SIXTEEN SUMMERS ON THE DITCH

Memories of
Gerle Creek and South Fork Ditches
and
Old Loon Lake Dam
El Dorado County, California

Linton A. Brown
February 2003
(Reprinted with minor corrections and updates—August 2007/January 2008)

The California Gold Rush brought hordes of "Forty-Niners" to the American River basin. They fanned out from the site of James Marshall's discovery at Coloma and soon began making good finds in the area now known as the Georgetown Divide.

To get the water essential to mining, the Divide's early settlers built a 28-mile-long ditch to divert from Pilot Creek. But when summer flow dwindled to a trickle, they realized they needed a supply from higher elevations. In the 1870s, a group of San Francisco capitalists stepped in to meet that need, constructing the South Fork and Gerle Creek ditches to augment Pilot Creek's summer flow with water from Loon Lake, near the 6300-foot elevation. In 1881-82, Loon Lake was enlarged with a dam "…composed of Granite and…of the character to do service for the ages."

In the early 1960s, the Sacramento Municipal Utility District's Upper American River Project displaced Georgetown's upper basin facilities. Loon Lake's dam for the ages was destroyed and the South Fork and Gerle Creek ditches were abandoned after operating from 1875 through 1961, a total of 87 years.

The author was closely allied with the dam and ditches for 16 of those years, as a child and later a youth, camping with his parents beside the Gerle Creek Ditch and tagging along with Art Rasor, the ditch company's Man of the Mountains. This memoir combines stories and photos from the 1940s and 50s with a well-researched history of the water facilities and a thorough assessment of remaining traces of the abandoned system. The many illustrations include old Loon Lake Dam photos newly uncovered in the musty archives of the California Department of Water Resources.

Sixteen Summers on the Ditch

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South Fork and Gerle Creek Ditches
and
Old Loon Lake Dam
El Dorado County, California

by
Linton Alvin Brown

February 2003

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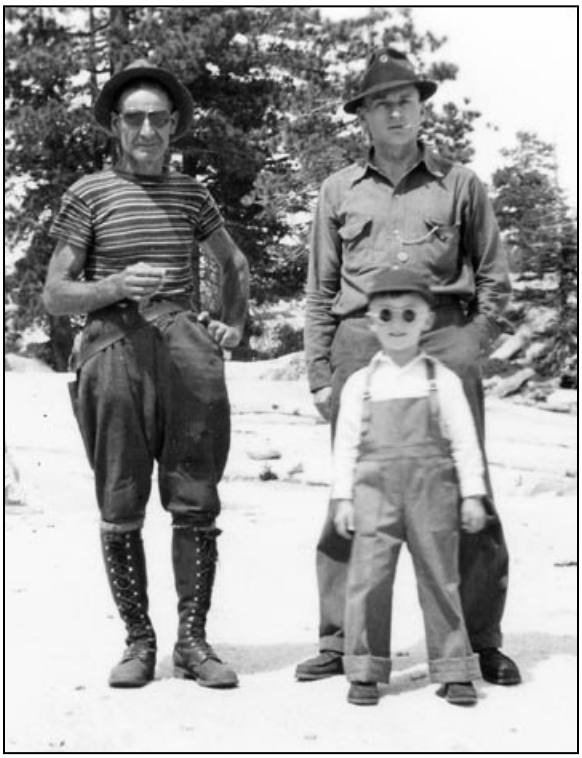
Red Bluff, California



To Arthur Edgar Rasor (1883-1970), long-time ditch tender for the Georgetown Divide Water Company, whose steadfast devotion to duty and manly outdoor lifestyle kindled my interest in water. In this June 24, 1940 photo, Art poses with my father and me near Loon Lake. As a young lad, I was fascinated by this energetic, grizzled old guy, who always wore riding pants and knee-high lace-up boots and packed a sidearm (a .22 Colt Woodsman or a High Standard in this picture, but later a lethal-looking 9 mm Luger that found its way back from Germany during the war). I saw him as a heroic figure who had the best of all possible jobs—cruising around out in the woods, his own boss, doing interesting things to keep the water flowing.

From this early stimulus, I went on to a degree in Civil Engineering from the University of California—Berkeley and a 38-year career with the California Department of Water Resources. I never had a job as fun as Art's (or, probably more accurately, as fun as my childhood conception of Art's job).

One of my recently-realized regrets is that I never went back to thank Art for his inspiration during the 13 years between my entry into the water business in 1957 and his death in 1970. Perhaps, in the grand scheme of things, this little memoir that covers some of his work "on the ditch" will help a bit to compensate for that lapse.

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So, What's This All About?

My father, Linton Ambrose Brown (1901–1966), began camping in the South Fork Rubicon River area in 1932, while he was working in Sacramento during the early part of his 43-year career with the Pacific Telephone & Telegraph Company. My future mother, Daisy Gerken (1901–1988), also worked for the phone company; they met in 1933 and were busy courting that year and getting married in 1934.

A family tradition, the annual three-week camping trip to "South Fork," began in 1935 and continued until 1960, after which the area was forever changed by the Sacramento Municipal Utility District's Upper American River Project. Prior to 1937, my parents stayed at the old South Fork Campground, beside the Georgetown Divide Water Company's South Fork Ditch. From 1937 on, they camped at an unimproved site nearby on the Gerle Creek Ditch, which was the main water source for the South Fork Ditch. (This is all shown on the map, Figure 1, on page 3.) It was here that my folks became fast friends with Art Rasor, the water company's keeper of the upper ditch system.

I was born in July 1936, and spent three weeks camped on the ditch every summer from 1937 through 1952, nearly a year of residence there in 16 increments in late June and July. Like my parents, I looked forward to each year's South Fork outing. Without a doubt, the happiest times of my childhood were those days beside the ditch, where I was given wide latitude to explore, dig, climb, play in the water, plink away with my BB gun, and pursue other such activities that fascinate young boys. The sad part came each year on the day we packed up and left; the tears I shed as we pulled out onto the road would have been more plentiful if I had realized how fleeting those wonderful days would prove to be.

The Gerle Creek and South Fork ditches were abandoned after the 1961 season, replaced by Stumpy Meadows Reservoir. I last saw the ditches flowing in 1959. When I returned in 1980 and 1981, I was astounded at how rapidly Mother Nature was reclaiming them.

In 2002, looking for a not-too-strenuous project that fit with my computer graphics hobby, I decided to put together a little paper to preserve memories of the ditches and to share some of my parents' photo collection. Like most simple plans, the project gradually expanded, in this case to include far more research into ditch history than first envisioned. I spent several days walking out remaining remnants of the system and proving that photos of overgrown ditches seldom show anything.

Many people gave me a hand as I gathered information for this paper that has become a book. Some whose assistance was particularly helpful are (in alphabetical order):

- Charles Armstrong and Denise McLemore, who gave me generous access to the history files of the U.S. Forest Service's Eldorado National Forest Headquarters in Placerville.

- Carolyn and Denton Beam, successor owners of the Georgetown Divide Water Company's "Ditch Camp" property, who provided old photos, old stories, access to historic sites, hospitality, and sympathetic support.

- Mike Brattland, a fellow backwoods history enthusiast whose *Gerle Creek History* web site [http://www.gerlecreek.com] is a treasure trove of information, including posts of many of my Loon Lake and Brown family photos that wouldn't fit in this book. Mike was a major help on many research details.

- Ron Delparte and Chuck Wong of the California Department of Water Resources, Division of Safety of Dams, who rummaged back into the musty archives for the files on old Loon Lake Dam, then gave me royal treatment and carte blanche access to scan photos and memos dating back to 1930.

- Dale Rasor, Jr., whom I hadn't seen in over 50 years, shared recollections of summers helping his grandfather, Art Rasor, operate the Gerle Creek and South Fork ditches. Dale also provided family history, old photos, and a chance to hold Art's trademark Luger pistol.

- Jean Starns, known throughout El Dorado County as "the Ditch Lady," who gave me guidance, encouragement, and an advance peek at parts of the manuscript of her upcoming comprehensive history of El Dorado County ditches, *Wealth From Gold Rush Waters*.

This was a fun project, a true labor of love that will be of interest to a tiny audience. For anyone else, it's certain to be far more than you want to know about a demolished dam and a couple of abandoned ditches. But who knows? Some of the pictures may be amusing.

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Photo credits: Except where otherwise indicated, old photos were taken by my parents, Daisy and Linton A. Brown, Sr. and photos from 1980 and later are mine.

A Few Words About Names

El Dorado, Spanish for "The Golden One," a place of abundant riches, is the name of the county and the many things named after it. For some inexplicable reason, the U.S. Forest Service and other federal agencies call it Eldorado (Spanish for "Thegoldenone"?). Where called for, I've followed the federal practice, but even 50 years after high school Spanish, it pains me to write "Eldorado."

Early references called it "Gurley Creek," but it was named for Christopher C. Gerle, a Swedish immigrant who arrived before 1860 and raised hogs at his Gerle Creek Ranch, hauling pork products over the Sierra on the Georgetown-Wentworth Springs-Lake Tahoe Road to sell in Virginia City, Nevada [Brattland, Gudde]. Later references reflect the correct spelling of Gerle's name.

At least as late as 1914, today's South Fork Rubicon River was known as the "Little South Fork Rubicon River." By extension, the ditch diverting from it was called the "Little South Fork Ditch." Amos Bowman used that name in an 1874 map that also clearly shows the separate "Gurley Creek Ditch" that had just been completed to divert water from Gerle Creek to the Little South Fork Ditch. In the late 1940s, the U.S. Geological Survey adopted the generic name "Georgetown Ditch" (expanded in 1954 to "Georgetown Divide Ditch") for both the former Little South Fork Ditch and the former Pilot Creek Ditch that began some 7 or 8 miles to the west. The 1950 USGS "Robbs Peak" 7.5-minute quadrangle map did not label the ditch from Gerle Creek. I wanted separate, descriptive names for "my" ditches, so I updated Bowman's original names to the "South Fork" and "Gerle Creek" ditches. Justification? Hey, it's my book!

Overview: Georgetown Divide Water History

This work focuses on the now-abandoned upper facilities of the former Georgetown Divide Water Company; to understand them, we must look at how they fit into the water history of the Georgetown Divide area of El Dorado County (Figure 1).

The "Georgetown Divide" term is loosely applied to the 20-mile-long ridgetop area between the Middle Fork and South Fork American rivers from somewhere around Cool (elev. 1500 feet), just east of Auburn, to approximately Quintette (elevation 4000 feet). Georgetown is located midway along the east-west-trending Divide, at about 2700 feet above sea level.

Local Indians (the Nisenan, or Southern Maidu) had the Georgetown Divide pretty much to themselves until 1848, when James Marshall noticed a shiny glint in the waters of the South Fork American River at Coloma, just 8 miles southwest of what is now Georgetown. Marshall's discovery set off the California Gold Rush of 1849. After the first arrivals grabbed the choicest sites along the major streams, would-be miners fanned out into the hills around Coloma, seeking fresh places to stake claims (much to the detriment of the Nisenan, but that's another story—a sad one).

Eager prospectors soon began making good strikes along the divide northeast of Coloma and Georgetown was born. In contrast to most early mining sites, the Georgetown area finds were on a ridge, far from any significant source of the water that was essential for the sluicing process used to separate gold from great volumes of soil and gravel. Among those who sought to overcome this problem was Dr. William H. Stone (1817-1882), a "Forty-Niner" who practiced medicine in El Dorado County until 1852, when he was appointed County Treasurer. About 1854, Dr. Stone became principal owner and manager of the Pilot Creek Ditch Company, which was instrumental in constructing the first ditches to bring water from distant sources to the Georgetown Divide. [*Georgetown Gazette*, March 31, 1882, Dr. Stone's obituary]

Dr. Stone's company had begun by diverting from Pilot Creek, a tributary of the Rubicon River, at a point about 15 (airline) miles east of, and 1500 feet above, Georgetown. That first Pilot Creek Ditch, constructed in 1852 and 1853 [Sioli, p. 109], began at a small dam on Pilot Creek that was near the upstream end of the present Stumpy Meadows Reservoir. The Pilot Creek Ditch snaked its way about 28 miles to reach Georgetown. A key feature along the way was a 1000-foot-long tunnel through Tunnel Hill, about 1½ miles northeast of Quintette.

Sioli [p. 110] indicated that Dr. Stone and his fellow investors soon discovered that the Pilot Creek Ditch was not producing the expected supply. Within a year or two, they constructed a second diversion from Pilot Creek, 1½ miles downstream from the first dam (i.e., within the present Stumpy Meadows Reservoir area, a little less than a mile upstream from Mark Edson Dam). This "New Pilot Creek Ditch" joined the original ditch at Mutton Canyon, about halfway between the original diversion and the Tunnel Hill Tunnel. The new ditch was "constructed to secure the seepage from the reservoir" [Sioli, p. 110]. To convey the added flow made available by the New Pilot Creek Ditch, the original ditch was enlarged from Mutton Canyon to Georgetown.

Within a few years, the Pilot Creek ditch system was extended westward to serve Greenwood and Pilot Hill (which, despite the name similarity, is 20 miles southwest of Pilot Creek). Miles of branch ditches delivered Pilot Creek water to mining sites all along the Georgetown Divide and numerous small ditch companies sprang up to develop supplies from some of the smaller creeks. (This ditch network is best explained by *Wealth From Gold Rush Waters*, Jean Starns's book in progress.)

One would think that the two Pilot Creek ditches would have captured all the flow that little Pilot Creek had to give, but another group of investors (which also included Dr. Stone) built a third diversion and ditch in 1853-54. This was the El Dorado Ditch, which extended to a reservoir in Georgetown, with a branch to serve the Volcanoville area. The El Dorado Ditch diverted from Pilot Creek at the mouth of Mutton Canyon, 3½ miles downstream from the diversion dam of the New Pilot Creek Ditch. The capacity of this third ditch (400 miner's inches—see sidebar, page 2) was just one fourth that of the two earlier ditches combined (which carried 800 miner's inches each) [Hutchins, pp. 3b and 7b].

With its lower diversion point, the El Dorado Ditch passed about 300 vertical feet below the short tunnel that carried the Pilot Creek ditches through Tunnel Hill. Rather than drive another tunnel, the builders routed the El Dorado Ditch around the north end of Tunnel Hill ridge, a long route

What is a Miner's Inch?

Most early descriptions of western ditches and water sales express flow rates in "miner's inches," a practical unit of measurement requiring no equipment or calculation. A miner's inch was simply the flow through a 1-inch-square orifice set a fixed depth below a standing water surface. On the Georgetown Divide, that depth was 6 inches [Hutchins, p. 23b and Raymond, p. 2e].

Hutchins goes on to describe how larger quantities were obtained by enlarging the orifice; he mentions an orifice 5 inches high by 10 inches wide to discharge 50 miner's inches (still with a 6-inch depth to the top of the orifice). Reading this, the hydraulic engineer's eyes bulge out, because the discharge through an orifice is roughly proportional to the square root of the "head" at the orifice's center. For the standard 1-inch orifice, that head is 6.5 inches, while the 5-inch-high orifice Hutchins describes would be operating under an average head of 8.5 inches. So, the 5-inch by 10-inch orifice would discharge about 57 times the flow of the 1-inch-square orifice $[(8.5/6.5)^{0.5} \times 50]$, a nice bonus for the customer buying 50 miner's inches. But, this is a nitpick; the system worked well enough for years.

Flow also depends on the shape and geometry of the orifice; some judicious shaping with a pocket knife could coax significantly more flow without changing the outside dimensions of a small hole in a typical flume board. The old literature gives a few examples that allow firm definition of the miner's inch and those definitions are remarkably similar. Hutchins (p. 22b) mentions 3000 miner's inches as producing 6,801,000 cubic feet per day, from which one may calculate a miner's inch to be 11.78 gallons per minute. Raymond (p. 2e) and Sioli (p. 110) describe a miner's inch as equivalent to 94.7 cubic feet per hour, or 11.81 gallons per minute, which is exactly 1/38 of a cubic foot per second, the current standard unit of flow.

Section 24 of the California Water Code, adopted in 1943, defines the "standard" miner's inch as 1.5 cubic feet per minute (11.22 gallons per minute), which has the advantage of making the cubic foot per second equal exactly 40 miner's inches. The "1/40 cfs" definition applies throughout Northern California, Oregon, Nevada, and Montana. But Southern California, Washington, Idaho, and other states use a "1/50 cfs" definition. Colorado settled on a miner's inch as 1/38 of a cubic foot per second, while British Columbia makes it 1/36. (U.S. Department of Agriculture). But in the old days, it appears the "1/38 cfs" definition prevailed on the Georgetown Divide.

that looped out about halfway to Volcanoville. In 1860, the El Dorado Ditch was sold to Dr. Stone's company, then know as the Pilot Creek Water Company [Starns].

