the control and use of water for irrigation purposes brought about by the great expansion of irrigated lands along the Truckee, Carson, Walker, Humboldt, and Muddy rivers, their tributaries, and many smaller streams. Of importance was Section 9 which required that any water user make a filing prior to September 1, 1889, under oath, with the proper county recorder, giving the pertinent data regarding his diversion and use of water. The county recorders were required to prepare an index book of such water claims.<sup>(262)</sup> This chapter was subsequently repealed by the 1893 Nevada Legislature.<sup>(263)</sup>

**1889(Winter-Spring, 1888-1889)** Over a 6-month period, it was reported that 100 tons of Pyramid Lake cutthroat trout caught by commercial fishermen along the lower Truckee River and in Pyramid Lake were shipped by Wells Fargo express and railroad freight lines to many parts of the United States. It was also noted that many more tons were being removed from the lake and Truckee River by white sportsmen and Indians using "efficient" steel gaff hooks instead of stone spear points.<sup>(264)</sup>

**1889(May)** The Washoe County Commissioners finally took action to address Reno's sewage problem by announcing Town Order No. 30, which required that all Reno households be connected to sewer pipes which the city had been laying since 1887 by means of convict labor. Another symbol of the frontier lifestyle--the home privy--had been regulated out of existence. <sup>(265)</sup>

**1889(June-July)** The USGS commenced the first federally-funded hydrologic watershed investigations in the Truckee and Carson River basins. These studies would continue intermittently until the newly organized U.S. Reclamation Service (USRS, renamed the U.S. Bureau of Reclamation, USBR, in 1923) commenced its investigations in the summer of 1902 just after its creation. One of the USGS team's engineers, a Colonel Lyman Bridges, claimed that 500,000 acres could be reclaimed [for irrigation purposes] on the Truckee River alone. <sup>(266)</sup>

**1889(August 21)** It was reported in the *Nevada State Journal* that only six weeks after the USGS team had begun its study of the Truckee and Carson River basins, a USGS spokesman informed the Reno press that "the Truckee River will be turned above Wadsworth to the plains and plateaus southeast of Wadsworth [i.e., Lahontan Valley]." It was astutely noted by the writer that six weeks did not appear to be sufficient time for USGS survey crews to map a connection between the Truckee and Carson rivers. It was therefore suggested that the USGS engineers were merely verifying a route that was already known locally, <sup>(267)</sup> and very possibly the same route noted by the land surveyor H.H. Bence in 1887.

**1889** The possibility of constructing an irrigation canal from the lower Truckee River to the Carson Sink (Lahontan Valley) was reported in the *U.S. Geological Survey Annual Report--1889-90; Part II, Irrigation*. This report also sounded the first note of caution regarding such a proposed reclamation irrigation project by recognizing that while the water would be utilized primarily within Nevada, any comprehensive system of water use from these river sources was made more complex by differences in jurisdiction and water privileges between the states of California and Nevada <sup>(268)</sup> [i.e., riparian water rights of the lakeshore property owners at Lake Tahoe versus the appropriative water rights of the federal government and project farmers in the Lahontan Valley.] This represented the first official warning that the water stored in Lake Tahoe, in particular, may not be readily available for an irrigation project in the Nevada desert that was beginning to take shape.

**1889** The California Legislature passed an anti-sawdust statute, although it would take more than five years to effectively halt discharges of logging debris and construct fish ladders. <sup>(269)</sup>

**1889(November)** A group of prominent Reno businessmen formed the Reno Water, Land and Light Company, which subsequently purchased and consolidated a number of local water and gas companies. One of the principal organizers of this new endeavor was Francis G. Newlands, who later served as a U.S. Senator from Nevada and gained notoriety for his support of the Federal Reclamation Act (1902) and the construction of the Truckee-Carson Irrigation Project (1905). <sup>(270)</sup> Interestingly, Newlands had previously been the spokesman for the Comstock Union Mill and Mining Company, which had fought against irrigation interests in the Carson Valley. <sup>(271)</sup>

**1890** Francis G. Newlands, who was quickly assuming a prominent role in western water matters, proposed a network of reservoirs in the Sierra Nevada Mountains to serve the future development of Nevada. According to Newlands, Lake Tahoe afforded the "cheapest reservoir space known in the West." <sup>(272)</sup>

**1890** After this year, annual restocking of fish in the Truckee River became necessary to keep the population numerous enough to meet the demands of sport fishing. Nevada's restocking stressed the McCloud River (Alaska) trout variety and Eastern brook trout and these efforts were supported by the Virginia & Gold Hill Water Company, which annually contributed over 250,000 fry from its Marlette Lake fish hatchery. <sup>(273)</sup>

**1890** Extensive flooding on the Truckee River's tributaries inundated the Truckee Meadows while mud flows emanating from Gray Creek caused the Truckee River to run red through Reno for over a week. It became increasingly apparent that additional upstream flood control was needed on major Truckee River tributaries, particularly the Little Truckee River, Martis Creek, and Prosser Creek.

**1890** H.H. Bence, a Nevada land surveyor (see entry under 1887), was employed by Francis G. Newlands to survey a possible canal route and estimate the quantity of potentially irrigable land in the Lahontan Valley near Fallon, Nevada. <sup>(274)</sup>

**1891** The Reno Hydroelectric Power Plant was constructed with a capacity of 250 cubic feet per second (cfs). Later, in 1909, an additional capacity of 46 cfs would be added to this power-generating facility.

**1891** In an effort to limit over-fishing of Pyramid Lake cutthroat trout in the Truckee River, the Nevada Legislature passed a statute prohibiting common carriers (railroads) from shipping fish during the closed (spawning) season of late winter and early spring. <sup>(275)</sup> At first, this effectively controlled commercial fishing on Pyramid Lake and in the lower Truckee River by restricting railroad shipment from Wadsworth.