The Pilot Creek Water Company was apparently profitable during mining's heyday, but from the beginning it was hobbled by the limited summer supply available from Pilot Creek. When water was plentiful, small reservoirs throughout the service area could even out demand fluctuations resulting from the miners working only during daylight hours. But the system had nowhere near enough storage to meet demands during the summer and fall when Pilot Creek flow dwindled.

By the latter 1850s, the miners had exhausted the Georgetown Divide's easily accessible "gulch and river placers" and a decline began that saw El Dorado County's population fall from 20,500 in 1860 to 10,300 in 1870. As mining activity decreased, many ditches fell into disuse and the various ditch companies fell on hard times.

There are slightly different versions of events during the 1860s. Sioli [p. 109] said, "Numerous water companies were organized, only to be quietly disincorporated. Still, the original company held its ground, gradually extending its area of usefulness until 1872, when a number of San Francisco capitalists purchased the property..." Davis and Rambeau [p. 58] have a slightly different spin: "Numerous water companies were organized throughout the years, often working in direct competition with one another... Then in 1872, a number of San Francisco capitalists consolidated them..." In either case, a group of San Francisco investors, operating as the California Water Company, did acquire the remaining Georgetown Divide ditch companies (and a number of associated mines) in 1872.

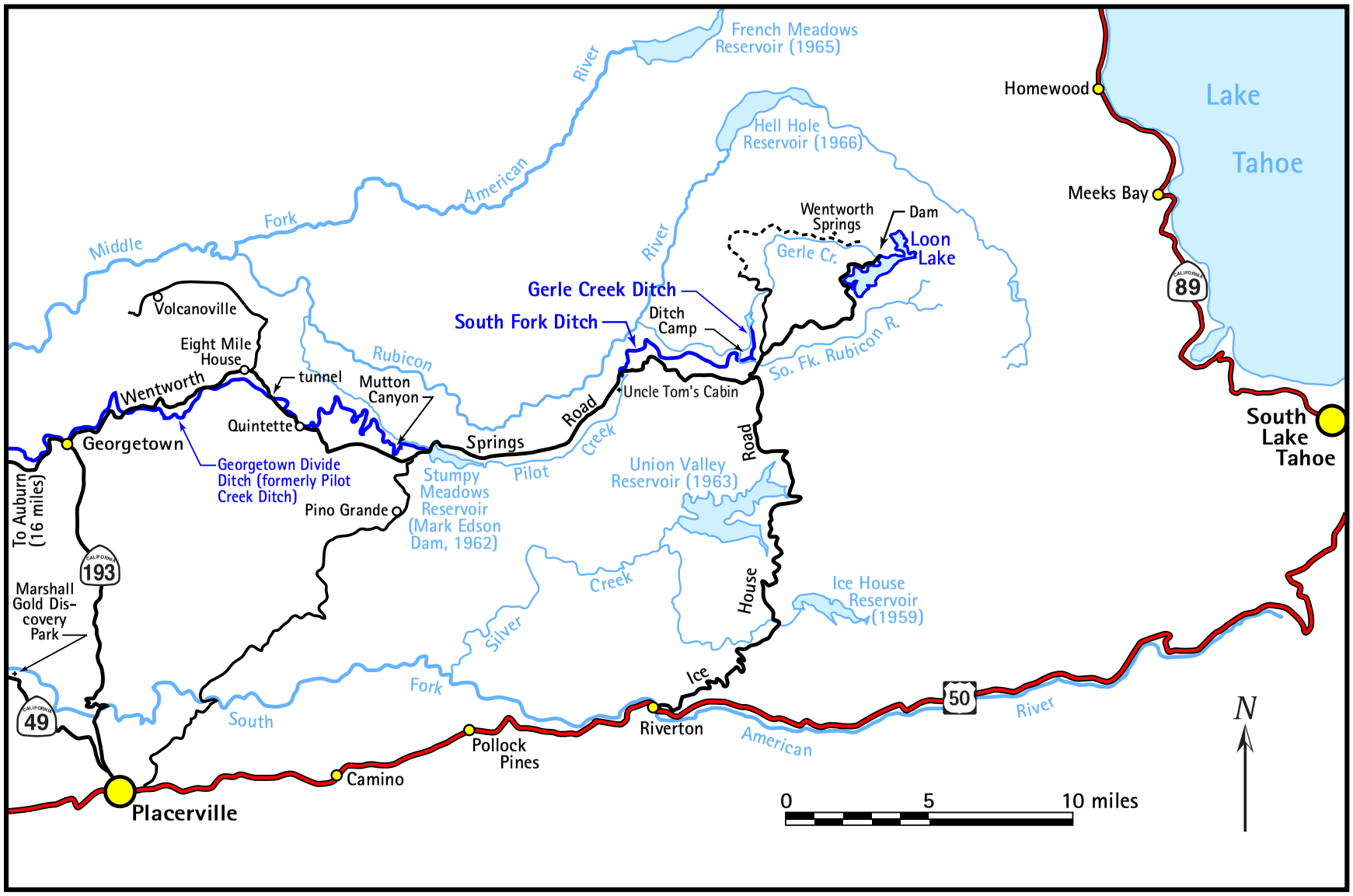


Figure 1: Location Map

Sidelight: One of this group of speculators was Darius Ogden Mills, the famous banker whose "Bank of D.O. Mills" building is a landmark at 631 J Street in Sacramento [Davis and Rambeau, p. 58].

The owners of the California Water Company immediately set out to overcome the lack of summer water supply by constructing a ditch to import water to Pilot Creek from higher elevations where summer runoff was sustained by snowmelt. This supplemental supply was to be increased by enlargement of three small natural lakes at about the 6300-foot elevation. These additional facilities, which later became known as Gerle Creek and South Fork ditches and Loon Lake Dam, are the principal subject of this book.

The California Water Company commissioned Amos Bowman, a mining expert, to evaluate the newly acquired holdings, the extensions then under construction, and potential future facilities. Bowman produced an incredibly grandiose vision of water abundance and mineral wealth. His report included this stirring description of conditions on the Georgetown Divide in the early 1870s:

> *"Decadence and dilapidation, in shanties and tatter; in stranded human waifs; in ruins, suggestive of lawless activities and heroics, in those Troys and Pompeiis of the period—Johnstown, Kelsey's, Volcanoeville and Mt. Gregory, where now everything is serenely dead—the logic of events branded into the average unsuccessful miner's soul, and coined into the words 'exhausted' and 'mined out.' This lowest trough of the great sea of population which has risen as high as the Sierra, has imperceptibly passed us in California, so that it remains still necessary to point out definitely and fully the substantial resources of the country, before it can be expected to be believed the all the gold California has to give, did not lie upon the surface.*
>
> *"They have had no water on Georgetown Divide to sluice systematically. The veins and seams have not been understood to be worked discriminatingly. The natural wealth which maintained in El Dorado county for the first ten years of our history, the largest population of any county in the State, is evidently still there, and not far under the surface."* [Bowman, pp. 215-216]

With this prelude (supported by a wildly overoptimistic assessment of the water supply available from the upper basin), Bowman sketched a rosy future in which a reliable summer water supply would allow increased production of 18 mines in which the company had full or partial ownership. And, he suggested that the company trade water for a share of new mines, "...allowing the miner say one half, his portion of the work of discovery and development." Bowman was also enthusiastic about the potentials for: (a) serving water for irrigation, a use not previously practical because of the scarcity of summer supply; (b) logging and lumber production from company land and additional land to be acquired along the ditches; and (c) eventual extension of the ditch system to supply pure mountain water to urban areas in the Roseville-Folsom-Sacramento triangle. The possibilities were boundless! [Bowman, pp. 218-222]

The California Water Company followed its original expansion plan through the 1870s, completing a temporary dam at Loon Lake and the 10 miles of ditch needed to deliver the new supply to Pilot Creek (and thence to the Georgetown Divide ditch network). In 1880, to help raise additional capital, "a new company, called the California Water and Mining Company was organized under the laws of New York State and 200,000 shares of stock offered for sale" [Baker and Shoup, p. 13].

One of the supporting reports to the new company's stock prospectus includes this observation, which indicates that the well-connected group of investors who formed the California Water Company in 1872 failed to follow through to realize the benefits that Bowman foresaw:

> *"The property, in lakes, ditches, mines, timber, and lands, owned and controlled by the California Water Company, is immense, and I am satisfied that the parties owning the property are not aware of one-tenth its value, because they pay no attention to, or rarely ever visit it."* [Swan, p. 1c]

The new investors apparently took over the system just before April 9, 1880, when the *Georgetown Gazette* mentioned "the recent change" in the California Water and Mining Company [Gernes and Deibert, p. 67]. Thomas Findley, who was to prove a respected leader over the coming years, was installed as Managing Director of the company. Continuing the work of the group that took over in 1872, Findley and the new owners turned at once to further increasing summer water supply. In this case, the project was building a larger, permanent dam at Loon Lake, a task substantially completed in 1881 and 1882. [Gernes and Deibert, pp. 98, 110, and 114]

The new investors' timing was not the best. Coming on line in 1882, Loon Lake Dam set the stage for the Georgetown Divide to catch up with the mining revival that was in progress elsewhere in northern California. But the new mining boom had a dark side; the massive use of water to excavate and sluice the gold-bearing deposits was leaving masses of mud and debris in downstream river channels, causing "...havoc and destruction for the farmers downstream." [Niles, p. 2]

On January 7, 1884, federal Judge Lorenzo Sawyer issued a permanent injunction against dumping tailings into the Yuba River, and further enjoined the defendant companies from using the water from their ditches and reservoirs for hydraulic mining. This landmark case, known as *Woodruff vs. North Bloomfield Gravel Mining Company*, would soon turn out to be the death knell for California's hydraulic mining industry. The owners of the California Water and Mining Company must have seen what was coming; references to the company in the *Georgetown Gazette* soon dropped "and Mining" from the company's name. [Gernes and Deibert, p. 178, et seq.]

Changes in the mining industry had a withering economic impact. On August 13, 1891, the *Georgetown Gazette* looked back to make this sorrowful assessment:

> *The closing down of hydraulic mining has robbed the State of millions of dollars of its life blood flow, to say nothing of the evil consequences resulting to [the] quartz mining industry, casting a gloom of discouragement on our gold mining industry generally—breaking the spirit of the invincible and hardy prospectors who were continually discovering the hidden treasure which enriches the world and inspires progress.* [Gernes and Deibert, p. 245]

Hard times in the mining industry translated to hard times for the California Water Company:

> *"...the Company defaulted on its mortgage with Mutual Trust Company of New York and the Company's property was ordered to be sold in a decree of foreclosure in 1904 (Sheriff's Certificate of Sale, Book B: 323, El Dorado County Recorder's Office). Stanley Forbes purchased most of the holdings. In 1905, another lawsuit hit the Company when Sterling D. Carr sued for $949.54 and again Forbes purchased a number of the properties (Sheriff's Certificate of Sale, Book B: 339). By 1907, Forbes had sold the holdings, consisting of 52 water ditches, reservoirs, a water-powered sawmill, water rights, mines, lands, and other properties, to the Loon Lake Water and Power Company ..."* [Starns, personal communication, November 5, 2002]

Although water sales for mining dropped, the ditch system was kept in continuous operation to serve irrigation and domestic water. (Georgetown and many rural homes along the Georgetown Divide used water direct from the ditch.) These non-mining uses gradually increased over the years as the population of the service area grew. The table of gaged flows on page 73 shows a 63 percent increase in average annual ditch flow approaching Georgetown from the 1911-13 period to the 1947-61 period). In 1960, the ditch served 281 municipal connections and one lumber mill and provided water for irrigation of 1813 acres [California Department of Water Resources, 1965].

In March 1912, the Loon Lake Water and Power Company merged with the California-Nevada Electric Power Company to form a new firm, the Truckee River General Electric Company. Truckee River General Electric's local manager was George G. Devore (1886-1974), a major player in the next four decades of Georgetown Divide water history. [Davis and Rambeau, p. 77]

George Devore in "the 1920s or early 1930s" [From the collection of Carolyn Beam, his granddaughter].

Sometime after 1914, Truckee River General Electric merged with Sierra Pacific Power Company, a Nevada firm of which George Devore was an officer. A 1930 dam safety application listed Sierra Pacific Power as the owner of Loon Lake Dam. Then, a February 21, 1935 letter advised the California Department of Public Works that the Georgetown Divide Water Company, Ltd. had

acquired Loon Lake Dam (and all the associated water conveyance and distribution facilities) from Sierra Pacific Power.

The principal owners of the Georgetown Divide Water Company were George Devore, Alice Devore (1899–1973), Colene Devore, Dorothy Devore Gravelle (1918–1995), Harry Gravelle (1917–1997), P.L. Chamberlain, Freda Chamberlain, and P.L. Chamberlain, Jr. [Niles, Appendix]. In 1947, Harry Gravelle, George Devore's son-in-law, was general manager of the Georgetown Divide Water Company [Coonrod]. Dorothy Devore Gravelle was George Devore's daughter by his first wife, Lucia M. Devore; Dorothy's and Harry's daughter, Carolyn Gravelle Beam, is the current owner of the former GDWC properties known as Ditch Camp.

By the time the Georgetown Divide Water Company took over the system in the early 1930s, the reach of the original Pilot Creek Ditch upstream from Mutton Canyon and the El Dorado Ditch were abandoned and largely forgotten. The New Pilot Creek Ditch carried all of the Company's diversions the 6 miles from Pilot Creek to the junction with the original Pilot Creek Ditch at Mutton Canyon. Sometime before 1910, the "New" designation had been dropped and the entire main ditch was known simply as the Pilot Creek Ditch. Before 1946 (probably long before), the Pilot Creek Ditch had become the Georgetown Ditch. In 1954–55, its name was expanded to Georgetown Divide Ditch [United States Geological Survey].

Without sales for mining, the Georgetown Divide Water Company wasn't generating revenues to meet the substantial maintenance costs of the aging system. In 1946, responding to the need to assure future water supply reliability, area residents voted overwhelmingly to form the Georgetown Divide Public Utility District. In 1952, GDPUD purchased the water system from the Georgetown Divide Water Company for $100,000, with payments deferred for three years [Cortright, 1953].

In his comprehensive 1874 report, Amos Bowman [pp. 171–173] sketched out a plan to extend the upper basin facilities to divert from the headwaters of the Rubicon River and nearby lakes. Nothing came of Bowman's proposal for nearly 80 years, when it was resurrected as an element of the proposed Upper American River Project, a power development advanced by the Sacramento Municipal Utility District. SMUD's plan called for diverting much of the flow of the upper Rubicon River to an enlarged Loon Lake in the Gerle Creek basin; power releases from Loon Lake would be diverted via two tunnels and a canal to Union Valley Reservoir, at the head of a chain of hydroelectric power drops in the South Fork American River basin.

SMUD's project, most of which was constructed in the 1960s, intercepted the water that had been supplying the Georgetown Divide since the 1870s. As a precondition to that construction, the two districts negotiated a 1957 agreement under which SMUD paid GDPUD $97,000 per year for 40 years. In return, GDPUD relinquished rights to water from Loon Lake, Gerle Creek, and the South Fork Rubicon River. To replace the lost supply, GDPUD constructed a 20,000 acre-foot reservoir on Pilot Creek. Stumpy Meadows Reservoir (Mark Edson Dam) was completed in November 1961; the last flow of the South Fork Ditch to Pilot Creek was on December 1, 1961. SMUD began diverting Gerle Creek water to the South Fork American on October 1, 1962 [United States Geological Survey, 1962-63 Water Year records for Robbs Peak Tunnel near Riverton].

Mark Edson Dam was built about a mile downstream from the small diversion dam that fed the New Pilot Creek (Georgetown Divide) Ditch. At that location, the then-existing ditch was too high to be served by gravity unless the reservoir was near full. GDPUD's consulting engineers, Clair A. Hill and Associates, elected to build a new ditch that generally follows the alignment of the upper portion of the long-abandoned El Dorado Ditch that was built in 1853–54 [Patten].

This "new" (1962) ditch diverts from Pilot Creek just above the mouth of Mutton Canyon, about 2½ miles downstream from Mark Edson Dam. This places the ditch about 300 feet too low to flow by gravity to the 1000-foot-long Tunnel Hill Tunnel, which served both the Pilot Creek and new Pilot Creek ditches. So, a new tunnel, nearly a mile long, was driven through Tunnel Hill to connect to the original ditch near the Volcanoville turnoff from Wentworth Springs Road.

As we look back from 45 years later, SMUD's purchase of GDPUD's water rights might be suggestive of Peter Minuit's purchase of Manhattan Island for $24 worth of beads and trinkets in 1626. At the time, however, GDPUD was relieved to be rid of the high maintenance cost and reliability risks of the upper basin supply. Stumpy Meadows Reservoir has served the district well for four decades, but with continuing growth in demand, consideration is currently being given to potential sources of additional supply for the future.

South Fork Ditch

The South Fork Ditch (originally the Little South Fork Ditch) diverted water from the South Fork Rubicon River about 25 (airline) miles east of Georgetown. As Figure 2 (page 9) shows, the South Fork Ditch followed the South Fork Rubicon and Rubicon River canyons to a low saddle near Uncle Tom's Cabin (Appendix B, page 63), where a short tunnel discharged into the headwaters of Pilot Creek. The rivers are fairly steep in this area, so most of the ditch was high up on the canyon slope—about 1700 feet above the river at the downstream end of the ditch.

By careful scaling of the U.S. Geological Survey 1:24,000-scale "Robbs Peak" base map, I located the mileage markers shown on Figure 2. This type of scaling tends to underestimate length because the small zigs and zags are overlooked. But, my measurement of the total length of the South Fork Ditch as 7.7 miles agrees well with Bowman's original (1874) figure of 7½ miles and the 8 miles mentioned by Sioli and others since.

As nearly as can be determined from a map with a 40-foot contour interval, the South Fork Ditch started just above elevation 5160 feet and ended at about 5070 feet. From walking the ditch in the 1950s, I know there were no drop structures along the way, so the ditch gradient was fairly uniform at about 12 feet per mile (90 feet in 7.7 miles).

Years of flow measurements by the USGS (Appendix C) show the maximum flow at Mile 7.55 of the South Fork Ditch as about 28 cubic feet per second. With a modest allowance for losses along the way, it's likely the maximum flow was around 35 cfs (equivalent to 1330 miner's inches in the 1800s). South Fork Ditch flows measured in the 20th Century were far below some 19th Century capacity estimates: Bowman (table, p. 164a) estimated 2250 miner's inches; Hutchins [p. 3b] came up with 3000; Sioli [p. 110] showed 1500.

Bonus observation: With its position high on the canyon wall, the South Fork Ditch intercepted no cross streams that could make any significant contribution to replacing water lost to leakage.

Construction History

Construction of the South Fork Ditch began soon after the California Water Company consolidated ownership of several Georgetown Divide ditch companies in 1872. One can't tell exactly when construction began, but a likely guess is that the new owners spent the summer of 1872 surveying and preparing and then began construction in earnest in 1873. This newspaper item may be the earliest account of the construction:

> *"More Water. The California Canal Company send a gang of twenty-five men into the mountains this week, for the purpose of cutting a ditch to lead the waters of Loon Lake into Pilot Creek, which will greatly increase the water supply and prolong the water season on the Georgetown Divide."* [*Mountain Democrat*, May 24, 1873]

The work was in full swing in 1874, as indicated by these quotes from Bowman's 1874 report:

> *"The new ditch in process of construction, and nearly completed, is intended..."* [p. 168]
>
> *"The completion of your canal to the Little South Fork this summer..."* [p. 216]
>
> *"During the coming season, (1874, or as soon as the Little South Fork Ditch is completed) the supply will be constant throughout the summer..."* [p. 217]

Who built the South Fork Ditch? As a child in the 1940s, I often heard that the ditches were built by Chinese laborers. There's no completely definitive direct support for this in 19th Century references, but in 1979, Niles confidently penned this unreferenced paragraph about Loon Lake Dam and the Little South Fork and Gerle Creek ditches:

> *"A work force of Chinese ... had by this time entered the labor market as a result of the completion in 1869 of the transcontinental railroad. E.B. Crocker had imported close to 15,000 Chinese workers during construction of the Central Pacific Railroad's portion of the route. A tremendous amount of hand labor was involved in digging and blasting out the ditches and tunnels of this water transportation system and the industrious Chinese played an important role in its construction."* [Niles, p. 2]

The following 1879 quotation provides some peripheral evidence, but it was written several years after the ditches were completed as part of a general assessment of then-prevailing conditions on the Georgetown Divide:

> *"Skilled miners and mechanics can be obtained from $2 to $3 per day, other laborers from $1.50 to $2 per day, and Chinese 50 per cent less."* [Hutchins, p. 23B]

The clearest evidence of Chinese constructing the Gerle Creek and South Fork ditches and the most definitive completion date of the excavation phase of the work appeared in the *El Dorado County Republican* on October 1, 1874:

> *"The Georgetown Gem says the California Water Company have finished all the digging on their new ditch and discharged their China force. All that remains to be done now is fluming a few places and running a short tunnel."* [quoted in Baker and Shoup, p. 16]

By 1882, the company was enlarging the flumes to accommodate the added flow to be made available from the larger Loon Lake Dam then under construction:

> *"The California W. & M. Co. are just starting up two of their sawmills. The one at South Fork, to furnish lumber for the flumes on the main ditch from Loon Lake which is soon to be enlarged, and also to supply local demand.* [*Georgetown Gazette,* July 28, 1882].

The California Water Company's headquarters for its upper basin construction activities in the early 1870s was the area now called "Ditch Camp" at the junction of the South Fork and Gerle Creek ditches. A map in Bowman's 1874 report shows the area was called "Hanna's Camp" at that time. Ditch Camp or Hanna's Camp, also the center of most of my association with the area, is treated in considerable detail in a separate section, "Ditch Camp Area," beginning on page 31.

Description of Facilities

The South Fork Ditch began at a low "flashboard" dam on the South Fork Rubicon River, about a quarter mile upstream from Ditch Camp. The river at that point is only about 30 feet wide. The dam consisted of four or five concrete piers spaced across the stream, with a low concrete sill between each pair of piers to form a base for the wood planks that were inserted each spring. As I recall, these planks (flashboards) were rough-cut 2 x 8s, about 10 feet long. They were stacked two high, to raise the water surface a bit more than a foot above its natural level. Part of the river's flow was diverted to the ditch; the remainder leaked through or spilled over the dam.

Access to South Fork Dam was via a primitive (car-scratching) half-mile road in from the old Wentworth Springs Road. An interesting feature of the access road was a dump about halfway to the dam, probably the dump for Ditch Camp. The

South Fork Ditch, Mile 0.0: One of the four or five piers of the diversion dam on the South Fork Rubicon River. June 27, 2002. Wooden flashboards fit against the indentation on the pier, held in place by water.

dump held all sorts of interesting treasures (example: rusted-out Log Cabin Syrup cans—the ones in the shape of a little cabin). My father went foraging in the dump whenever he needed raw materials for some construction or repair project around camp.

The first half mile of the South Fork Ditch meandered gently along the edge of a meadow and through the cleared area of Ditch Camp. It looped north a short distance to the terminus of the Gerle Creek Ditch at Mile 0.34, near the tailrace of the South Fork sawmill (see Figure 5, page 33). At Mile 0.51, the ditch passed just a few feet from the front door of the ditch tender's summer residence. Here, for over 20 years, Art Rasor could look out his window and monitor the flow headed for Georgetown.

The cross sectional shape and dimensions of the South Fork Ditch depended on the nature and cross slope of the material being excavated. Where the digging was easy and the hillside fairly level, the bottom width was 6 to 8 feet and the side

South Fork Ditch, Mile 0.56: Flume over the South Fork Rubicon River, looking south from the Wentworth Springs Road bridge, about 1944. [from the collection of Dale Rasor, Jr.]

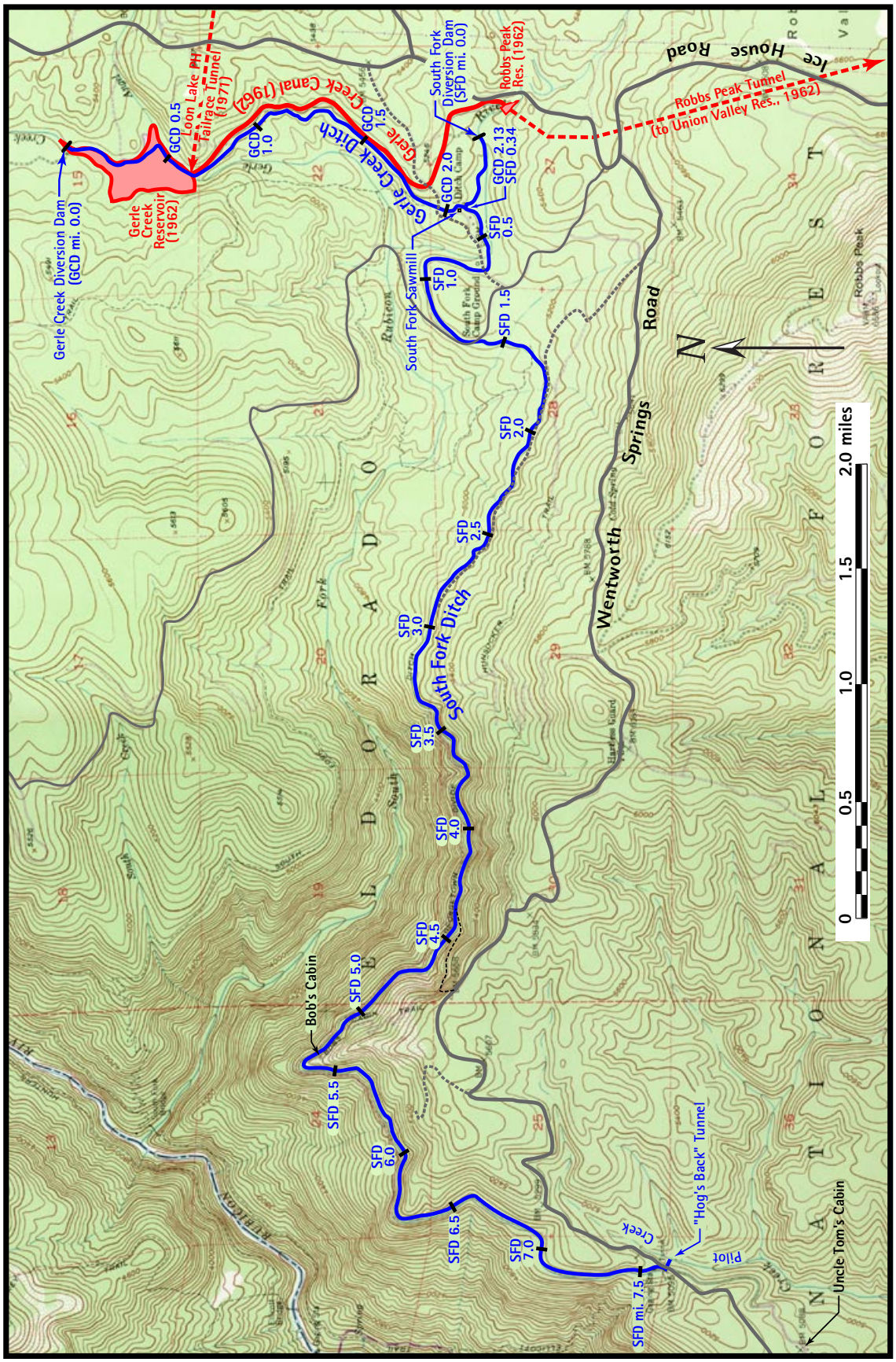


Figure 2: Gerle Creek and South Fork Ditches

slopes were gentle. In steep, rocky ground, the bottom width got as small as 4 feet and the ditch side slopes nearly vertical. This variation is apparent in some of the photos under "South Fork Ditch Today" on pages 15-21.

At the southwestern corner of the Ditch Camp property, at about Mile 0.53, was the entrance of the 300-foot long wooden flume (photo, page 8) that carried the ditch over the South Fork Rubicon River. At Mile 0.59, the flume discharged into a large pool that was the centerpiece of the U.S. Forest Service's South Fork Campground.

Just downstream from the pool at the end of the South Fork Rubicon flume, the ditch passed under the old Wentworth Springs Road (Mile 0.61). Until the mid 1940s, this crossing was a rudimentary wooden bridge (photo, below); that bridge was replaced with a concrete bridge that's still there.

South Fork Ditch, Mile 0.59: Pool at downstream end of the flume at South Fork Campground. June 1932.

South Fork Ditch, Mile 0.61: Looking downstream at the Wentworth Springs Road bridge, at east edge of South Fork Campground. June 1935.

From Mile 0.6 to about Mile 1.7, the ditch looped out around a low hill north of the campground. This was a wooded area of gentle cross-slope, where the trail along the ditch was wide, smooth, and shady—a pleasant stroll through the woods. (Today, South Fork Road crosses this once isolated reach of ditch at about Mile 1.4.)

The next ditch reach, from Mile 1.7 to about Mile 3.3, traversed an area of gradually increasing cross slope as it paralleled the South Fork Rubicon River. The river, about 300 feet below the ditch route at Mile 1.7, drops about 500 feet over this reach, so the vertical separation is 800 feet by Mile 3.3. By the west end of this reach, the ditch hiker had a clear sense that the ditch was high on a wall of a well defined canyon. But the terrain was gentle and relatively rock-free, so construction was probably fairly easy upstream from Mile 3.3, primarily a pick and shovel job. It's too late to check now, but I recall few, if any, flumes either. With a wide, smooth trail on its north (embankment) side, this reach of the South Fork Ditch was still a pathway for that pleasant stroll through the woods.

The character of the ditch changed abruptly at about Mile 3.3. The next 3 miles of the ditch were the ditch company's biggest headache—from the standpoints of both original construction and continuing maintenance. South Fork Ditch included a total of about 2 miles of flumes [Hutchins, p. 3B] and most of that flume was in the steep, rocky terrain between Mile 3.3 and about Mile 6.3. Niles [p. 3] suggests that some of the flume was built later to reduce leakage in rocky areas. Each major flume had a name; some that Dale Rasor, Jr. remembers (not a complete list) are the Mile Flume, Half-Mile Flume, Bob's Cabin Flume, Rattlesnake Flume, and Camp Four Ravine Flume.

In his 1978 interview, Lawrence Coonrod (Art Rasor's successor as ditch tender) mentioned a logging road that gave access to the head end of the Mile Flume. That road is faintly visible as a purple overprint on Figure 2's base map (the 1973 photorevised update of the 1950 USGS Robbs Peak quadrangle). Figure 2 shows the road meeting the ditch at about Mile 3.35, so we may infer that the Mile Flume extended from about Mile 3.35 to about Mile 4.35.

The flumes were built of the finest sugar pine, which was harvested around Ditch Camp and milled at the company-owned sawmill there. In later years we know for certain that cut lumber for flume repairs was floated down the ditch from the sawmill to the place of use [Coonrod]. It is

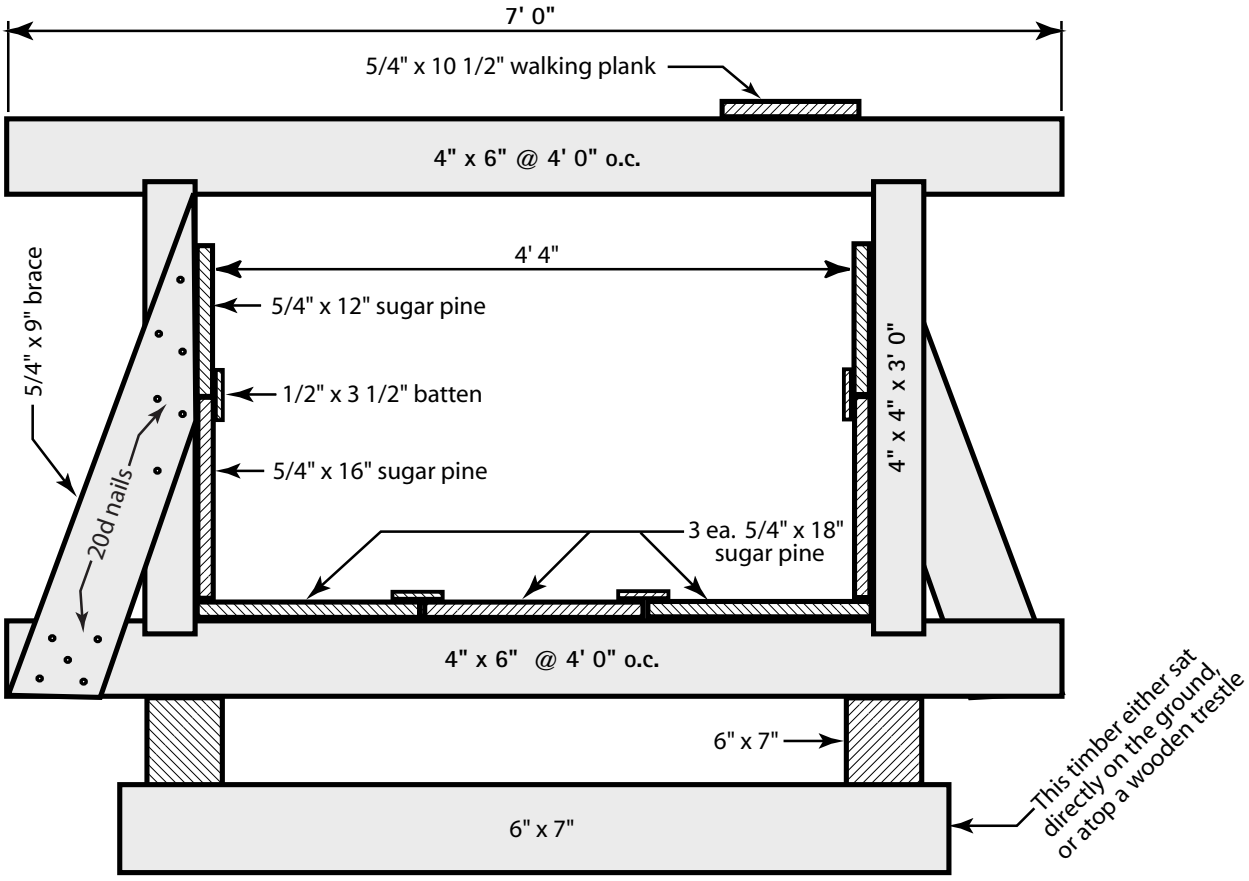


Figure 3: Typical Flume Design, South Fork Ditch (measured at Mile 4.33)

almost certain that the same method of transport was used in the original construction, which means the ditch would have been constructed starting at the upper end.