**1891** Annual National Irrigation Congresses began to be held in major western cities as a recognition that irrigation projects represented the salvation for the settlement of arid lands in the West. These meetings typically ended with a petition to the

federal government to provide assistance in this reclamation effort, in a manner similar to the various Homestead Acts. It was strongly suggested that it was the federal government's obligation to provide water to arid Western lands so that they could be settled and farmed on the same advantageous basis.<sup>(276)</sup>

**1891(August 17)** Noting a particularly good fishing year for the Pyramid Lake Paiute Indian Tribe, in his annual report to the Secretary of Interior, Indian Agent C.C. Warner noted that "...One of the greatest sources of revenue and support of these Indians is derived from the sale of fish caught in the Truckee River and Pyramid Lake, both of which contain an inexhaustible supply of the finest of trout...in a period of five months, they caught and sold...110,000 pounds of fish, for which they received \$8,305.77 in cash..." In addition to the more detailed accounting than his predecessors, this agent also raised an ominous warning pertaining to a recent fish law passed by the Nevada Legislature which the agent estimated would "...lessen their receipts at least 75 percent."<sup>(277)</sup>

**1891(September 1)** Pyramid Lake's maximum surface elevation in recent history was recorded at 3,878.2 feet above mean sea level (MSL).<sup>(278)</sup> According to the bathymetric tables of the lake,<sup>(279)</sup> this surface elevation corresponded to a lake volume of approximately 31,730,000 acre-feet, a surface area of 144,000 acres (225 square miles), and a maximum lake depth of 419 feet. By comparison, Pyramid Lake's lowest point (nadir) was recorded to have been reached on February 6, and March 6, 1967, when it attained a surface elevation of 3,783.9 feet MSL, corresponding to a volume of approximately 19,980,000 acre-feet, a surface area of 106,800 acres (167 square miles), and a maximum lake depth of 325 feet. Compared to 1891, this represented a decrease in Pyramid Lake's surface elevation and lake depth of 94 feet, a decreased volume of 11,750,000 acre-feet, and a decrease in surface area of 37,200 acres, or approximately 58 square miles.

**1892** In response to the 1891 Nevada statute which was intended to limit commercial fishing on Pyramid Lake and along the lower Truckee River through transport restrictions placed on common carriers (railroads), the reservation agent closed the upstream Indian irrigation dam on the lower Truckee River and effectively held the winter-spring fish run below Wadsworth. To circumvent the new law, suppliers used wagons instead of railroad cars to haul the fish to market.<sup>(280)</sup>

**1893** A severe national recession, lasting from 1893 through 1897, precluded serious efforts by the federal government to undertake new spending programs, particularly reclamation irrigation projects in the West.<sup>(281)</sup>

**1894(April 6)** As reported in the *Genoa Weekly Courier* pertaining to Indian fishing at Lake Tahoe: "...Indians...up this week and went back loaded with fish which they got in Taylor Creek [at the south end of Lake Tahoe], where the fish are now on their annual spawning expedition...carry away about three tons of fish every spring, besides destroying millions of spawn. If there is a law to protect trout while they are spawning, it should be enforced...no reason why the Indians should be exempt."<sup>(282)</sup>

**1894(August 18)** Congress approved what was commonly called the "Carey Act," which was expected to be a major milestone in the reclamation of desert lands in the Western states. The act's purpose was to aid the public-land states in the reclamation of desert lands, provide for the granting to each of the states containing desert lands an amount not to exceed one million acres, and direct that the states cause these lands to be reclaimed, occupied, and irrigated. It was further provided that 20 acres out of each 160 acres be cultivated by settlers within 10 years after passage of the act. With few exceptions, the Carey Act did not measure up to initial expectations.<sup>(283)</sup>

**1895(March 16)** Recognizing the growing risk to the viability of the Truckee River fishery, the Nevada Legislature passed a law stating "It shall not be lawful for any person or persons between the first day of October of each year and the first day of June each year to catch or kill any...trout..."<sup>(284)</sup>

**1895(May 4)** In a defeat for the fish, the *Wadsworth Dispatch* reported that a "...portion of the fish law was declared unconstitutional, in the [Nevada] Supreme Court recently. A section of the remaining portion of the law is that it is not a misdemeanor to carry fish; so any person sharp enough to catch them without detection, can ship them without fear. Express and railroad companies can transport them and not be subject to prosecution."<sup>(285)</sup>

**1895** Many water customers of the Reno Water, Land and Light Company, which had been organized in 1889, began to suspect that the frequent summer "fevers" and other seemingly inexplicable illnesses suffered by the local population were due to Reno's untreated drinking water, much of which came directly from the Highland Ditch and Reservoir. Water samples sent to California for testing proved to be alive with harmful organisms and water company officials, confronted with such overwhelming evidence, subsequently advised customers to boil their water before drinking it.<sup>(286)</sup>

**1895(November 23)** It was reported in the *Wadsworth Dispatch* that the California authorities have stopped the sale of Nevada trout in their markets and that Wells Fargo & Company railroad express agents and the Sierra Pacific Railway Company would not accept shipments for California points.<sup>(287)</sup>

**1896(February 15)** As noted in the *Wadsworth Dispatch*: "...California Fish Commissioners... decided to discontinue stocking the Truckee River in California...all the fish...go down the river...On account of the wretched condition of the fish-ladders at the dams



in Nevada they are unable to return to the headwaters..."<sup>(288)</sup>

**1896(September 28)** The Indian Agent for Nevada, I.J. Wooten, noted that "...Pyramid Lake abounds in salmon trout, which can be caught almost the year round...The Indians at one time received a large income from the sale of fish caught in Pyramid lake, but this industry has, by enactment of unjust State legislation (see 1891 and November 1895 entries), been totally destroyed and the Indians have seriously felt the loss of revenue from their fish."<sup>(289)</sup>

**1897(March 9)** Backpedaling on the preservation of the Truckee River fishery, the Nevada Legislature passed a law reducing the "no-take" period from October 1st-June 1st to October 1st-April 1st.<sup>(290)</sup>

**1898(March 25)** The *Genoa Weekly Courier* made note that the California Fish Commission had warned the Indians that no spearing or taking of spawn trout about Lake Tahoe would be tolerated this year and threatened to arrest every Indian "detected" in violation of the law.<sup>(291)</sup> [Also see April 6, 1894 entry for background information on this matter.]

**1898** The California Fish Commission published the findings from its study of the lower Truckee River, stating that the Pyramid Lake Indian Reservation's irrigation dam represented the single most critical impediment to Pyramid Lake cutthroat trout migration on the Truckee River.<sup>(292)</sup>

**1898(June 10)** The *Genoa Weekly Courier* reported that "Between three and four thousand Mackinaw (lake) trout from the Sisson hatchery were planted in Lake Tahoe last week."<sup>(293)</sup> From its first recorded introduction to Lake Tahoe in 1887, this species would eventually become the most important sport fish in the lake, and, according to speculation, bring about the ultimate demise of Lake Tahoe's cutthroat trout population (1922-1928) through the introduction of an epizootic carried by the Mackinaw trout species.<sup>(294)</sup>

**1898(September 6)** As pointed out in the *Tuscarora Times-Review*: "The Truckee River, once the grandest trout stream on the coast, is now declared to be almost depopulated of all but catfish."<sup>(295)</sup>

**1899** The John Wesley Powell USGS irrigation investigation established stream-gaging stations on the Truckee River and its tributaries. This constituted one of the first steps towards a comprehensive quantitative investigation of the overall water supply potential of the Truckee River Basin. These studies became crucial in the approval and subsequent development of the Truckee-Carson (Newlands) Irrigation Project in 1902, to be located in Churchill County, Nevada.