Sugar pine was preferred for the flumes because it swelled to yield a nearly watertight conveyance. When building flume, it was necessary to leave gaps of ¼ to ½ inch between the sugar pine boards, to allow for the swelling. In contrast, little cedar was used, and then only in the underpinnings, because cedar did not swell like pine. [Coonrod]

A few short sections of flume were still intact in 2002. From one of those, at the downstream end of the Mile Flume, I prepared the plan shown as Figure 3. As nearly as I can recall, the Figure 3 flume design was used for all flumes on both the South Fork and Gerle Creek ditches.

Considerable lengths of flume were constructed directly on a bench cut into the hillside, principally in rocky areas where excavation of a full ditch section would have been difficult, or where the resulting ditch would have been too leaky. Where the terrain was especially steep and rocky, or where the ditch crossed ravines, long stretches of flume were built high in the air, on rickety wooden supports of 4 x 6 and 6 x 6 timbers. Naturally, these were the sections most interesting to young males. What could be more exciting than scampering along a 10-inch-wide plank, looking down at the rushing water directly below and at the same time being mindful that a 30-foot drop to a craggy cliff was just a step away? My old friend Oliver Clarke and I still reminisce about the foolish risks we took on a hike down the Mile Flume one day in about 1954 (when we were theoretically old enough to know better).

One of the major landmarks along the South Fork Ditch was Bob's Cabin, at about Mile 5.3. I was unable to find much definitive information about the origins of Bob's Cabin. It's not mentioned in any of the early accounts, but Bob's Cabin was a

key maintenance facility that is clearly shown on the 1950 USGS "Robbs Peak" quadrangle map. The cabin was about 2.3 miles from the road crossing at the downstream end of the South Fork Ditch, but the usual access to it was the Bob's Cabin Trail, a 0.6-mile hike that made a 600-foot descent from Wentworth Springs Road.

I was only at Bob's Cabin once, about 1948, when my dad and I accompanied Art Rasor on some urgent night-time errand. My memory of the occasion is unusually dim, but it seems the cabin was right next to the ditch, possibly even on the downhill (north) side. But, the USGS map shows it about 100 feet south of the ditch, and perhaps 50 feet above the ditch. Dale Rasor, Jr. recalls that the cabin was much closer to the ditch than the USGS map indicates.

In his 1978 interview, Lawrence Coonrod gave a fair amount of detailed information on Bob's Cabin. He described it as a two-story building with accommodations for about 20 people. If larger crews were needed for major repair work on the flumes, there were four or so wooden tent bases about 50 feet away, each of which held a tent that would house four or five men.

From about Mile 6.3 to the tunnel portal at Mile 7.61, the cross slope of the terrain was less steep and the soil less rocky than in the critical 3-mile reach to the east. Most of this final reach of the South Fork Ditch was conventional earthen canal, but as the photo on this page shows, the section immediately upstream from the tunnel was in flume. The photo almost shows the USGS gaging station, "Georgetown Divide Ditch above Pilot Creek," which was probably a wooden recorder shelter atop an upright section of corrugated metal pipe on the uphill (east) side of the ditch at the upstream entrance of this section of flume.

At Mile 7.61, the ditch entered a tunnel that passed under Wentworth Springs Road, crossing the drainage divide to the headwaters of Pilot Creek. The downstream portal of the tunnel, at Mile 7.70, was the limit of Art Rasor's area of responsibility.

Early references show the name as Hog's Back Tunnel, although I never heard it called anything other than "the tunnel." The tunnel was 450 feet long, 4 feet wide, and 4½ feet high [Hutchins, p. 3B]. Presumably, these were the finished dimensions, so the original excavation would have been something like 5 by 5 feet.

South Fork Ditch, Mile 7.60: Mary B. Brown and 10-week-old Melissa Susan Brown just upstream from the entrance to Hog's Back Tunnel. July 21, 1959.

The tunnel's depth of cover was minimal, only about 30 feet, which is unfavorable for tunneling (because of the likelihood of encountering nothing but soil and weathered rock rather than sound rock that would support itself). From the upstream portal, one could see timber supports and wooden lagging (and daylight from the other end). Supports were probably placed about every 2 feet along the entire tunnel length (i.e., about 225 "sets" in the 450 feet).

Excavation was likely done completely by hand, under dangerous, confined conditions. There'd have been room for only two men at the face, probably shoveling into a small mine car used to haul the spoil out and supports and lagging back in. The tunnelers may have driven the tunnel from both ends toward the middle, but if there was much water draining into the tunnel (not too likely at the saddle location), they may have worked only from the downstream end. One could probably figure out more by analyzing the tailing piles; I didn't try.

With today's earthmoving equipment and technology, the tunnel would be forgone in favor of an

open cut or a temporary trench to hold a 5- or 6-foot metal culvert pipe. A further bit of Monday morning quarterbacking: there's a fair chance that the original builders could have eliminated the tunnel by using a slightly flatter gradient for the ditch and doing a modest amount of open-cut excavation at the saddle's low point. But the engineers and builders of the 1870s had the Gerle Creek and South Fork ditches designed, built, and operating in far less time than their modern counterparts would spend analyzing potential environmental impacts.

I was never inside the tunnel, but I peered into the darkness from the upstream portal on many occasions. The tunnel was always in use when I was there; the depth of flow was about 2 feet and the water moved through at a good clip. There were no gates or guards to keep people out of the tunnel. In those days, it was taken for granted that people would not willingly enter a place where there was a high probability of fatal consequences.

In his 1978 interview, Lawrence Coonrod told of a tunnel collapse in the early 1950s, shortly after GDPUD took over the system. The District responded by excavating to convert the downstream 150 feet of the tunnel to an open channel.

Bowman's 1874 map shows a "Fraser's Camp" on the east side of the ditch at about Mile 7.5, apparently on the flatter ground of the ridgetop west of the current road. I never heard of Fraser's Camp, but it was probably a construction camp for the workers on the tunnel and lower reaches of the ditch, a complement to the installation at Hanna's Camp (now known as Ditch Camp). Archaeologists surveyed the Fraser's Camp site in 1992, but found "no evidence of any structures and no historic artifacts on the ridge saddle above the ditch" [Baker and Shoup, p. 69].

Operation and Maintenance

The South Fork Ditch was shut down after each irrigation season, usually by late October or early November. The ditch operator, Art Rasor in the period I'm familiar with, probably pulled the boards at a few wasteways, so that any water accumulating in the ditch during the winter could escape. With the ditch thus "put to bed," Art could close up the house at Ditch Camp and head down the hill to Georgetown (elevation 2700 feet, well below the usual snow line).

At its elevation of about 5100 feet, the ditch was exposed to the full brunt of Sierra snow, especially on the shaded north-facing slopes of the South Fork Rubicon River Canyon. The flumes on the steep mountainsides between Miles 3.3 and 6.3 were most vulnerable to damage, both from direct snow loads and from occasional snow slides that swept down the ravines. So, one of the first chores of each season must have been an early reconnaissance, on snowshoes or skis, to evaluate flume damage in the canyon. Coonrod described entire sections of flume being swept away by snow slides, with the debris carried all the way to the river, far below.

The winter of 1951-52 is famous in the annals of Sierra snowfall. In 2002, the news media took note of the fiftieth anniversary of the stranding of the Southern Pacific's *City of San Francisco* passenger train by heavy snowdrifts near Donner Summit. The 226 people on board were rescued on January 19, after six days, five of them without heat, and with food running low. The South Fork Ditch, just 26 miles south of the stranded train, was also blanketed by record snow.

Coonrod notes that 1952 was the year the Georgetown Divide Public Utility District took over the ditch system. The new owners received a challenging introduction. The District eventually had 135 to 140 men working on repairs. This crew was spread all along the system, but it's a good bet that most of them were working to rebuild flumes in the Bob's Cabin area.

USGS records (page 71) show that initial deliveries to Pilot Creek from the South Fork Ditch were delayed until August 19 in 1952, two to three months later than usual. Water was rationed that summer, but the District was able to make partial deliveries because the heavy snow sustained the summer flow of Pilot Creek much better than normal. In addition, the District installed some temporary diesel-powered pumps on Pilot Creek below Mutton Canyon to add about 1000 gallons per minute (2 cubic feet per second) to the gravity diversion from Pilot Creek. [Coonrod]

In most years, flume damage was nowhere near as extensive as in 1951-52, but the cost of repairs had always been a major concern of the Georgetown Divide Water Company and its predecessors. Other years of notable snow accumulation during the period the South Fork Ditch was in service included 1879-80, 1889-90, 1934-35, and 1937-38. Coonrod mentioned that, during the labor shortages of World War II, ranchers loaned workers to the water company to get the flumes back in service each spring.

In anticipation of future flume damage, the ditch owners floated timbers and lumber down the ditch from the sawmill, pulling it out to build stockpiles at strategic locations. One such storage site was the head of the Mile Flume (Mile 3.35), where Coonrod told of 30,000 board feet being stockpiled when the South Fork Ditch was permanently abandoned at the end of the 1961 season. The District planned to retrieve this lumber the following spring, but when they returned, it had mysteriously disappeared. Bob's Cabin apparently met a similar fate. (As one of the photos on page 20 shows, however, some of the less accessible timber stockpiles are still there.)

In addition to the major flume repairs, routine work was needed to open the ditch for the season. As described on page 26, I helped Art Rasor with some of this work in 1948; the principal tasks were to replace the boards in any open wasteways and remove the winter's accumulation of limbs, logs, and rocks. It was especially important to remove anything that might float into the Hog's Back Tunnel and get hung up on its way through. Dale Rasor, Jr. recalls that his grandfather's dog was trained to jump in and retrieve branches and sticks floating in the ditch.

A certain amount of routine maintenance was also required on the tunnel itself. As the ground shifted and the timbers deteriorated, the Hog's Back Tunnel was a continuing maintenance headache. Art Rasor and his helpers replaced some of the crumbling tunnel supports in the late 1940s, using cedar lagging he cut and split up on the Gerle Creek Ditch (page 27).

My memories are vague, but I think the diversion from the South Fork Rubicon River was used less and less frequently in the latter years of the South Fork Ditch's life. Most years, the South Fork didn't carry much water by mid summer and I know from many years' observation that nearly all the flow in the lower South Fork Ditch came from Loon Lake via Gerle Creek and the Gerle Creek Ditch. In wet years, Loon Lake held a good supply, so there was no great incentive to deal with the more tedious diversion from the South Fork Rubicon (tedious because the river flow diminished rapidly once the initial snowmelt was over).

On the other hand, I remember tagging along with Art as he shoveled horse manure into the water to control leaks from the South Fork Ditch just upstream from Ditch Camp. (He made this a memorable experience by saying, "C'mon—I'm gonna show you a trick.") And, I'm certain the diversion from the South Fork Rubicon was in service while I was helping Art open the Gerle Creek Ditch in late June of 1948. So, my best guess is that the South Fork Rubicon diversion was typically used at the start of season, but abandoned when the flow dropped near to that required to maintain the downstream fish population. In dry years, the South Fork had little water to contribute, so the diversion may not have been used at all.

Once the South Fork Ditch was up and running in the spring, the operator's duties became simpler. Art Rasor used to patrol the canyon portion of the South Fork Ditch every few days. Dale Rasor, Jr., who accompanied his grandfather on many of these hikes, says they typically caught a ride with someone headed west from Ditch Camp, getting off at the McCulloh Trail and following the trail down to intercept the ditch.

I can't find the McCulloh Trail on any map, but as I recall, it was famously steep—generally parallel to and a half mile or so east of the Ellicott Trail (which shows on Figure 2). So, Art and Dale probably intercepted the ditch at about Mile 6, which left them a 5.5-mile trek back to Ditch Camp. Art may not have been quite as tough as I always thought—when they returned from these trips, Dale says his grandfather used to ask for help removing his boots, an obviously painful operation.

On one these ditch inspections, probably in 1946 or 1947, Art was alone. As always, he was packing his 9 mm Luger, but with only one shell in the chamber (for reasons explained below the Luger photo on page 61). Near the middle of the Half-Mile Flume, Art was striding carefully along the 10-inch-wide walking plank when he came face-to-face with a bear, who was headed the other direction with obvious determination. With no avenue of escape, Art drew the Luger and fired his one shot. Even he admitted relief when the bear staggered briefly and toppled off the side to the rocks below. [Rasor]

Regulation of the flow of the South Fork Ditch was a bit of a chore, but precision was not critical because the ditch merely augmented the natural flow of Pilot Creek. If the ditch was delivering too much water, the excess just spilled on down Pilot Creek while the import was being adjusted. If more water was needed, the manager in Georgetown put in a phone call to Ditch Camp, over the U.S. Forest Service party line that served the fire lookout at Robbs Peak (and, probably, Bunker Hill), Uncle Tom's Cabin, and others along the way.

After receiving an order for more water, Art would drive 9 miles to Wentworth Springs Campground, hike a mile to Loon Lake Dam, unlock the chain, and give one of the gate wheels a few turns. Then he'd drive back down the hill, take the obscure, bumpy access road to the Gerle Creek Diversion Dam, and adjust a board or two to send more water down the Gerle Creek Ditch. Finally, he'd return to Ditch Camp, plop down on the front porch, and watch the staff gage beside his outhouse bridge, where the rising water would verify that the increased flow was arriving.

As the preceding description shows, there was a lot of art in Art's job. The contrast to today's operators is dramatic; now, when SMUD wants to increase the release from Loon Lake to Gerle Creek, the operator in Sacramento rolls his or her swivel chair over to the computer terminal, types in a few keystrokes and glances up at the display panel to verify that the desired change is under way.

During all his years on the ditch, Art appeared to be a free spirit who came and went as he pleased. But the specter of George Devore was always hovering somewhere in the background. I never met George Devore, but I had the distinct impression that he was a near deity, whose name was always spoken in a reverent tone of voice. Clearly, my hero Art Rasor answered to a Higher Power, but once he was out of range of that telephone bell, Art was again king of his realm.

As described in Appendix A, Art Rasor's service with the Georgetown Divide Water Company extended from the late 1920s to 1949 or possibly 1948. When he retired, he was replaced by Lawrence Coonrod (1917–1982), who apprenticed with Art starting in 1947. Coonrod remained in charge of the upper basin facilities until the South Fork Ditch was shut down for the last time on December 1, 1961. Coonrod continued with the successor GDPUD, moving up to superintendent of the entire system in 1962 or 1963, where he remained until he retired in 1977. (Coonrod)

South Fork Ditch Today

During the summer of 2002, I spent several days poking around the South Fork Rubicon River/Gerle Creek area. I started with the objective of walking the entire lengths of the ditches, but time has taken its toll on both the ditches and me. Nonetheless, I managed to see most of the surviving ditch. Here's a reach-by-reach assessment:

Mile 0.0 to 0.6, Diversion Dam to South Fork Campground. This short section of ditch is almost completely intact. The old access road to the South Fork Diversion Dam has been obliterated by construction activity (for SMUD's Gerle Creek Canal in the early 1960s) and by logging operations. The easy route to the dam: follow the old Wentworth Springs Road to the SMUD canal, then climb over the gate and walk about 1500 feet east along the canal to the (unused) bridge and cut south about 1000 feet to the dam. All that remains of the dam are the concrete piers that held the wooden flashboards (photo, page 8).

The entrance to the ditch is overgrown, but readily identifiable on the north bank. Beyond the influence of the river, the ditch is in near pristine condition. Nearer the junction with the Gerle Creek Ditch (on private property within the Ditch Camp area), the South Fork Ditch has been altered by logging traffic but is still easily tracked.

The remainder of the ditch through the Ditch Camp property is well preserved. From Mile 0.53 to 0.59, the ditch left Ditch Camp and crossed the South Fork Rubicon River in a 300-foot-long flume (photos, pages 8, 34, and 40). Except for some traces of the trestle foundations on the large rocks, there is no sign of the flume left today. And, the large pool at the end of the flume, prom-

South Fork Ditch, Mile 0.2: Looking upstream at a rocky section of ditch near the diversion dam. June 20, 2002. After 40 years, this section looks almost ready to go back into service.

inent in the page 34 photo, is nearly silted in and overgrown; you have to know what you're looking for to recognize it.

Mile 0.6 to 1.4, South Fork Campground to South Fork Road. This is the section of ditch that looped around the hill north of South Fork Campground. The upstream part of this reach is still in good shape; it forms the eastern boundary of the new South Fork Campground, which is across old Wentworth Springs Road from the original campground. Likewise, the ditch immediately upstream from the South Fork Road is relatively undisturbed. I did not check out the ditch from Mile 0.7 to Mile 1.3, where there was an active logging operation in the summer of 2002. Denton Beam told me that the loggers are supposed to stay a certain distance from the old ditch, so the entire reach may be intact.

South Fork Ditch, Mile 1.3: Looking upstream about 500 feet east of South Fork Road. June 27, 2002.

Mile 1.4 to 1.7: South Fork Road to Logging Access Road. I walked only the first few hundred feet of this reach, which is getting a bit overgrown, but the ditch appears to be undisturbed.

South Fork Ditch, Mile 1.5: Looking downstream at one of the more open areas of this overgrown reach. August 15, 2002.

Mile 1.7 to Mile 2.9: Along Logging Access Road. I did not search for the ditch in this reach. It appears that the logging access road, which is shown by the dotted lines on Figure 2, has obliterated this entire ditch reach. This is borne out by this 1984 U.S. Forest Service notation:

> *"A field survey carried out on July 31, 1984 with staff archaeologist, Dan Bell, determined that over 2 miles of the ditch, on its eastern end has been destroyed by roads."* [Boynton, p.1]

The road does not appear level enough to have been constructed directly atop the old ditch, so there may be traces or short sections of the ditch along this reach (downhill from the road) that could be found with sufficient effort. It should also be possible to find the ditch back upstream from where the road first joins it at Mile 1.7, but I did not attempt to do so.

Mile 2.9 to Mile 3.45: Logging Access Roadhead to Impassable Section of Mile Flume. As noted in the previous reach description, a logging access road turns northwest off Wentworth Springs Road about a half mile west of the junction with Ice House Road (Figure 2). The unpaved road, which was easily passable by two-wheel-drive vehicles in 2002, ends at a turnaround. From there, an old

South Fork Ditch, Mile 3.4: Looking upstream back toward the head of the Mile Flume, which is at about Mile 3.35. August 15, 2002.

skid trail drops down to a trail just below the road level; within a short distance, that trail connects to an undisturbed section of the South Fork Ditch.

There has been little traffic on this section of ditch—the hiker must push through a jungle of young trees to follow the old trail along the downhill bank. In some areas it is easier to walk along the ditch bottom, but that path is often impeded by fallen trees. I took nearly a half hour to reach a key landmark on the South Fork Ditch, the head of the Mile Flume at Mile 3.35.

South Fork Ditch, Mile 3.45: Looking downstream. Right around the corner is the end of the trail for the casual hiker. August 15, 2002.

The Mile Flume was almost completely deteriorated, with many pieces remaining, but no completely intact sections. I was able to push on another tenth mile or so, tiptoeing along where the original flume sat directly on a shelf excavated into the hillside. I turned back at Mile 3.45, where the flume had been supported on a trestle some 15 to 20 feet high. The flume and trestle was now just a clutter of debris far below and I was confronted with a rock cliff that was nearly vertical. The only way to proceed would have been to clamber down the steep face and inch along the scree slope on which the flume trestles were originally founded. I might have gone on once, but no more. This was the end of the trail for this old man.

Mile 3.45 to 4.25: Impassable Section of Mile Flume. The name I have given this section tells it all. I was unable to traverse this reach, but I observed it from both ends. The map (Figure 2, page 9) shows this is the steepest area that the South Fork Ditch crossed—in one long flume. There may be short stretches that are still passable (those where the flume was on an excavated bench?), but the trestle sections between them are long gone.

Mile 4.25 to 5.3: Mile Flume to Bob's Cabin. Here's where things get interesting! This and the next ditch reach are obscure and forgotten to most people, but they have a hidden secret.

Assess to the eastern end of this reach begins at an unmarked and blocked-off logging trail (shown by the dashed symbol on Figure 2) that joins the Wentworth Springs Road at "Benchmark 5658." The low concrete benchmark monument is visible on the north side of the pavement. About 500 feet down the hill on the logging trail, a foot trail turns off to the east. The foot trail is broad and well maintained, except for the entrance, which is camouflaged by the trees and brush that have been allowed to remain as a screen.

In less than a half mile, the moderately steep trail intersects the ditch near the downstream end of the Mile Flume at Mile 4.35. (Ditch mileages are approximate; my hand-held GPS was unable to get a position fix at many places on the steep, wooded, north-facing slope.) The casual hiker can continue only a short distance eastward from the trail intersection before the way is impeded by dangerously disintegrated flume parts and rock debris that has fallen from the steep hillside above over the four decades since water last flowed on December 1, 1961.

South Fork Ditch, Mile 4.25: The end of the trail when hiking back upstream on the Mile flume. It's easy to see why this section was a maintenance problem during the 87 years the ditch operated. August 15, 2002.

South Fork Ditch, Mile 4.33: Near downstream end of the Mile Flume, just east of the foot of the access trail—the first reasonably intact flume remnant. This is where I made the measurements for the flume section shown as Figure 3. August 15, 2002.

South Fork Ditch, Mile 4.5: Looking upstream at the finest rock bank on the entire ditch. One can easily picture the Chinese laborers placing these rocks, almost 130 years ago. August 15, 2002.

South Fork Ditch, Mile 4.8: Looking downstream. Soil was probably tamped behind the planks to reduce leakage through the rocky bank. August 15, 2002.

Near Mile 4.3, one gets a good view of the impassable portion of the Mile Flume as it crosses the sweeping curve of the mountainside. (There is a hint of this view in the Mile 4.33 photo.)

After a short hike back to the foot of the trail at Mile 4.35, I continued west along the ditch. The first thing I noticed was the ease of passage. The trail had been recently maintained, as shown by fresh cuts where brush and small trees had been lopped off. The next quarter mile is ordinary excavated ditch, but because the hillside is steep and rocky, the ditch is narrower than it was upstream from the Mile Flume. The trail alternates between the bed of the ditch and the old trail on the bank.

At about Mile 4.6, the mystery of the maintenance is resolved by a crude sign, "Flume Trail: Expert Only." As I pieced together the story, the trail, which extends from Mile 4.35 to the end of the ditch at Hog's Back Tunnel (Mile 7.61), is a clandestine project of an elite group of trail-riding motorcyclists. The section beyond Mile 5.9 was already easily passable, but considerable work was needed to open up the other 1.55 miles of the old ditch. The chief organizer and worker on this trail was a rider named Steve Joyce, probably of the Sacramento area.

South Fork Ditch, Mile 4.6: Formal beginning of "Flume Trail: Expert Only." August 15, 2002.

I met a pair of riders in June 2002 who implored me to keep their trail secret. They told me Steve Joyce was almost obsessed with getting the trail open; he worked many long days on the project, often all alone. Then, on October 4, 2001, not long after he finished the job, he took his own life over a failed romantic relationship. He was just five days short of his 45th birthday. Joyce was a member of the American Motorcyclist Association, District 36, whose web site included this notice:

"Steve Joyce Passes Away: I am very sorry to tell you that my very good friend, long time High Sierra M/C member, and former D-36 Enduro Steward Steve Joyce passed away recently. A graveside service will be held on Thursday, October 11 **[2001, LB]** *at the East Lawn Sierra Hills Memorial Park, 5757 Greenback Lane in Citrus Heights. Take the Greenback Lane exit from I-80, about 3 miles east of the I-80/ Business 80 split. The cemetery is almost immediately on the north side of Greenback.*

"Steve was one of the core members of my club, always willing to bust his ass for the sport. Steve was always ready to help anybody who needed anything. He put more work into keeping trails open than anyone I know. Often he would be out by himself with his chain saw clearing trails, eager to show everyone his latest accomplishments.

"We will be doing a memorial ride for Steve in the future, with plans to place a cast plaque on one of his favorite trails. If you would like to participate in the ride, please let me know, and I will keep you posted.

"Godspeed Steve, we will all miss you very much."

Bill Dart

When I first saw that sections of "my" flume had been pushed aside to create the Flume Trail, I was appalled at the impact on a landmark I considered akin to a religious shrine. But as I explored the area of the trail I came to realize: (1) the trail builders created access to an area that would otherwise be difficult to reach; (2) the flume would eventually crumble to dust anyway; (3) riders leave almost no trace of their passage—no erosion, no trash, only an occasional black mark as their wheels spin to climb over a rock; (4) the trail bypasses the most intact remaining flume section, at Mile 5.1. So, after thinking things over, I decided that I had no real beef with Steve Joyce and his friends.

The sign at the east end of the Flume Trail says, "Expert Only," and it's not kidding. The trail from there to Bob's Cabin (Mile 4.6 to Mile 5.3) is a series of challenges to the motorcyclist, separated by smooth, easy sections. Several of the challenges are boulders that have fallen into the ditch, some of which require the rider to jump a nearly vertical slope up to 3 feet high. Other challenges occur at washouts or where the trail leaves the ditch bottom and climbs a rough rocky bank that forms the downhill side of the ditch. An unlucky rider who topples off to the north can face a 30-foot fall/slide/ tumble down a rocky cliff.

One of the rock obstacles.

The last half mile approaching the site of Bob's Cabin is on the flank of a ridge that goes down to the junction of the South Fork Rubicon with the main Rubicon River. The terrain here is considerably less steep and rocky than that to the east.

South Fork Ditch, Mile 5.1: Looking downstream at the most intact section of flume remaining. At last we get a feel for what it really looked like! June 26, 2002.

South Fork Ditch, Mile 5.15: Looking downstream at a benign section of the Flume Trail, about one-quarter mile southeast of Bob's Cabin. August 15, 2002.

At Mile 5.3, just short of where the South Fork Ditch makes a sharp turn around the point of the ridge, is the site of Bob's Cabin, which is described on pages 11–12. The cabin was supposedly just above the level of the ditch, but the area has grown up with brush and the cabin location is certainly not apparent. I suppose one could find it by rummaging around through the brush, but I didn't make the try. I was here twice, walking in from either direction and both times I was tiring and starting to worry about the long return hike to rendezvous with the ice chest in my trusty Isuzu Trooper. Maybe next year.

South Fork Ditch, Mile 5.3: Looking upstream, close to the site of Bob's Cabin. June 26, 2002.

Mile 5.3 to 6.7: Bob's Cabin to Road End. Just downstream from the site of Bob's Cabin, beyond the near-180-degree turn around the end of the point, the terrain is not especially steep but some of the ground is rocky. To prevent leakage losses in the rocky areas, sections of flume were founded directly on wide excavated benches. These flume sections, some of which may have been built only after leakage problems became apparent, alternate with short reaches of conventional excavated ditch.

Figure 2 shows a short logging road that branches off Wentworth Springs Road and ends on the hillside above Mile 5.8 of the ditch. I made one trip in via this route, which is steep and brushy. If anyone wants to give it a try, the secret is to bear northwesterly from the road end to avoid the brush. It's about a 500-foot descent to the ditch.

At about Mile 5.8, the Flume Trail comes to a sturdy bridge, recently constructed of flume timbers that probably came from the Mile 5.5 stockpile (photo) or some similar stash. The bridge, the only structure of its kind that I saw, spans a cliff-like area where the flume had crumbled away, leaving no alternative route for motorcy-

South Fork Ditch, Mile 5.5: These flume repair timbers, floated in at least four decades ago, are stockpiled next to a remote excavated section of ditch. June 26, 2002.

South Fork Ditch, Mile 5.6: Flume was originally on this bench, which now makes a fine trail. June 26, 2002.

South Fork Ditch, Mile 5.4: A section of flume founded directly on the ground. The flume debris has been pushed over the hillside to open up the trail. June 26, 2002.

South Fork Ditch, Mile 5.8: The bridge and (below) the plaque that's on the far (west) side of the rock on the left of the photo. June 26, 2002.

South Fork Ditch, Mile 6.6: Excavated from hard rock, this is about the narrowest section of the entire ditch. June 28, 2002.

clists. It was undoubtedly built by Steve Joyce (pages 18-19), a supposition reinforced by the presence of the pictured plaque artfully cemented into the rock point that the bridge flanks. A notice in the May 15, 2002 AMA District 36 minutes announced a "memorial ride for Steve Joyce on Sunday at Uncle Tom's Cabin," so it's a good guess that Joyce's friends installed the plaque on Sunday May 19, 2002.

From the plaque site at Mile 5.8 to Mile 6.7, the ditch alternated between flume and excavated sections. Some of the excavated sections were hewn from solid rock (photo, below, left). A couple of the flume sections were on high trestles that have collapsed long ago; at these locations the motorcycle trail drops below the ditch line to traverse the rock debris at the base of the steep bank.

At Mile 6.7, a washout marks the downstream end of the relatively intact sections of the South Fork Ditch. The washout has created a high, steep drop-off and the track across it is narrow and crumbling. The motorcyclists probably scoot across it without a thought, but it gave me some concern as a none-too-agile pedestrian.

South Fork Ditch, Mile 6.7: The washout that separates the relatively undisturbed ditch from the portion that has been made into a road. June 28, 2002.

<u>Mile 6.7 to 7.61: Washout to Hog's Back Tunnel</u>. This section of the South Fork Ditch was converted to a timber access road, probably in 1985, under an agreement between the U.S. Forest Service and the Michigan-California Lumber Company. Prior to construction, the USFS analyzed the ditch's possible eligibility for the National Register of Historic Places [McLemore]. That examination concluded with this paragraph in a letter to the State Historic Preservation Officer:

"After consultation with your office on August 1, 1984, it was determined the Little South Fork Ditch was significant in the economic development of the area, but lacked the necessary qualities of 'integrity' due to extensive road construction along portions of the ditch's alignment **[referring to Mile 1.7 to 2.9, LB]***.... Therefore it is the determination of this agency that the Little South Fork Ditch does not meet the criteria necessary for eligibility to the National Register of Historic Places."* **[Boynton, p. 2]**

The 1985 timber access road was constructed right along the ditch alignment, by widening the flume shelf or leveling the earthen ditch sections. Auto access to the road is blocked off at Wentworth Springs Road, but two-wheel vehicles can zip right through. The road becomes progressively more overgrown as one proceeds back upstream, but it was still easily passable in 2002.

The interesting feature in this reach is a culvert crossing of a small streamlet at Mile 6.9; this is the only water I saw anywhere along the South Fork Ditch and it was just a tiny trickle. Moral: If you plan to do any serious ditch exploration, take along plenty of water. (In a heartwarming display of fraternity, the motorcycle boys have a secret beer stash in a cool spot, which operates on a "drink one—leave one" basis.)

South Fork Ditch, Mile 7.5: Typical of the entire road section from Mile 6.7 to Mile 7.61. June 28, 2002.

Mile 7.61 to 7.70: Hog's Back Tunnel. As would be expected, the 450-foot-long tunnel has been backfilled, either through collapse or intentionally (possibly in conjunction with improvements to the overlying road). Baker and Shoup [Appendix, p. 69] say: "At the point where Wentworth Springs Road crosses the map-marked tunnel location, there is no evidence of the north entrance to the tunnel." But on the contrary, the upstream portal can still be located by careful inspection—in the road fill at the head of an overgrown indentation that used to be the intake channel. The open excavation that replaced the downstream third of the tunnel in the early 1950s is clearly visible from road leve; I hiked down there in 2004; the open excavation is fairly intact.

2004 UPDATE

On August 25, 2004, I finally got around to exploring the full ditch loop around the South Fork Campground—from Mile 0.7 to 1.3, as discussed on page 16. For the first half of that loop, the ditch is close to the South Fork Rubicon River. As the river's gradient steepened near the mouth of Gerle Creek, the ditch builders found themselves dealing with some steeper cross slopes than in most of the surrounding ditch reaches, a challenge they dealt with by stacking up the rock wall shown here, which is near Mile 0.8.

At Mile 0.9, the ditch makes a near 90-degree left turn onto more gently-sloping terrain. Just upstream from that abrupt turn, a 150-foot-long ditch section has sluffed off down the hill. This damaged area, shown in the 2004 photo below, is the only such failure I noted in any of the surviving portions of the Gerle Creek or South Fork ditches.

Gerle Creek Ditch

When the California Water Company consolidated the various Georgetown Divide ditch companies in 1872, the first order of business was improvement of the summer water supply. The company immediately began constructing the South Fork and Gerle Creek ditches to gain access to the snowmelt runoff of upper Gerle Creek and the (Little) South Fork Rubicon River.

After the California Water Company completed its expansion project, the South Fork Rubicon contributed a limited supply early in the season, but Gerle Creek was the main supply source of the South Fork Ditch. Loon Lake Dam, on upper Gerle Creek, stored water during the winter and spring to sustain the summer supply available for diversion via the Gerle Creek Ditch to the South Fork Ditch.