**1899** Reno's electric utility company--Reno Water, Land and Light Company--constructed a hydropower plant and associated diversion dam two miles upstream from downtown Reno, further impeding upstream passage of spawning fish from Pyramid Lake.<sup>(296)</sup>

**1899** The Farad hydroelectric power plant, located about 18 miles upstream from Reno, was constructed with a capacity of 325 cubic feet per second. The construction of this facility was based on an electrical power contract with the Comstock Pumping Association of Virginia City. Water was diverted from the Truckee River into a flume at Floriston about a mile upstream from Farad. In 1906, an additional 75 cfs would be added to the flume's capacity. Total electrical capacity of this facility was rated at 2.5 megawatts.<sup>(297)</sup>

**1899(July 25)** In assessing the business potential of the Pyramid Lake fishery, Indian Agent Fred B. Spriggs declared that "...another industry of importance to these [Pyramid Lake] Indians which should be given more attention is fishing...profitable income from this source if properly attended...Pyramid Lake...filled with a splendid species of marketable trout." In a spark of surprising entrepreneurship (and possible self interest), Indian Agent Spriggs suggested that "...the Government [should] build the Indians a large boathouse and wharf on the lake, provide all the fishermen with boats of their own, and instruct the agent to personally superintend the disposal of their catch."<sup>(298)</sup>

**1899** The Floriston Pulp and Paper Company (FP&PC), located at the present-day site of the community of Floriston, California, commenced operations with the daily discharge of up to 150,000 gallons of acidic waste directly into the Truckee River.<sup>(299)</sup> By 1903, the Truckee River's water quality had deteriorated to the point where the *Reno Evening Gazette* reported that the river's water at the Virginia Street bridge in downtown Reno consisted of a "blend between black and brown with soapy bubbles covering the surface."<sup>(300)</sup> Despite court-ordered injunctions and the threat of a Nevada suit filed with the U.S. Supreme Court, direct and indirect (hillside spraying and evaporation ponds) discharges would continue up until late 1930 when the plant would cease operation and be dismantled. This facility would constitute the major source of pollutants in the Truckee River and severely degrade Reno's municipal water quality for a period of some 30 years. Of possible significance in the persistence of its operations was the fact that the FP&PC was owned by the Fleishhacker banking and investment firm of San Francisco, an entity which also controlled the Reno Water, Land and Light Company.<sup>(301)</sup>

## Notes to Part II:

1. Houghton, Samuel G., *A Trace of Desert Waters: The Great Basin Story*, University of Nevada Press, Reno, Nevada, 1994, page 62.
2. Houghton, *op. cit.*, page 52.
3. Hyne, N.J., et al., *Quaternary History of Lake Tahoe, California-Nevada: Geological Society America Bulletin*, Volume 83, 1972, page 1435.
4. Benson, Larry V., "Preliminary Paleolimnologic Data for the Walker Lake Sub-Basin, California and Nevada," *Water Resources Investigations Report 87-4258*, U.S. Geological Survey, U.S. Department of the Interior, Denver, Colorado, 1988, page 1. Also see Houghton, Samuel G., *A Trace of Desert Waters: The Great Basin Story*, University of Nevada Press, Reno, Nevada, 1994, page 63.
5. Houghton, *op. cit.*, page 73.
6. *Initial Bench & Bottom Land, Map and Criteria*, Newlands Project, Nevada, Division of Water and Power Resources Management, Water Operation and Maintenance Branch, Irrigation Section, Bureau of Reclamation, U.S. Department of the Interior, Sacramento, California, September 1990, Revised January 1992, page 11, and Strickland, Rose, "Stillwater: Its Friends and Neighbors," *Dividing Desert Waters*, Nevada Public Affairs Review, Number 1, 1992, Senator Alan Bible Center for Applied Research, University of Nevada, Reno, page 68.
7. Computed from information presented in Home, Alex J., Ph.D., James C. Roth, Ph.D., and Nicola J. Barratt, M.S., *Walker Lake--Nevada, State of the Lake, 1992-94*, Report to the Nevada Division of Environmental Protection, Department of Civil and Environmental Engineering, University of California, Berkeley and the Environmental Engineering and Health Sciences Laboratory, Richmond, California, December, 1994, page 17.
8. Houghton, *op. cit.*, page 63.
9. Rusco, Elmer, "The Truckee-Carson-Pyramid Lake Water Rights Settlement Act and Pyramid Lake," *Dividing Desert Waters*, Nevada Public Affairs Review, Number 1, 1992, Senator Alan Bible Center for Applied Research, University of Nevada, Reno, page 11.
10. Houghton, *op. cit.*, pages 26-27 and 78-79.
11. Gorley, Chad, "Historic Overview of Modifications to the Truckee River Ecosystem," *The Truckee River Times*, Volume 6, Number 2, May 1996, pages 3-4.
12. Land, Barbara and Myrick, *A Short History of Reno*, University of Nevada Press, Reno, Nevada, 1995, page 8.
13. Murphy, Shane, *The Lore and Legend of the East Fork--A Historical Guide for Floating the East Carson River*, The Carson River Conservation Fund, Zephyr Cove, Nevada, 1982, page 21.
14. Houghton, *op. cit.*, page 104.
15. Hulse, James W., *The Nevada Adventure*, Sixth Edition, University of Nevada Press, Reno, Nevada, 1990, pages 34-36.
16. *Ibid.*, pages 34-35.
17. *Ibid.*, page 47.
18. Townley, John M., *Tough Little Town on the Truckee*, History of Reno Series, Volume One, Great Basin Studies Center, Reno, Nevada, 1983, page 24.
19. Hulse, *op. cit.*, pages 36-37.
20. *Ibid.*, page 37.
21. Murphy, *op. cit.*, page 22.
22. Houghton, *op. cit.*, page 29.
23. Hulse, *op. cit.*, pages 49-52.
24. Houghton, *op. cit.*, page 105.
25. Hulse, *op. cit.*, page 40.
26. When first viewed by Frémont, Pyramid Lake was estimated to be some 50 miles long and 12 miles wide (as compared to some 30 miles long and about 8 miles wide today), although this is probably a gross exaggeration. In his journal he reported that the lake "broke upon our eyes like the ocean" and was "set like a gem in the mountains." [See Frémont, John Charles, *Report of the Exploring Expedition to the Rocky Mountains, 1842, and to Oregon and North California, 1843-44*, Washington, D.C., Gales & Seaton, 1845.]
27. Houghton, *op. cit.*, page 63.
28. *Ibid.*, page 81.
29. Frémont, John Charles, *Report of the Exploring Expedition to the Rocky Mountains, 1842, and to Oregon and North California, 1843-44*, Washington, D.C., Gales & Seaton, 1845.
30. Townley, John M., *The Truckee Basin Fishery, 1844-1944*, Water Resources Center Publication 43008, Desert Research Institute, University of Nevada System, November 1980, page 1.
31. *WALKER RIVER ATLAS*, Department of Water Resources, The Resource Agency, State of California, Sacramento, California, June 1992, page 8. In 1861 the "lost" cannon was reportedly discovered and taken to Virginia City where it was put on display. Then sometime during World War I it disappeared, presumably sold for its scrap metal value. [See Houghton, *op. cit.*, page 105.]
32. Murphy, Shane, *op. cit.*, page 22.
33. John Augustus Sutter, a Swiss emigrant, first arrived in California on July 1, 1839, and became a naturalized citizen of Mexico on August 29, 1840. In September of 1840, he was appointed Justice of the Peace and official representative of the government. The New Helvetia (New Switzerland) land grant, consisting of some 47,827 acres around the fort he had constructed near the confluence of the Sacramento and American rivers, was given to Sutter by Governor Alvarado in 1841. Another land grant of an additional 96,800 acres was