The length of the Gerle Creek Ditch was commonly mentioned as a nominal "3 miles" [California Water and Mining Company, map]. As I did for the South Fork Ditch, I scaled the U.S. Geological Survey's 1:24,000-scale "Robbs Peak" base map and appended the ditch mile markers shown on Figure 4. While my scaling agreed well with the "known" length of the South Fork Ditch, it showed the Gerle Creek Ditch as only 2.13 miles long. Apparently, the early estimate was incorrect, as my 2.13-mile length is close to the 1.9-mile length of the similar Gerle Creek Canal that replaced the Gerle Creek Ditch in 1962.

Gerle Creek Ditch began at a diversion pool on Gerle Creek (photo) where the water surface elevation was about 5230 feet. At its terminus at Mile 2.13, Gerle Creek Ditch's water surface elevation was approximately 5157 feet. A series of drops and cascades beyond Mile 1.85 accounted for about 35 feet of head, so the water surface elevation approaching Mile 1.85 was approximately 5192 feet. Thus, the gradient of the upper 1.85 miles of the ditch averaged around 20 feet per mile (from 5230 feet to 5192 feet in 1.85 miles). This compares to the 12 feet per mile found for the South Fork Ditch. There was reason to conserve head on the South Fork Ditch to minimize the length of Hog's Back Tunnel, so the variation in gradients is believable.

Gerle Creek Ditch, Mile 0.0: The sill creating the diversion pool is visible at the left in this slightly mismatched composite photo, which shows my father's friends George and Don Johnson. June 1936.

Early estimates of the capacity of the Gerle Creek Ditch ranged from reasonable to rather optimistic. Ashburner [p. 2A] put it at 1500-1600 miner's inches (around 40 cubic feet per second), while Hutchins [p. 3B] went all the way to 3000 miner's inches (nearly 80 cfs). Appendix C presents years of flow measurements that show the maximum flow at the downstream end of the South Fork Ditch was about 28 cfs. For much of that period of record, all of that water was coming via the Gerle Creek Ditch. So, with some nominal allowance for losses, perhaps 20 percent, the maximum delivery through the Gerle Creek Ditch was probably in the range of 35 cfs (1300 miner's inches).

Construction History

The California Water Company constructed the South Fork and Gerle Creek Ditches as one large project, but in all probability it completed the Gerle Creek Ditch first. The reason: the sawmill at Ditch Camp, built to supply lumber for the 2 miles of flumes on the South Fork Ditch, was water-powered—dependent on water delivered via the Gerle Creek Ditch. Further, the Gerle Creek Ditch was much the easier to construct; it crossed relatively gentle ground, with a minimum of rock excavation and just a few short flumes.

As discussed on page 7, it appears likely that the major share of the construction of the two ditches took place in 1873 and 1874. My "educated guess" is that the builders completed the Gerle Creek Ditch, the South Fork Sawmill, and the upstream reaches of the South Fork Ditch in 1873. This would have put them into position to concentrate their 1874 efforts on the more difficult downstream reaches of the South Fork Ditch, with the sawmill powered and plenty of water to float

lumber down to complete the flumes as construction progressed westward.

As discussed on pages 7-8, it appears that the majority of the ditch excavation work was done by Chinese laborers. Workers on the Gerle Creek Ditch were probably housed at what was then called Hanna's Camp, now Ditch Camp. (See "Ditch Camp Area," begining on page 31.)

Description of Facilities

At Mile 0.0, a low concrete sill across Gerle Creek formed a small diversion pool. In later years (after the 1936 photo on page 23), a crude wooden control structure at the head of the ditch allowed the ditch tender to regulate flow into the ditch by inserting or removing boards. I believe I remember a flashboard dam atop the sill during low flow periods, but I'm not sure. If there was a flashboard dam, it must have been completely removed at the end of each season, as there's no evidence of it in the 1936 photo.

The first 1.85 miles of the Gerle Creek Ditch was all similar, predominantly a broad excavated ditch on a gently sloping hillside. The cross slope was steeper between Mile 0.6 and 0.8, where the canyon necked down at the future site of the Sacramento Municipal Utility District's Gerle Creek Dam. At that point, the ditch hiker could look right down at Gerle Creek, some 50 to 60 feet below (this reach of Gerle Creek falls about 100 feet per mile, 80 feet per mile steeper than the ditch).

In pre-logging, pre-SMUD days, the trail beside the ditch provided a wide, level walkway for a pleasant stroll through the shaded woods. The highlight of the hike came near Mile 0.4, where the ditch made a sharp "V" to meet Angel Creek. The creek contributed a minor amount of summer inflow to the ditch, less than 1 cfs. The triangular pool of slack water at the creek junction supported a colony of reddish salamanders. I always looked forward to seeing the salamanders at Angel Creek, partly because that meant we were nearing the end of the hike up to the dam.

Upstream from Mile 1.85, the only flumes on the Gerle Creek Ditch were five or six short sections where the ditch crossed small streamlets. These flumes, each maybe 20 feet long, incorporated wasteway chutes, where boards could be removed to spill water from the flume down into the natural waterway. These boards were probably pulled in the winter to provide an escape path for water entering the ditch.

At Mile 1.85, the ditch entered a flume that crossed a granite outcrop. The flume, approximately 150 feet long, led to a "high-line" ditch that fed the penstock of the South Fork Sawmill (pages 35-38). When the sawmill was running, only a portion of the ditch flow went that direction; the remainder was spilled from the flume back to the main ditch. The total drop on the main ditch at this location was about 15 feet. The next 500 feet downstream along the main ditch, to approximately Mile 1.95, was fairly steep with a rocky bottom that resisted erosion from the rapid flow. The drop through this section was about another 5 feet.

Old Wentworth Springs Road crossed the ditch at Mile 1.98, initially via a log bridge, which was

Gerle Creek Ditch, Mile 1.85: The flume to the right led to the South Fork Sawmill. Unless the sawmill was running, all flow was bypassed as shown. (That's me, age 8, up there.) July 1944.

Gerle Creek Ditch, Mile 1.95: The downstream end of the steep section. I am 10 years old in this picture, standing on an 8 x 8 "bridge" adjacent to the Brown Family camp. July 1946.

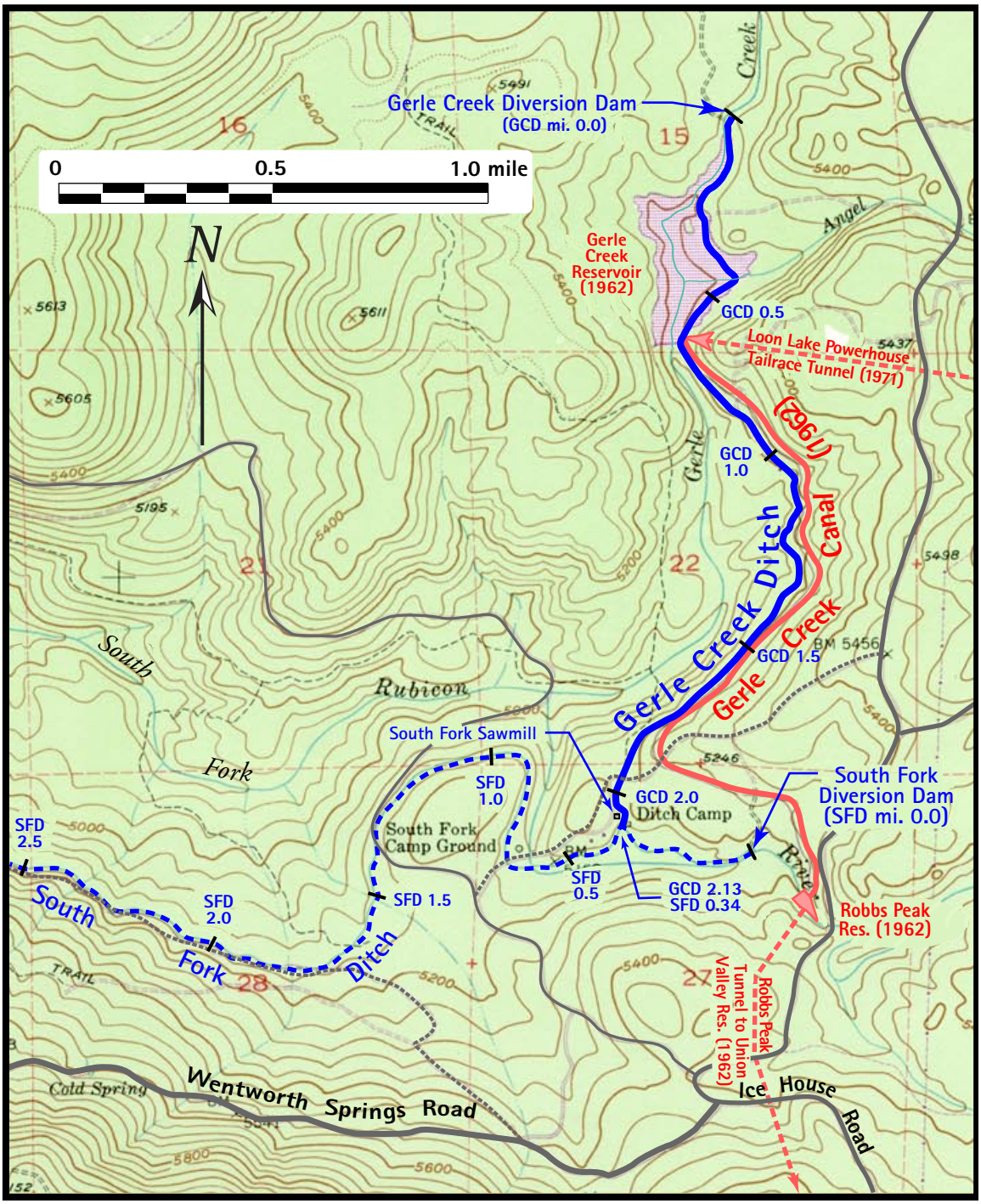


Figure 4: Gerle Creek Ditch

The features shown in red, constructed by the Sacramento Municipal Utility District beginning in the early 1960s, replaced the Gerle Creek and South Fork ditch facilities of the Georgetown Divide Public Utility District. The dates are those of first operation. The 3.8-mile-long Loon Lake Powerhouse Tailrace Tunnel was completed several years earlier and used as the main access route for construction of the 85 MW underground powerplant.

Gerle Creek Ditch, Mile 2.00: The Pothole. July 1943. I caught a lot of fish here.

replaced in the late 1940s with a one-lane concrete bridge (still there, but looking pretty beat-up). At Mile 2.0 was a drop from a flume into a deep pool that we called "the Pothole." Just downstream from the Pothole was a short series of brushy pools and drops leading to a section of ordinary ditch that passed just north of the sawmill and looped around to discharge into the South Fork Ditch. I estimate the drop from Mile 1.95 to the end of the Gerle Creek Ditch at Mile 2.13 to have been another 15 feet. Altogether then, the drop between Mile 1.85 and 2.13 was on the order of 35 feet. This (minus a minor allowance for the fall along the "high-line" ditch) was the head available to power the South Fork Sawmill.

Operation and Maintenance

Like the South Fork Ditch, the Gerle Creek Ditch operated only part of the year, to augment Georgetown's water supply from the natural flow of Pilot Creek. Depending upon irrigation needs and upon the supply available from the South Fork Rubicon River, Gerle Creek Ditch was started up sometime between early May and early July.

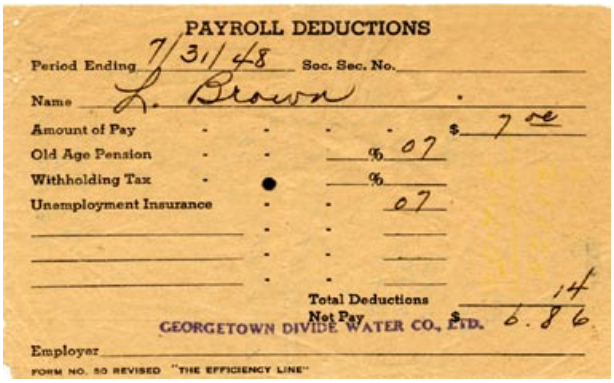
One of the years in which the Gerle Creek Ditch opened late was 1948, the only time my family found a dry ditch when we arrived for our annual three-week camping vacation. We may have been a little earlier than usual that year, probably showing up in the last week of June. The South Fork Rubicon had a pretty good flow that spring, but the need for the Gerle Creek supply was imminent and Art Rasor was rushing to get the Gerle Creek Ditch open. I was nearing 12, big for my age, and Art suggested I come along to help him.

I was thrilled, of course, as that was my first experience "on my own" in the working world—and with a man I looked upon as a heroic woodsman. We spent one day walking the upper reaches of the ditch, tossing out fallen limbs and shoveling out debris that had washed in over the winter. Somewhere near Mile 0.6 we came to a granite boulder that had rolled in from uphill. Nearly 2 feet in diameter, too heavy to move. I watched, fascinated, as Art removed his backpack and pulled out three or four sticks of dynamite—I think it said "Hercules" on the greasy brown wrapper.

Art said, "I'll show you a technique we call 'bulldozing' to take care of this rock." He placed the dynamite right on top of the rock and covered it with a generous packing of mud. Then he inserted a blasting cap and a length of fuse. After making sure I was ready to run with him, he lit the fuse and the 64-year-old and the 11-year-old found they had the same top speed. We must have been close to 100 yards back down the ditch when "she blew," with a bone-rattling WHUMMPH! I have an amazingly clear memory of that instant—of my pants legs and sleeves jumping forward as the shock wave went by. We went back and, sure enough, there was a scattering of rock pieces small enough to handle and a pile of sand and gravel that we shoveled out. Art emphasized, "The mud packing is the secret of bulldozing."

The next day I followed along as Art attacked a log jam at the lower end of the Pothole at Mile 2.0. This time he was able to drive to the work site, so he brought along his detonator and used electric blasting caps. This was right out of the Saturday matinee cartoons—dynamite, wires, and a wooden box with a T-handled plunger. You can imagine how awed I was to watch that operation.

Our vacation over, we went back to Stockton and resumed city life. A couple of weeks later came a totally unexpected envelope from the Georgetown Divide Water Company, bearing my first real paycheck—I hadn't realized that was work! I was so impressed that I kept the stub all these years:


PAYROLL DEDUCTIONS

Period Ending 7/31/48 Soc. Sec. No.

Name L. Brown

Amount of Pay $ 7 00

Old Age Pension % 07

Withholding Tax %

Unemployment Insurance 07

Total Deductions 14

Net Pay $ 6.86

GEORGETOWN DIVIDE WATER CO., LTD.

Employer

FORM NO. 50 REVISED "THE EFFICIENCY LINE"

Another time (it may have been 1948 also), I played a small role in another maintenance activity on the Gerle Creek Ditch. Art and a helper, probably Lawrence Coonrod, needed some timber lagging to shore up the Hog's Back Tunnel. They located a suitable dead cedar tree up along the Gerle Creek Ditch, somewhere around Mile 1.5. They felled the tree with a big two-man hand saw and used wedges to split out lagging pieces that were about 6 inches square by 5 or 6 feet long. The next day they built a "catcher" in the ditch just above Wentworth Springs Road, by putting an 8 x 8 across the ditch (like the "bridge" in the picture on page 24) and spiking a row of 2 x 4s to it, like teeth on a comb, each slanted upstream to rest on the ditch bottom.

Art and his helper headed off up the ditch to launch the recovery process. My father and I were assigned to the catcher—to throw the lagging out onto the bank as it came floating down from a half mile upstream. I don't remember exactly how this operation went, but my father was averse to standing in cold water, so I probably handled that part while Dad was stuck with the heavy lifting. We ended up with a mound of lagging, which we loaded onto a medium-sized truck for the 7-mile trip to the tunnel. This tunnel repair effort was apparently not too successful; Coonrod (page 13) described a serious tunnel collapse just a few years later that led to one-third of the tunnel being converted to an open cut.

Once the Gerle Creek Ditch was open for the season, operation was fairly simple. Art Rasor probably walked the length of the ditch every once in awhile, but as long as the water was flowing past his cabin at Ditch Camp, the presumption was that everything along the ditch upstream from there was okay. Since the Gerle Creek Ditch had no flumes of significance, there really wasn't much to go wrong.

As irrigation demands increased during the summer and more flow was needed, Art would go up to Loon Lake and turn out more water into Gerle Creek. Then he must have had to wait a few hours for the additional flow to reach the diversion dam, 7.2 miles downstream from Loon Lake Dam. There was a road (more of a track through the brush) in to the diversion dam from Wentworth Springs Road, so Art could fine-tune the adjustment of the boards controlling flow into the ditch without walking in via the 2-mile ditch trail.

Art must have had some operating rule that dictated the minimum flow to be allowed to pass the diversion dam to sustain lower Gerle Creek, but I was never aware of it. My father and I did most of our fishing on the South Fork Rubicon River downstream from the mouth of Gerle Creek, usually in July when the South Fork was contributing limited flow. We never considered the flow noticeably low, so Art must have done a good job of apportioning the water. SMUD's current operating rules call for minimum stream releases of 4 cfs at Gerle Creek Dam and 1 cfs at Robbs Peak Dam; in the summer of wetter years, these increase to 7 and 3 cfs. [Sacramento Municipal Utility District, Appendix B-3].

At the end of the season, typically October or early November, Art would have shut down the Gerle Creek Ditch and opened a few wasteways to spill any runoff that found its way into the ditch during the winter. That would have been the normal fall maintenance/shutdown procedure.

Dale Rasor, Jr. told me of another type of maintenance his grandfather occasionally performed, following a "pseudo emergency." Art would think of some plausible reason that the Gerle Creek Ditch needed to be shut down for awhile, then he would open one of the wasteways and divert the entire flow into one of the small streams that returned to Gerle Creek. As the water receded in the remaining ditch section, Dale and Art walked downstream with a gunny sack, which they soon filled with trout. Dale said, "You know, trout swim upstream when the water drops; all you have to do is wait for 'em." These were Gerle Creek trout that found their way into the ditch during the summer; one could rationalize this "harvest' on the grounds that the fish were doomed anyway.

Gerle Creek Ditch Today

The Gerle Creek Ditch was abandoned after the 1961 season. Much of it was almost immediately destroyed during construction of a parallel power canal by the Sacramento Municipal Utility District. SMUD's Gerle Creek Canal, with a capacity of 1120 cfs, connects the new (1962) Gerle Creek Reservoir with the tiny (30 acre-foot) Robbs Peak Reservoir on the South Fork Rubicon River.

Figure 4 shows the lower end of the 3.8-mile-long tunnel that connects SMUD's Loon Lake Powerhouse to Gerle Creek Reservoir. The 1260-

Gerle Creek Ditch, Mile 0.65: The ghost of the old ditch is here somewhere under the left abutment of SMUD's Gerle Creek Dam. August 15, 2002.

Gerle Creek Ditch, Mile 0.65: Looking from left abutment of Gerle Creek Dam at (left) downstream portal of Loon Lake Powerhouse Tailrace Tunnel and (right) headworks of Gerle Creek Canal. August 15, 2002.

Gerle Creek Ditch, Mile 0.68: Looking back upstream along the Gerle Creek Canal toward the headworks at Gerle Creek Dam. August 15, 2002.

acre-foot Gerle Creek Reservoir is formed by a 58-foot-high concrete gravity dam located 0.65 mile downstream from the former headworks of the Gerle Creek Ditch. Gerle Creek Reservoir is normally held at a constant elevation of 5231 feet (in the summer). Power generation releases to Union Valley Reservoir via Gerle Creek Canal and Robbs Peak Tunnel start and stop depending upon power demands; whenever generation ceases, Gerle Creek Canal becomes a pond, an extension of Gerle Reservoir at the 5231-foot pool elevation.

Here's a reach-by-reach assessment of the current status of the old Gerle Creek Ditch:

Mile 0.0 to 0.65: Diversion Dam to Gerle Creek Dam. This entire section of the old Gerle Creek Ditch is inundated by SMUD's reservoir. The ditch is barely submerged at the upstream end, but since its gradient was around 20 feet per mile, the old ditch is some 14 feet under water in the vicinity of SMUD's dam (where it was certainly obliterated during construction). The intersection of Angel Creek and the ditch, once a special spot for me, is about 10 feet below the surface of Gerle Creek Reservoir, about 1000 feet upstream from the dam.

My good friend Mike Brattland, who maintains the *Gerle Creek History* internet web site described in the References, has a cabin near Gerle Creek Reservoir and an impressive familiarity with the area. On August 17, 2002, he sent me an e-mail that included the following description of the remnants of the Gerle Creek Ditch within SMUD's reservoir:

Gerle Creek Ditch, Mile 0.0: Remains of the entrance structure and the two posts mentioned in the Brattland quote. This is the same area shown in the 1936 photo on page 23. October 2001. Photo courtesy of Mike Brattland (via his Gerle Creek History web site).

"Yes Lint...I took those photos in October last year during deer season...if the lake is up, you only get to see the tops of the two posts...I know from all the years on that lake that the ditch forms the eastern perimeter of the lake...in the initial 1/8 mile going along the creek to the south towards the big rock on the corner, it is alive and in its substantial form under water, although for years there was a big tree laying in it which you could see once the water is down...I have lost lures in it over the years trolling with my dad. "

SMUD's canal maintenance road provides easy walking access to the Gerle Creek Dam area from old Wentworth Springs Road (if you don't mind a little trespassing and a 2.6-mile round trip hike). Or, if you are bold enough, you might hoist your bicycle over the gate and cruise right up to Gerle Creek Dam.

Mile 0.65 to Mile 1.1, SMUD Construction Area. This reach of the Gerle Creek Ditch was obliterated during SMUD's construction in the early 1960s. Here, the former ditch route is buried under about 200,000 cubic yards of rock excavated from the 3.8-mile-long Loon Lake Powerhouse Tailrace Tunnel and the powerhouse itself. The tunnel, generally unlined, was completed early and used as the main access for construction of the powerhouse, which began commercial operation on August 27, 1971.

The 82-Megawatt powerhouse, located over 1100 feet below the surface of Loon Lake, occupies an excavated chamber 75 feet wide, 110 feet high, and 115 feet long. Routine access to the powerhouse is via cable car down an inclined shaft that surfaces south of the saddle dam at Loon Lake (map, page 43). When the plant is shut down, the tailrace tunnel provides vehicle access via an adit that connects near the downstream portal. [Sacramento Municipal utility District, pp. A-7 to A-12]

Gerle Creek Ditch, Mile 1.1: Looking northwest along the Gerle Creek Canal toward Gerle Creek Dam. The old ditch is under this filled area. August 15, 2002.

Mile 1.1 to 1.4, Ditch Remnant. If you study Figure 4 carefully, you will see that the old ditch went around a hill in this area, while the new canal cuts through the hill on a sweeping bend. As a result, the two alignments separated enough that a short reach of the Gerle Creek Ditch was spared. In 2002, I was pleasantly surprised to find a little piece of the old ditch, in almost pristine condition, at Mile 1.20. It was a bit grown over, but it served well as a reminder of how things once were. You could stand on the trail atop the downhill berm and easily imagine the scene in 1873 when gangs of Chinese laborers were digging this relatively easy ditch section.

Gerle Creek Ditch, Mile 1.20: Looking upstream (north) along the only surviving ditch remnant. August 15, 2002.

Mile 1.4 to 1.85, Obliterated by Gerle Creek Canal. This reach of the Gerle Creek Ditch was totally destroyed during construction of SMUD's Gerle Creek Canal in 1962. This is most obvious when you walk upstream along the old ditch and see it disappear beneath the toe of the canal embankment just upstream from Mile 1.85. I did not explore to find the exact spot where the old ditch emerges from the canal embankment around Mile 1.4; the easy way to do so would be to intercept the ditch at Mile 1.2 and follow it downstream.

Mile 1.85 to 2.13, Flume Turnout to South Fork Ditch. Except for the rotting flumes, this final reach of the Gerle Creek Ditch was still relatively intact in 2002, although increasingly overgrown. The section just upstream from old Wentworth

Gerle Creek Ditch, Mile 1.85: Site of the flume spill pictured on pages 24 and 34. August 15, 2002.

Gerle Creek Ditch, Mile 2.00: The remains of the flume that discharged into the "Pothole" (as pictured on page 26). July 1980. In 2002, this site was too overgrown for meaningful photos.

Springs Road (Mile 1.98) is in pretty good shape, but the "Pothole" (Mile 2.00) and the series of pools and drops just below are a jungle. The jungle is supported by a trickle of spring flow, probably minor percolation from SMUD's Gerle Creek Canal, which is about 500 feet upslope to the northeast. Carolyn Beam warned me that this seepage sustains a fine population of mosquitoes that takes the fun out of hanging around the Pothole area in the late afternoon and evening. But, on my first return visit in 2002, I was overcome by nostalgia and thought that my can of "Off" would allow me to spend the night there for old time's sake. It didn't take long to realize I should have listened to Carolyn. In the good old days, mosquitoes came out for an hour or so in the evening, disappearing as soon as it began to get cold. The modern breed operates on a "24/7" schedule.

The final few hundred feet of the Gerle Creek Ditch looped around the north side of the South Fork Sawmill and discharged into the South Fork Ditch just east of the sawmill. This ditch section was always guarded by a phalanx of brush at least 8 feet high; the brush is still there, so the ditch has been essentially untouched in the 40 years of abandonment.

The brush near the sawmill barred normal fishing access, but I used to sidle up the sloping penstock shown in this photo and fish the ditch, about 15 feet below, from directly above (with some success, as I recall). I cannot imagine doing such a thing today. What was I thinking? (A question that has dogged me throughout my later life.)

Gerle Creek Ditch, Mile 1.85: This "highline" flume may need a few repairs before it's ready to power the South Fork Sawmill back to life. August 15, 2002.

Gerle Creek Ditch, Mile 2.10: Here's where the ditch passed around the north end of the sawmill. The penstock, formerly supported on a wooden trestle, delivered water from the highline ditch to power the mill. June 18, 2002.

Ditch Camp Area

This section nudges further into the realm of personal reminiscence of the area where I spent my sixteen summers on the ditch, nearly a year of my childhood, three weeks at a time. In my memories, it is an place of perpetual summer, of carefree, idle warm days, cool evenings around the campfire, and cold nights where I was snug in my bed. So, obviously, what follows may have a smidgen of nostalgic fantasy mixed in with the fact.

As the term is used here and as shown on Figure 5, the "Ditch Camp Area" is the zone within easy walking distance of my family's regular campsite at Mile 1.95 of the Gerle Creek Ditch, just north of old Wentworth Springs Road bridge. The actual Ditch Camp began as the California Water Company's headquarters and construction camp while the Gerle Creek and South Fork ditches were being built in 1872-74. The buildings and facilities remained in ditch company ownership and later served as Art Rasor's summer quarters while he operated the ditches and Loon Lake Dam.

The water company installation was called Hanna's Camp in Bowman's 1874 report, but that name was apparently soon forgotten; it is not known to appear in any other reference. The Ditch Camp name later appeared on U.S. Geological Survey maps, which are generally well regarded as sources of geographical names. So, Ditch Camp it is, even though I never heard it called that while I was around it.

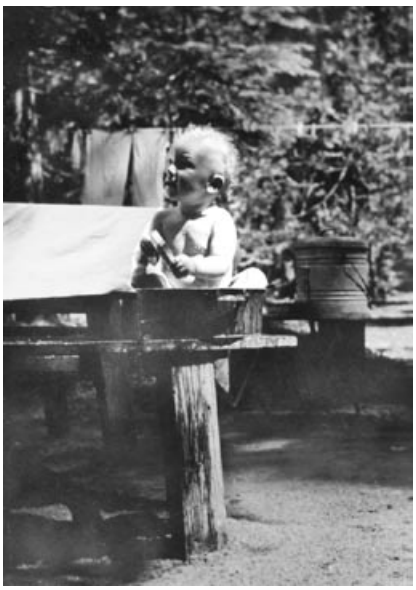
Ditch Camp was not included among the properties that the Georgetown Divide Water Company sold to the Georgetown Divide Public Utility District in 1952. The land and buildings remained with the Devore family and are today owned by Carolyn (George Devore's granddaughter) and Denton Beam. The Beams spend most of their summer there; the land is fenced and posted, but in 2002 they graciously gave me access to retrace some of my footsteps from the 1940s and 1950s.

Brown Family Campsite

Every year from 1937 through 1960 my mother and father loaded an unbelievable amount of heavy gear and supplies into their car and a little box trailer and headed for the same campsite for a three-week outing. The drive from Stockton was an all-day affair in the pre-freeway days. Except for one harrowing trial of the grueling Ice House Grade off Highway 50, we always went in via Auburn and Georgetown. Most of that route was relatively free of steep grades and rough roads. It had the added advantage of allowing a stop for a visit with our friends at Uncle Tom's Cabin (Appendix B, pages 63-66). The return trip included one frightening pitch between Cold Spring and Hartless Summit where our 1939 Plymouth just barely managed to keep the heavy trailer moving. I still associate that stretch of road with the smell of burning clutch lining.

Our campsite, which was nominally on ditch company property, had no facilities except a wooden table that was planted in the ground. We brought everything we needed, supplemented with poles and saplings we harvested from a grove of dead trees across the ditch.

Brown family camp, with ditch bank in foreground. My mother, Daisy G. Brown, is at the Coleman stove, while my 82-year-old great aunt Malissa McDeid (with bonnet) is back near the tree. July 1943.



Brown family camp at Mile 1.95 of the Gerle Creek Ditch. Here I am, just short of my first birthday, taking a bath in ditch water. Our first year at this campsite. July 1937.

I have a flood of memories from my sixteen summers at this camp, but this is supposed to be about ditches, so I'll record just a small sampling:

• In 1944 and 1945, the Japanese were launching unmanned balloons to carry incendiary bombs along the jet stream to the west coast. My parents gave me a stern lecture on not touching anything I might find out in the forest. Scared me—I kept my hands in my pockets the whole three weeks.

• For some reason, the war also brought strict blackout rules to the mountains. The lookout at Robbs Peak once saw our lantern and dispatched a ranger to warn us to douse it. I never figured out how an enemy bomber was going to learn anything useful from our lantern or campfire. But we hid lights and fires from Robbs Peak from then on.

• Art Rasor often came by our camp for dinner and coffee. After one such visit in the late 1940s, my dad awoke about 2 a.m. and saw the flicker of flames. On his way back to Ditch Camp, Art had flipped a cigarette off into the ditch as he crossed the new concrete bridge at the southwest corner of our campsite. It landed on one of the old bridge's massive support timbers. We extinguished the fire with a few buckets of ditch water. I've often thought about how difficult it would be to intentionally start a fire with just a lit cigarette and an 18-inch-square timber.

• A big event each year was the cattle drive, when herds came by on the way to summer range in the high country. They came right up Wentworth Springs Road, driven by real cowboys, with all the attendant sounds from both drivers and driven. The cowboys always had problems keeping the herd in check at the ditch, as they all wanted to stop for a drink and a little wading. I've never been good with names, but around 1950 one of those cowboys accepted our dinner invitation and afterward sat around swapping campfire stories; his name was Oliver Francis Barbeau (1925–1998, last residence = Placerville, per Social Security Death Index). I must have been impressed.

Art kept this horse at Ditch Camp in 1943, but it wasn't too useful because it couldn't walk a flume. This was taken right next to the Brown family camp (note 1939 Plymouth over Art's shoulder). July 1943.

• The famous Jeepers Jamboree officially began in 1953, but large groups of jeepers were making the trip before that. My last summer there was 1952 and I recall their processions up Wentworth Springs Road, right past our camp. I think this was an annual event, in early or mid July. My enthusiasm for watching the jeepers roar past was offset by my mother's annoyance at the dust they raised.

• One of my favorite playthings, providing hours of enjoyment, was an old cedar stump right at the entrance to our campsite. It was cut off about 7 feet above ground, which led my father to speculate that it had been cut

Brown family camp, Gerle Creek Ditch in foreground, as viewed from Wentworth Springs Road. The cedar stump is on the right. July 1941.

Brown family camp. Here I am, age 4, with my mother, Daisy G. Brown. July 1940.