- made in 1844. While Sutter and his fort became well known for their hospitality to weary travelers during the early 1840s, his dream of establishing a new empire in California began to unravel with the discovery of gold in 1848 at his own sawmill on the American River at Coloma, California. After a number of business set-backs, Sutter left California in 1865 never to return. He journeyed to Washington, D.C., to pursue his rights to the land grants made to him by the Mexican government. After fourteen years of frustration and disappointment, Sutter died in a hotel in the nation's capitol on June 18, 1880. [Information provided from "Sutter's Fort State Historic Park" (Pamphlet), State of California, The Resources Agency, Department of Parks and Recreation, April 1989, pages 3-7.]
34. Horton, Gary A., *Nevada: A Historical Perspective of the State's Socioeconomic, Resource, Environmental, and Casino Gaming Development*, Business & Economic Research Associates, Reno, Nevada, July 1995, page 5.
35. Houghton, *op. cit.*, page 23.
36. While Frémont has certainly lacked visible notoriety in Nevada, except as noted, he has been remembered through a number of plant species patronyms in California and the Great Basin. Some of these include the flannelbush (*Fremontodendron*), freckled milkvetch (*Astragalus lentiginosus fremontii*), pigweed or goosefoot (*Chenopodium fremontii*), silk tassel bush (*Garrya fremontii*), peppergrass (*Lepidium fremontii*), box thorn (*Lycium fremontii*), bush mallow (*Malacothamnus fremontii*), phacelia (*Phacelia fremontii*), polyctenium (*Polyctenium fremontii*), and psorothamnus (*Psorothamnus fremontii*), to name the most commonly recorded. [Information provided courtesy of Glenn Clemmer, Administrator, Nevada Natural Heritage Program, Department of Conservation and Natural Resources, Carson City, Nevada.]
37. Matthew Harbin, a member of this party, had been acquainted with a French Canadian trapper known as "Truckee" when they were both with the Bonneville-Walker expedition in the 1830s. Harbin called their Paiute Indian guide after this trapper and the party, presumably regarding the stream as this Indian's home, named the river after him. [See Hulse, *op. cit.*, page 63.]
38. Carlson, Helen, S., *Nevada Place Names: A Geographical Dictionary*, University of Nevada Press, Reno, Nevada, 1974, page 235.
39. Hulse, *op. cit.*, page 54.
40. Houghton, *op. cit.*, page 54.
41. Frémont's first expedition west was conducted in 1842 and left from St. Louis, Missouri, but only got just beyond South Pass in the northern Rocky Mountains of Wyoming. [See Donald K. Grayson, *The Desert's Past: A Natural Prehistory of The Great Basin*, Smithsonian Institution Press, Washington, D.C., 1993, pages 3-4.]
42. Houghton, *op. cit.*, page 105.
43. Historians sometime refer to this group of 87 persons as the Donner-Reed Party, but the term "Donner Party" appears more commonly, perhaps because George Donner was elected captain of the group on June 20, 1846. Of this party, the families of George and Jacob Donner comprised 16 members while the family of James Reed made up 6 members. There were also larger families than the Reeds: The Breen family comprised 9 members; the Graves 12 members (including 2 Fosters); and the Murphy family also had 6 members. Of the 40 members who died, 8 were Donners, 4 were Graves, and 3 were Murphys. All the Reeds and Breens survived the ordeal. [For an extensive analysis of the Donner Party's tragedy, see Grayson, *op. cit.*, pages 277-296.]
44. Hulse, *op. cit.*, pages 55-56.
45. Townley, *Tough Little Town on the Truckee*, *op. cit.*, page 28.
46. "Sutter's Fort State Historic Park" (Pamphlet), State of California, The Resources Agency, Department of Parks and Recreation, April 1989, page 4.
47. Grayson, *op. cit.*, page 284.
48. Hulse, *op. cit.*, page 59.
49. *Ibid.*
50. *Ibid.*
51. *Multimedia Encyclopedia*, (Electronic Encyclopedia), The Software Toolworks.
52. Sometime between 1963 and 1968, the U.S. Army Corps of Engineers (COE) would remove this rock dike, commonly referred to as the Vista reef, as part of a comprehensive Truckee River "rehabilitation" program to better channelize the river's course and remove potential flood impediments which had, in the past, caused its waters to all too often stray far afield. Interestingly, the result of this action would cause considerable loss of wetlands in the eastern portion of the Truckee Meadows. It also lowered the level of the Truckee River along this reach below the level of Steamboat Creek, causing that stream to begin to erode back up its reach, creating considerable turbidity along the lower Truckee River for some time. [Personal communication with Rick Moser, Water Resources Engineer, Glendale Water Treatment Plant, Sierra Pacific Power Company, Reno, Nevada, 1995.]
53. Townley, *Tough Little Town on the Truckee*, *op. cit.*, page 36.
54. Hulse, *op. cit.*, page 68.
55. The doctrine of riparian water rights has been completely abrogated in the states of Arizona, Colorado, Idaho, Montana, Nevada, New Mexico, Utah, and Wyoming. The Pacific Coast states of Washington, Oregon, and California and the tier of six states, starting with North Dakota on the north and extending southward to Texas, recognize to varying degrees both the appropriation and the riparian doctrines. The effect of court decisions and statutes has made the existence of the riparian doctrine of minor significance in Washington, Oregon, and Kansas. [See Hugh A. Shamberger, *Evolution of Nevada's Water Laws, as Related to the Development and Evolution of the State's Water Resources, From 1866 to About 1960*, Water Resources Bulletin 46, Prepared by the U.S. Department of the Interior, Geological Survey in cooperation with the Nevada Division of Water Resources, Department of Conservation and Natural Resources, State of Nevada, Carson City, Nevada, 1991, page 4.]
56. Carlson, *op. cit.*, page 228.
57. Houghton, *op. cit.*, page 64.

58. *Ibid.*, page 56.
59. Land, *op. cit.*, pages 21-22.
60. Nevada Historical Marker 114, "Franktown."
61. Land, *op. cit.*, pages 22-23.
62. Nevada Historical Marker 238, "Huffaker's."
63. *Ibid.*, page 25.
64. *Ibid.*
65. Murphy, *op. cit.*, pages 22-24.
66. Horton, *Nevada: A Historical Perspective of the State's Socioeconomic, Resource, Environmental, and Casino Gaming Development*, *op. cit.*, pages 9-10.
67. Townley, *Tough Little Town on the Truckee*, *op. cit.*, page 34.
68. *A Study of Water Rights and Their Enforcement [in the] Lake Tahoe, Truckee and Carson River Basins*, Prepared by Water Rights Study Group, Pyramid Lake Task Force, [for the] U.S. Department of the Interior, Office of the Solicitor, Sacramento Region, Sacramento, California, August 1971, pages 116-117.
69. Nevada Historical Marker 198, "Steamboat Springs."
70. Nevada Historical Marker 191, "Verdi."
71. Hulse, *op. cit.*, pages 89-91.
72. Townley, *Tough Little Town on the Truckee*, *op. cit.*, page 54.
73. Nevada Historical Marker 212, "Galena."
74. *Ibid.*, pages 52-53.
75. Horton, *Nevada: A Perspective of the State's Socioeconomic, Resource, Environmental, and Casino Gaming Development*, *op. cit.*, pages 8-9.
76. From the original nine counties, reduced to eight with the incorporation of Lake County (renamed Roop County in 1863) into Washoe County in 1883, there followed the creation of Lander County in 1862 (out of Esmeralda County), Nye County in 1864 (out of Esmeralda County), Lincoln County in 1866 (out of Nye County), Elko and White Pine counties in 1869 (both out of Lander County), Eureka County in 1873 (out of Lander County), Clark County in 1909 (out of Lincoln County), Mineral County in 1911 (out of Esmeralda County), and Pershing County in 1919 (out of Humboldt County). Carson City and Ormsby County incorporated in 1969 and Bullfrog County was created out of Nye County in 1987, and then returned to that county in 1989. County creations were also accompanied by additions to Nevada's Territorial and State boundaries: 1862 (from 116 west longitude eastward to 115 west longitude); 1866 (from 115 west longitude eastward to 114 west longitude); and 1867 (from 37 north latitude southward to 35 north latitude). These expansions came at the expense of Utah and Arizona. [See *Political History of Nevada*, 9th Edition, Secretary of State, State of Nevada, Carson City, Nevada, 1990.]
77. Houghton, *op. cit.*, page 67.
78. Other irrigation ditches would later be added to this network creating an "arterial system" of ditches covering the Truckee Meadows and dispersing life-sustaining waters to the arid agricultural lands. On the south side of the Truckee River some of the major diversion ditches would include, in order of their upstream diversion, the Steamboat Ditch, the Last Chance Ditch, Lake Ditch, Cochrane Ditch, Abbee Ditch, Scott Ditch (later abandoned when Scott Island, located at the Kirman Avenue-Sutro Street Bridge, became part of the Truckee River's south bank upon channelization of that part of the river in the 1970s), Pioneer Ditch, and Eastman Ditch. On the north side of the river the major diversion ditches included the Highland Ditch, the Orr Ditch, English Mill Ditch, Peoples Ditch, and Glendale Ditch. [This information was obtained from an irrigation ditch map provided courtesy of Sierra Pacific Power Company, Reno, Nevada, 1995.]
79. Nevada Historical Marker 219, "Glenbrook."
80. *Annual Report of the Superintendent of Indian Affairs to the Secretary of Interior for the Year 1861*, Report No. 40, James W. Nye, Governor, Acting Superintendent, Carson City, Nevada Territory, Government Printing Office, Washington, D.C., July 19, 1861.
81. McQuivey, Robert, "Habitat and Fisheries Historical Fact File," Habitat Bureau, Nevada Division of Wildlife (NDOW), Department of Conservation and Natural Resources, Reno, Nevada, 1996.
82. The public domain, or federally owned land, presently includes land in all states except the original 13 and Maine, Vermont, West Virginia, Kentucky, Tennessee, and Texas. [The Funk & Wagnalls New Encyclopedia.]
83. Shamberger, Hugh A., *Evolution of Nevada's Water Laws, as Related to the Development and Evolution of the State's Water Resources, From 1866 to About 1960*, Water Resources Bulletin 46, Prepared by the U.S. Department of the Interior, Geological Survey in cooperation with the Nevada Division of Water Resources, Department of Conservation and Natural Resources, State of Nevada, Carson City, Nevada, 1991. page 90.
84. *WALKER RIVER ATLAS*, *op. cit.*, pages 52-54.
85. Carlson, *op. cit.*, page 228.
86. Townley, *Tough Little Town on the Truckee*, *op. cit.*, pages 52-53.
87. McQuivey, *op. cit.*
88. Houghton, *op. cit.*, page 64.
89. *Water Treatment Master Plan*, Gas/Water Engineering & Planning Department, Sierra Pacific Power Company, March 1987, page A-3.
90. McQuivey, *op. cit.*
91. Nevada Historical Marker 94, "The Winter's Ranch (Rancho Del Sierra)."

92. McQuivey, *op. cit.*
93. *Ibid.*
94. *Nevada Laws of the Territory of Nevada, Passed at the Third Regular Session of the Territorial Assembly* (Virginia City: John Church & Co., Territorial Printers, 1864), page 146. [Also see Townley, *The Truckee Basin Fishery, op. cit.*, page 4.]
95. Townley, *The Truckee Basin Fishery, op. cit.*, page 4.
96. The prior appropriation doctrine of water rights, in the form in which it is recognized throughout the west, originated from the requirements of a mining region for protection in the use of water supplies needed to work mining claims on lands not contiguous to streams or other sources of water (i.e., without riparian water rights). The appropriation doctrine is recognized on surface waters in all states west of the 100th Meridian (100 degrees west longitude); however, only eight of the Western states--Arizona, Colorado, Idaho, Montana, Nevada, New Mexico, Utah, and Wyoming--are exclusively (prior) appropriation doctrine states. [See Shamberger, *op. cit.*, pages 4-5.]
97. *Nevada Statutes of the State of Nevada, Passed at the First Session of the Legislature, 1864-5*, Begun December 12th, 1864, and Ended March 11th, 1865 (Carson City: John Church, State Printer, n.d.), page 348. [Also see Townley, *The Truckee Basin Fishery, op. cit.*, page 4.]
98. McQuivey, *op. cit.*
99. Strong, Douglas H., *Tahoe: An Environmental History*, University of Nebraska Press, Lincoln, Nebraska, 1984, page 95.
100. *TRUCKEE RIVER ATLAS*, Department of Water Resources, The Resources Agency, State of California, June 1991, page 43.
101. McQuivey, *op. cit.*
102. Townley, *The Truckee Basin Fishery, op. cit.*, page 4.
103. Shamberger, *op. cit.*, page 5.
104. McQuivey, *op. cit.*
105. *Ibid.*
106. *Ibid.*
107. *Ibid.*
108. *Ibid.*
109. *Ibid.*
110. *Ibid.*
111. Townley, *Tough Little Town on the Truckee, op. cit.*, pages 67-70.
112. The 40th parallel, i.e., 40 degrees north latitude, runs east and west and cuts through the approximate middle of Pyramid Lake.
113. Ammon, Elizabeth, "Historical Changes in Biodiversity Along the Lower Truckee," *The Truckee River Times*, Volume 6, Number 2, May 1996, page 2.
114. Ornithology: The branch of zoology dealing with birds.
115. *Reno Gazette-Journal*, June 3, 1996, pages 1A and 4A, and "Letter to the Editor," June 10, 1996.
116. The 42 bird species that were abundant (A), common (C), or rare (R) in 1868 along the lower Truckee River and which were reported to have completely disappeared by 1976 included (listed alphabetically): American Avocet (C); American Bittern (C); American Goldfinch (R); American Widgeon (A); Ash-throated Flycatcher (R); Bank Swallow (A); Black-chinned Hummingbird (A); Black-crowned Night Heron (R); Black-headed Grosbeak (C); Black-necked Stilt (C); Black-throated Sparrow (C); Cliff Swallow (A); Dunlin (R); Gadwall (A); Golden Eagle (R); Hooded Merganser (R); Least Bittern (R); Loggerhead Shrike (C); Long-billed Curlew (C); Long-billed Marsh Wren (A); Long-eared Owl (C); Marsh Hawk (A); Osprey (R); Peregrine Falcon (One Pair); Purple Martin (R); Rufous-sided Towhee (C); Sandhill Crane (R); Savannah Sparrow (C); Shoveler (C); Solitary Sandpiper (R); Song Sparrow (A); Sora (C); Turkey Vulture (A); Vaux's Swift (C); Virginia Rail (R); Western Tanager (C); White-throated Swift (R); Willet (C); Willow Flycatcher (A); Yellow-billed Cuckoo (R); Yellow-breasted Chat (C); Yellowthroat (C). [See *Reno Gazette-Journal*, June 3, 1996, page 4A.]
117. Townley, *Tough Little Town on the Truckee, op. cit.*, pages 66-67.
118. Houghton, *op. cit.*, page 64.
119. McQuivey, *op. cit.*
120. Mud Lake was also the name given by La Rivers, perhaps erroneously, in a picture caption to a natural depression to the west and slightly south of Marble Bluff, located to the south of Pyramid Lake, which was more commonly referred to as Duck Lake. In this newspaper article, however, it is reasonably certain that the writer was referring to Winnemucca Lake, which was generally referred to as Mud Lake at that time. [See La Rivers, Ira, Ph.D., F.A.Z., F.O.M.S., *Fishes and Fisheries of Nevada*, Nevada State Fish and Game Commission, State Printing Office, Carson City, Nevada, 1962., page 140.]
121. McQuivey, *op. cit.*
122. Townley, *Turn this Water into Gold: The Story of the Newlands Project, op. cit.*, page 95.
123. Townley, *Tough Little Town on the Truckee, op. cit.*, pages 116-120.
124. Townley, *The Truckee Basin Fishery, op. cit.*, pages 14-15.
125. *Ibid.*, page 39.
126. Nevada Historical Marker 68, "Wadsworth."
127. Townley, *Tough Little Town on the Truckee, op. cit.*, page 81.
128. In fact, the U.S. Weather Service station at the Boca Reservoir site recorded the record lowest temperature in California: -45F (-42.8C) in 1937. [See *TRUCKEE RIVER ATLAS, op. cit.*, page 34.]
129. McQuivey, *op. cit.*

130. Townley, *The Truckee Basin Fishery*, *op. cit.*, page 4.
131. Hulse, *op. cit.*, page 125, and Houghton, *op. cit.*, page 233. According to Houghton, the Promontory Summit site where the Golden Spike ceremony actually took place is located about 28 miles from Promontory Point, where many historians have erroneously placed it. He goes on to add that there were actually four spikes used in the brief ceremony, not two as noted by many writers. There were two gold spikes from California, a silver spike from Nevada, and another spike from Arizona made of gold, silver, and iron. The silver spike and one of the gold spikes from California are in the Stanford University Museum, but the other two spikes have disappeared.
132. McQuivey, *op. cit.*
133. *Ibid.*
134. *Ibid.*
135. *TRUCKEE RIVER ATLAS*, *op. cit.*, page 4.
136. Townley, *The Truckee Basin Fishery*, *op. cit.*, page 11.
137. Carlson, *op. cit.*, page 228.
138. Houghton, *op. cit.*, page 56.
139. McQuivey, *op. cit.*
140. Strong, *op. cit.*, pages 96-97.
141. McQuivey, *op. cit.*
142. *Ibid.*
143. *Ibid.*
144. Townley, *The Truckee Basin Fishery*, *op. cit.*, page 14.
145. McQuivey, *op. cit.*
146. *Ibid.*
147. *Nevada State Journal*, February 11, 1871, page 2.
148. Townley, *The Truckee Basin Fishery*, *op. cit.*, pages 33-34.
149. McQuivey, *op. cit.*
150. *Ibid.*
151. *Ibid.*
152. Strong, *op. cit.*, page 97.
153. McQuivey, *op. cit.*
154. Nevada Historical Marker 248, "Virginia & Truckee Railroad Right of Way."
155. Townley, *Tough Little Town on the Truckee*, *op. cit.*, page 138.
156. Townley, *The Truckee Basin Fishery*, *op. cit.*, page 11.
157. *Nevada State Journal*, January 10, 1874, page 3.
158. McQuivey, *op. cit.*
159. *Ibid.*
160. *Ibid.*
161. *Ibid.*
162. *Ibid.*
163. *The Marlette Lake Water System--A Report on the Feasibility and Desirability of Its Retention*, Bulletin No. 79, Legislative Commission of the Legislative Counsel Bureau, State of Nevada, Carson City, Nevada, February 1969, page 15.
164. McQuivey, *op. cit.*
165. Townley, *The Truckee Basin Fishery*, *op. cit.*, page 5.
166. McQuivey, *op. cit.*
167. *Ibid.*
168. *Nevada State Journal*, November 11, 1874, page 2.
169. McQuivey, *op. cit.*
170. *Ibid.*
171. Janik, C. Anne, and Ronald M. Anglin, "Nevada's Unique Wildlife Oasis," *Dividing Desert Waters*, Nevada Public Affairs Review, Number 1, 1992, Senator Alan Bible Center for Applied Research, University of Nevada, Reno, page 55.
172. Briefing Document, Public Law 101-618, Bureau of Indian Affairs, U.S. Department of the Interior, Carson City Office, Carson City, Nevada, February 1994.
173. Practicably irrigable acreage would be based on the 1908 Winters Rights Decision and provided a means to quantify a reservation's water rights based on irrigable acreage to which it may be applied. Under the Winters Doctrine, practicably irrigable acres must meet two criteria: (1) the land must be able to reasonably sustain crops; and (2) the cost of supplying water to the crops must not be unreasonable. [See *Indian Water Rights: Negotiating the Future*, Water Resources Research Center, University of Arizona, College of Agriculture, Tucson, Arizona, June 1993, page 8, and *A Brief Outline of Water Resources on the Walker River Paiute Reservation*, Public Resource Associates, Reno, Nevada, September 1994, page 4.]
174. Nevada Historical Marker 238, "Huffaker's."
175. Townley, *Tough Little Town on the Truckee*, *op. cit.*, pages 137-138.
176. Shamberger, *op. cit.*, page 5.

177. Townley, *The Truckee Basin Fishery*, *op. cit.*, page 12.
178. *Ibid.*, page 13.
179. *Ibid.*, page 22.
180. *The Marlette Lake Water System*, *op. cit.*, page 16.
181. McQuivey, *op. cit.*
182. *Ibid.*
183. *Ibid.*
184. *Ibid.*
185. *The Marlette Lake Water System*, *op. cit.*, page 16.
186. McQuivey, *op. cit.*
187. *Ibid.*
188. Shamberger, *op. cit.*, page 90.
189. McQuivey, *op. cit.*
190. *Ibid.*
191. *TRUCKEE RIVER ATLAS*, *op. cit.*, page 18.
192. Townley, *The Truckee Basin Fishery*, *op. cit.*, page 8.
193. *Ibid.*, page 21.
194. McQuivey, *op. cit.*
195. Townley, *Tough Little Town on the Truckee*, *op. cit.*, page 85.
196. McQuivey, *op. cit.*
197. *Ibid.*
198. *Ibid.*
199. *Ibid.*
200. *Ibid.*
201. *TRUCKEE RIVER ATLAS*, *op. cit.*, page 19.
202. *Reno Evening Gazette*, February 5, 1879, page 2.
203. Houghton, *op. cit.*, page 119.
204. McQuivey, *op. cit.*
205. *Ibid.*
206. *Ibid.*
207. *Ibid.*
208. *Ibid.*
209. Joplin, Maureen (Geologist), and Hal Fiore (Hydrologist), *Gray Creek Watershed Monitoring Project*, United States Department of Agriculture, Forest Service, April 4, 1995, page 5.
210. Townley, *Tough Little Town on the Truckee*, *op. cit.*, page 138.
211. *Annual Report of the Commissioner of Indian Affairs to the Secretary of Interior for the Year 1880*, James E. Spencer, Agent, Nevada Agency, Nevada, Pyramid Lake Reservation, Government Printing Office, Washington, D.C., August 30, 1880. As a historical note, on July 20, 1906, after considerable pressure from state and federal government officials, and particularly mining interests, the Walker Lake (now the Walker River) Paiute Indian Tribe ceded 268,000 acres of reservation land (out of 318,809 acres set aside in 1859), including all of Walker Lake and lands surrounding it, back to the federal government. [See *Walker River Chronology*, Nevada Division of Water Planning, Department of Conservation and Natural Resources, Carson City, Nevada, and *Water Resources in the Walker River Basin: A Search for Water to Save Walker Lake*, Public Resource Associates, Reno, Nevada, November 1994, page 15.]
212. Townley, *The Truckee Basin Fishery*, *op. cit.*, page 8.
213. Nevada Historical Marker 246, "The Great Incline of the Sierra Nevada."
214. Houghton, *op. cit.*, page 55.
215. *Water Treatment Master Plan*, *op. cit.*, page A-1.
216. Townley, *Tough Little Town on the Truckee*, *op. cit.*, pages 156-157.
217. Carlson, *op. cit.*, page 228.
218. Houghton, *op. cit.*, page 56.
219. Nevada Historical Marker 221, "Sand Harbor (1881-1896)."
220. Hulse, *op. cit.*, page 153.
221. *Population of Nevada Counties and Communities, 1860-1980*, compiled by Waller H. Reed, RSVP Volunteer, Nevada Historical Society, Reno, Nevada, Winter 1983-1984.
222. *Ibid.*
223. *Annual Report of the Commissioner of Indian Affairs to the Secretary of Interior for the Year 1881*, Joseph M. McMaster, Agent, Nevada Agency, Nevada, Pyramid Lake Reservation, Government Printing Office, Washington, D.C., August 31, 1881.
224. McQuivey, *op. cit.*
225. *Ibid.*
226. *Nevada State Journal*, August 11, 1882, page 3.
227. *Annual Report of the Commissioner of Indian Affairs to the Secretary of Interior for the Year 1882*, Joseph M. McMaster, Agent,

Nevada Agency, Nevada, Pyramid Lake Reservation, Government Printing Office, Washington, D.C., August 29, 1882.

228. McQuivey, *op. cit.*

229. Harris, E.E., "Reconnaissance Bathymetry of Pyramid Lake, Washoe County, Nevada," Water Resources Information Series, Report 20, Prepared Cooperatively by the Geological Survey, U.S. Department of the Interior, and the Division of Water Resources, Department of Conservation and Natural Resources, State of Nevada, Carson City, Nevada, 1974.

230. *TRUCKEE RIVER ATLAS*, *op. cit.*, page 27.

231. This calculation assumes approximately 55,000 acre-feet of lake surface precipitation and essentially no local surface or groundwater inflows. [See *Pyramid Lake Task Force Final Report*, December 1971, page vi.]

232. McQuivey, *op. cit.*

233. Townley, *The Truckee Basin Fishery*, *op. cit.*, page 41.

234. *Reno Evening Gazette*, January 19, 1883, page 3.

235. McQuivey, *op. cit.*

236. *Ibid.*

237. *Ibid.*

238. *Ibid.*

239. *Annual Report of the Commissioner of Indian Affairs to the Secretary of Interior for the Year 1883*, Joseph M. McMaster, Agent, Nevada Agency, Nevada, Pyramid Lake Reservation, Government Printing Office, Washington, D.C., August 11, 1883.

240. *Ibid.*

241. Joplin, *op. cit.*, page 5.

242. McQuivey, *op. cit.*

243. Dangberg, Grace, *Conflict on the Carson*, Carson Valley Historical Society, Minden, Nevada, November 1975, pages 16-17.

244. Shamberger, *op. cit.*, page 5.

245. *Annual Report of the Commissioner of Indian Affairs to the Secretary of Interior for the Year 1885*, W.D.C. Gibson, Agent, Nevada Agency, Nevada, Pyramid Lake Reservation, Government Printing Office, Washington, D.C., August 20, 1885.

246. Townley, *The Truckee Basin Fishery*, *op. cit.*, pages 13-14.

247. Townley, *Tough Little Town on the Truckee*, *op. cit.*, page 159.

248. McQuivey, *op. cit.*

249. *Ibid.*

250. *Ibid.*

251. In order to move the waters of Marlette Lake, located at an elevation of 7,823 feet above mean sea level (MSL) on the west slope of the Carson Range and within the Lake Tahoe Basin, to the eastern slope of the Carson Range for transport across Washoe Valley, a flume was constructed from Marlette Lake due north along the ridge line for nearly 4.5 miles to Tunnel Creek Station, where it entered a tunnel running for about 0.7 mile through the crest of the Carson Range to another flume on the eastern slope which ran for almost 2.5 miles to Franktown Creek at the location of two existing diversions (at approximately 0.8 and 1.0 mile downstream from Hobart Creek Reservoir, which is located at an elevation of 7,440 feet MSL).

252. *The Marlette Lake Water System*, *op. cit.*, page 19.

253. In 1963 the State of Nevada purchased this water system from the Marlette Lake Company for \$1,650,000, to include some 5,378 acres of land, easements, pipelines, flumes and other fixtures and appurtenances used for their water operations in Washoe, Ormsby (Carson City), and Storey Counties. [See *The Marlette Lake Water System*, *op. cit.*, page 21.]

254. Townley, John M., *The Orr Ditch Case, 1913-1944*, Water Resources Center Publication 43007, Desert Research Institute, University of Nevada System, October 1980, page 16.

255. Townley, *The Truckee Basin Fishery*, *op. cit.*, page 8.

256. *Reno Evening Gazette*, May 20, 1887, page 3.

257. La Rivers, Ira, Ph.D., F.A.Z., F.O.M.S., *Fishes and Fisheries of Nevada*, Nevada State Fish and Game Commission, State Printing Office, Carson City, Nevada, 1962, pages 257-264.

258. Strong, *op. cit.*, page 97.

259. *Water Treatment Master Plan*, *op. cit.*, page A-1.

260. *TRUCKEE RIVER ATLAS*, *op. cit.*, page 18.

261. Shamberger, *op. cit.*, page 92.

262. *Ibid.*, page 13.

263. *Ibid.*, page 7.

264. Wheeler, Sessions S., *The Desert Lake--The Story of Nevada's Pyramid Lake*, The Caxton Printers Ltd., Caldwell, Idaho, 1967, pages 92-93.

265. Townley, *Tough Little Town on the Truckee*, *op. cit.*, page 159.

266. Townley, *The Orr Ditch Case*, *op. cit.*, page 16.

267. *Ibid.*

268. *Ibid.*, page 17.

269. Townley, *The Truckee Basin Fishery*, *op. cit.*, page 24.

270. Townley, *Tough Little Town on the Truckee*, *op. cit.*, page 158.

271. For an extensive chronology of Newlands activities before his "conversion" to reclamation projects, see Horton, Gary A., *Carson*



272. Strong, *op. cit.*, page 97.
273. Townley, *The Truckee Basin Fishery*, *op. cit.*, page 22.
274. Townley, *The Orr Ditch Case*, *op. cit.*, page 16.
275. Townley, *The Truckee Basin Fishery*, *op. cit.*, page 8.
276. Rowley, William D., "The Newlands Project: Crime or National Commitment," *Dividing Desert Waters*, Nevada Public Affairs Review, Number 1, 1992, Senator Alan Bible Center for Applied Research, University of Nevada, Reno, page 39.
277. *Annual Report of the Commissioner of Indian Affairs to the Secretary of Interior for the Year 1891*, C.C. Warner, Agent, Nevada Agency, Nevada, Pyramid Lake Reservation, Government Printing Office, Washington, D.C., August 17, 1891.
278. Per gaging station records obtained from U.S. Geological Survey, Water Resources Division, Carson City, Nevada. A maximum surface level of 3,877.9 feet MSL may be found in *Water Resources Data, Nevada, Water Year 1994*, U.S. Geological Survey Water-Data Report NV-94-1, Nevada District Office, Water Resources Division, U.S. Geological Survey, U.S. Department of the Interior, Carson City, Nevada, 1995, page 314.
279. Harris, *op. cit.*
280. Townley, *The Truckee Basin Fishery*, *op. cit.*, page 8.
281. Rowley, *op. cit.*, page 39.
282. McQuivey, *op. cit.*
283. Shamberger, *op. cit.*, page 85.
284. McQuivey, *op. cit.*
285. *Ibid.*
286. Townley, *Tough Little Town on the Truckee*, *op. cit.*, page 158.
287. McQuivey, *op. cit.*
288. *Ibid.*
289. *Annual Report of the Commissioner of Indian Affairs to the Secretary of Interior for the Year 1896*, I.J. Wooten, Agent, Nevada Agency, Wadsworth, Pyramid Lake Reservation, Government Printing Office, Washington, D.C., September 28, 1896.
290. McQuivey, *op. cit.*
291. *Ibid.*
292. Townley, *The Truckee Basin Fishery*, *op. cit.*, page 8.
293. McQuivey, *op. cit.*
294. La Rivers, *op. cit.*, page 263.
295. *Ibid.*
296. Townley, *The Truckee Basin Fishery*, *op. cit.*, page 14.
297. *TRUCKEE RIVER ATLAS*, *op. cit.*, page 81.
298. *Annual Report of the Commissioner of Indian Affairs to the Secretary of Interior for the Year 1899*, Fred B. Spriggs, Agent, Nevada Agency, Wadsworth, Pyramid Lake Reservation, Government Printing Office, Washington, D.C., July 25, 1899.
299. Townley, *The Truckee Basin Fishery*, *op. cit.*, page 51.
300. *Reno Evening Gazette*, October 14, 1903, page 4.
301. Townley, *The Truckee Basin Fishery*, *op. cit.*, page 50. Of particular interest with respect to this matter is that Mr. Mortimer Fleishhacker also served as the President of the Truckee River General Electric Company in the early 1900s. [See *Pipe & Wire: A Historical Profile of Sierra Pacific Power Company*, Sierra Pacific Power Company, Reno, Nevada, 1977, page 16.]