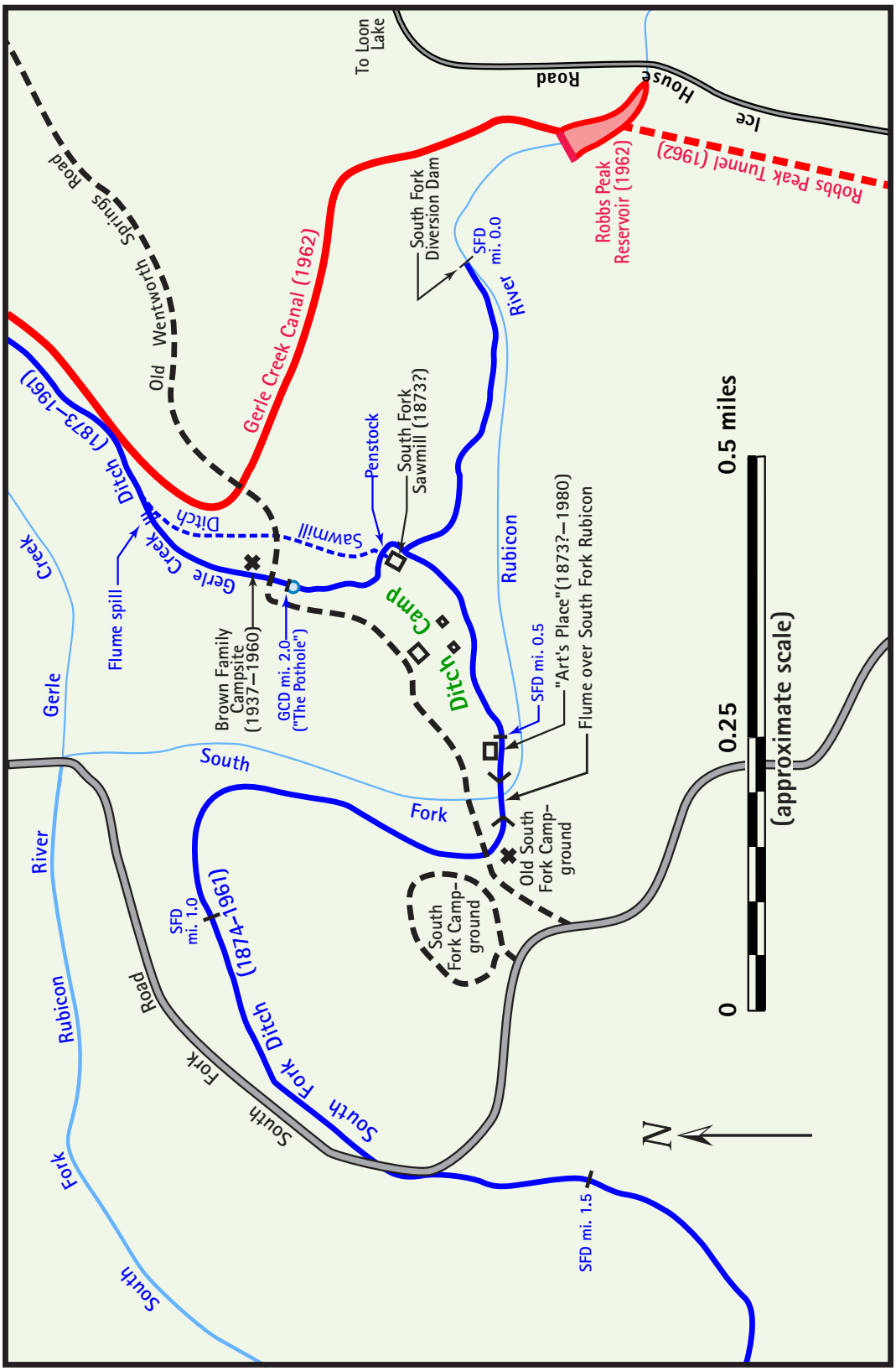


Figure 5: Ditch Camp Area

while there was about 4 feet of snow. It's a reasonable speculation that it was cut in 1872, while the Ditch Camp facilities were being built as a prelude to ditch construction. (Cedar was not used much for flumes but it would have been the choice for roof shakes on the many buildings at Ditch Camp.) Cedar has proven pretty durable, at least in stumps:

This stately cedar stump weathered the 60 years better than I did. I still have the BB gun—I should have brought it for the 2002 picture.

When I got old enough, I started fishing the ditch on my own. One wouldn't expect many fish there, since it was drained every fall, but I could always catch a few out of the Pothole. My father disdained ditch fishing, but he made an exception in 1955 (when I was no longer along on family vacations). He spotted the 15½-inch Brook trout shown here, rigged up his fly rod, and hooked it on the first cast—all within feet of his comfortable director's chair.

The Brown family campsite is still pretty much intact (2002), but vehicle access is blocked by a row of boulders and many trees have fallen to old age or loggers' saws. The road used to be fairly level as it passed our camp; it now ramps up a fill that leads to a bridge over SMUD's Gerle Creek Canal.

Ditches

My favorite ditch destinations were the flume spill just upstream from our camp and the long flume in which the South Fork Ditch crossed over the South Fork Rubicon River. Here's the spill, which is also pictured on pages 24 and 30:

Gerle Creek Ditch, Mile 1.85: Here, all flow is being spilled from the upper flume that led to the sawmill. I took a <u>way</u> too cold shower here once. July 1943.

The flume over the South Fork Rubicon River, also pictured on pages 8 and 40, was about 300 feet long and its narrow walking plank was about 15 feet above the river water surface. I was standing on that plank, dangling a worm in the river below, when I caught my first fish, probably about 1943.

South Fork Ditch, Mile 0.59: The downstream end of the flume over the South Fork. June 1932. The sign probably says "Keep Off," but it wasn't there in later years (not that I'd have paid any attention to it).

I thought my parents were permissive, but Carolyn Beam (then Carolyn Gravelle) topped any story I have. Her parents let her ride an inner tube through the flume. As the photo above shows,

there was barely a foot of clearance between the surface of the rushing water and the bottom of the 4 x 6 beams that crossed the flume every 4 feet. Carolyn said, "Yes, you had to be sure to keep your head down; it was pretty scary." If her inner tube was the typical large one, there must have been almost no space between her head and the beams rushing by overhead. The trip probably took 1 to 1½ minutes, which required an unusual amount of discipline for a small child (she was quite young when the ditch was abandoned). I'm impressed and glad I wasn't challenged to duplicate her daring feat.

The highline or Sawmill Ditch crossed the hillside above the Brown family camp. We never paid much attention to it except during those rare times the sawmill was running. Except for the flumes and a section buried under the road fill leading up to SMUD's canal crossing, it was still pretty much intact in 2002.

Sawmill Ditch, looking downstream (south) just downstream from Wentworth Springs Road. The reach upstream from the road is similar, but more overgrown with small trees. June 19, 2002.

Sawmill Ditch, looking downstream (south) at the headworks of the penstock that led to the sawmill. This flume was smaller than the standard design because only part of the ditch flow went to the sawmill. June 19, 2002.

South Fork Sawmill. The penstock at left delivered water from the highline (Sawmill) ditch to the turbine below the main floor of the mill. July 1941.

South Fork Sawmill

Ditch Camp's most prominent feature is the South Fork Sawmill, which was built (probably in 1873) to supply lumber for construction of the 2 miles of flumes along the South Fork Ditch. It continued in service to produce lumber for flume maintenance and for sale to others. The mill was described as follows in some of the early literature:

> *"The California Water Company owns three saw-mills on the line of their water supply. The upper mill, near terminus of Gurley Creek Canal, has a capacity for all present requirements of the company, and also brings a small revenue from sale of lumber to stockmen for building in that section. The saw is an upright band-saw. A supply of sawed lumber is kept here for use of the company to repair flumes below, which can be floated to desired points in the canals. The mill in this locality is a most desirable auxiliary to the company's works. The location is in the midst of superior pine timber."* **[Hutchins, p. 22B]**

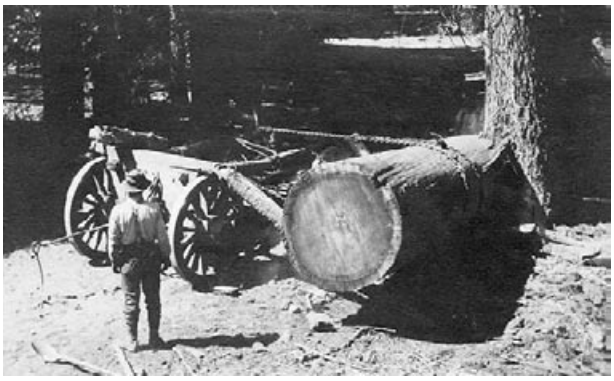
> *"The Company have three saw mills: one of water power, at or near Loon Lake, which furnishes lumber for the Company and quite a large amount to dairymen in that locality....The lumber costs, piled up in the yard, only $7.30 per M.; common lumber sells for $14 per M, mining lumber for $20, and sugar pine for $30 per M..."* **[Swan, p. 2C]**

The *Georgetown Gazette* of August 27, 1891 offers a brief glimpse of early day life around the South Fork Sawmill:

> *"A shooting affair occurred at the South Fork sawmill yesterday between R. Jerrett and Domengo Veril, resulting in Veril receiving a charge of shot in his shoulder and breast from a shotgun in the hands of Jerrett. Veril shot at Jerrett with a Winchester rifle. The wounded*

man was brought to town last night and is being treated by Dr. Hickman." **[Gernes and Deibert, pages 245–6]**

The mill seldom ran while I was around in the 1940s and early 1950s. Exploring the old sawmill was an adventure. The upper level, with the sawing machinery, was okay but the dirt-floored downstairs section was dark and spooky, smelling of musty grease, with entrances guarded by nests of aggressive yellowjackets. Dale Rasor, Jr. told of live-trapping rats in the sawmill, then turning them loose for the dogs to chase. (That was back in the days before animal rights activists.)



Here's a rare find! Carolyn Beam supplied these two photos, which she dates to about 1915, showing a huge sugar pine log being rolled up onto a log wagon and hauled off toward the mill with a six-horse team.

Here I am, age 6, taking a spin on the above (or a twin) log wagon, parked by a barn at Ditch Camp. July 1941. This wagon and many other artifacts have been stolen.

This treasure from Carolyn Beam's photo collection shows a truck at Ditch Camp loaded with freshly cut lumber from the sawmill. Approximately 1918.

Starting with the typical flume section shown as Figure 3, I made a rough estimate that the original construction of the flumes on the South Fork ditch required something like 500,000 board feet of lumber. This sounds like a lot, but one large old-growth sugar pine would have produced 5,000 to 10,000 board feet. So the original flumes might have required as few as 50 to 100 trees. (In 1879, Ashburner noted that the company had "200,000 feet of lumber on hand, and about 400,000 feet B.M. of logs ready for the mill.") The mill also produced material for a surprising number of buildings at Ditch Camp, including a large stable, a similar storage barn, at least one dormitory, a two-story residence, shops, and assorted out buildings.

Art Rasor and a helper (possibly Lawrence Coonrod, but it may also have been Ted Balderson, who also worked with Art in those days) started up the mill for a couple of days about 1947 to produce a small supply of lumber for flume repairs. They must have been sawing stockpiled logs—I recall the operation as being rather limited. While we were hanging around watching them, my father

Ditch Camp, showing lumber left in the yard south of the sawmill (which is off to the left). July 1941.

admired some of the fine 5/4 by 18 sugar pine boards and Art picked four choice ones to give to him. We took them home and stowed them in the rafters of our garage in Stockton. In 1949, Dad cut up one board to make a form to bend some oak bows for a new canvas trailer cover. I inherited the other three sugar pine boards after he died in 1966 and have lugged them along through move after move ever since. Now, after 55 years, I'm reluctant to use them; they've become heirlooms. If we hadn't rescued them, they'd be rotting somewhere along the old ditch today.

Here are the rough cut sugar pine boards Art Rasor gave my father in 1947. They were cut to be floorboards of the flume (see flume section on page 11). Note marks left by the large circular saw. January 2003.

When the water facilities were sold to the Georgetown Divide Public Utility District in 1952, the Devore family retained the acreage at Ditch Camp, including the mill. Harry Gravelle, George Devore's son-in-law and Carolyn Beam's father, ran the mill and a logging operation from about 1950 to 1960 [Beam]. Niles described it as follows:

> *"This mill utilized a Pelton wheel placed beneath the mill floor and was turned by a stream of water introduced through a long supply pipe. In later years a diesel engine powered the double circular head rig and log carriage and the Pelton wheel supplied power for the transfer and green chains. The mill operated until about 1960 cutting the remaining timber on the company-owned land surrounding the Ditch Camp Mill. This rough cut lumber was hauled to Ice House by "Bob Tail" trucks and sold to Blair Bros. Lumber Co. for finish manufacture and distribution."* [Niles, p. 4]

The South Fork Sawmill in full operation in about 1956, looking down toward the southwest from the adjacent hillside. [From the collection of Carolyn Beam.]

Niles' mention of a Pelton wheel turbine opens an interesting area for future historical research. The Pelton wheel is an "impulse turbine," in which one or more nozzles direct streams of water at a wheel ringed with a succession of metal cups. Lester Pelton developed his design, an improvement on earlier similar wheels, during a series of experiments in Nevada City, California in 1878 to 1880. [American Society of Mechanical Engineers]. Because the South Fork Sawmill was built before 1874, it could not have had a Pelton wheel as original equipment. But the Pelton wheel was hailed for its improved efficiency over earlier turbines, so the California Water Company might well have replaced the original turbine with a Pelton.

Later inventors developed other types of turbines that are much more suitable than the Pelton for low- and moderate-head installations. The Pelton turbine is now favored only for high-head plants, such as SMUD's Loon Lake and Jaybird Powerhouses, with design heads of 1109 and 1432 feet respectively. Today, the Pelton would not be considered for the South Fork Sawmill, which operated on approximately 35 feet of head (page 26). Harry Gravelle must have come to the same conclusion, as his daughter Carolyn Beam remembers that he had another turbine built to supplement the diesel power he added to the mill in the 1950s. That "new" turbine is in storage in Georgetown; Gravelle learned that the original turbine wheel had been on loan from Coloma and he returned it to the State Park there in the 1970s or 1980s (Beam). Marshall Gold Discovery State Park has a 60-inch-diameter turbine wheel that appears to be a predecessor to the true Pelton, but the records don't indicate its origin.

Art Rasor's successor, Lawrence Coonrod, recalled Gravelle's 1950s sawmill operation like this:

> *"They cut all number one lumber...it cost too much to get it out so they didn't cut anything but the best. What they threw away then would be good lumber today."* [Coonrod]

After nearly 130 years, the South Fork Sawmill still stands, but it's definitely showing its age. Much of the machinery, tools, and parts were pilfered away after SMUD built good roads into the area in the 1960s. The building itself started to list, but Denton Beam has shored it up to forestall the risk of collapse under winter snow loads. Mr. Beam proudly points out the building underpinnings, which were built without metal fasteners. He is committed to restoring the mill building, but at this point has had to concentrate on arresting its decline. The original shake roof has been replaced with corrugated metal, which helps slow the deterioration. But restoration will be a major task—some of those historic underpinnings are seriously decayed.

South end of South Fork Sawmill, showing diagonal bracing recently installed by Denton Beam. The turbine was on the lower level. August 15, 2002.

North end of South Fork Sawmill, showing some of the deteriorating supporting members. This is where the logs were rolled in, as shown in the 1956 picture on page 37. June 19, 2002.

Art Rasor's Place

It would be more accurate to call this the Ditch Camp headquarters residence or something similar, but it was always "Art's place" to my family. It was probably built in 1872 or 1873 to serve as the superintendent's residence during the California Water Company's original ditch construction. An 1880 map shows a tiny label, "Cos house," which I take to mean "Company's house," in about the right place [California Water and Mining Company].

Art's place was a two-story residence right on the north bank of the ditch, just upstream from the flume over the South Fork Rubicon River. This was Art Rasor's summer home at Ditch Camp. Dale Rasor, Jr., shown there with the family in the 1944 photo on page 60, recalled: "The place had two bedrooms, a kitchen, a dining room, a pantry, and a 'meat safe,' where they kept the bacon."

Art's place, the last time I saw it standing. July 1980. The photo above is the kitchen in the building's southeast corner; the porch was rebuilt sometime after the 1944 photo on page 60. The photo on the left is the building's east end.

Art's place was connected to the U.S. Forest Service phone line, a party line that served the fire lookout at Robbs Peak, Uncle Tom's Cabin, and others. The phone line was a single wire, strung from tree to tree all the way from Georgetown. Art's phone was an old hand-cranked magneto set located outside in an enclosure at the west end of the building. Dale Rasor, Jr. remembers: "The ring was three longs and a short." My father, who worked at the phone company, came home on August 14, 1945, proud that he had been able to patch through a call to tell Art of Japan's surrender, ending World War II.

Art's place had a classic wooden outhouse, just across the ditch, which you reached via a wood bridge. My memory is a trifle hazy, but I think the outhouse was what was then known as a "two-holer" And, no, it did not have a Sears and Roebuck catalog. Beside the outhouse bridge, a 4 x 4 post planted at water's edge supported an enamel staff gage. By sticking his head out the door and noting the level of water in the ditch, Art kept track of the flow headed for Georgetown.

Art's place: The bridge to the outhouse. July 1980. There was hardly a trace of this bridge in 2002.

Art's wife, Laura, used to spend summers at Ditch Camp. Dale Rasor, Jr. recalled: "One year a cattleman named George Wiley loaned Grandpa a cow. He milked it every day; I sold milk to the campers [at South Fork Campground]. Grandma made bread to sell to them." Dale also mentioned that the game warden, Al Sears, would give his siren "a touch" as he crossed the South Fork bridge on his way up, "so if Grandpa had anything he didn't want seen, he had time to get it out of the way."

After an interval of about 25 years, I revisited Ditch Camp in 1980, where I luckily took the three photos included here. The winter of 1980-81 was pretty mild, but when I returned in 1981 I found just a mound of splintered, weathered lumber where Art's place had been. On my next visit, in 2002, I had difficulty finding the site where Art's place had stood. The Beams explained—intruders carted off most of the lumber and burned the remainder. Many memories lie burned and buried in this pile of debris:

All that remains of Art's Place: ashes and a few fragments of the cast iron stove. June 27, 2002.

Old South Fork Campground

The U.S. Forest Service South Fork Campground began on the south side of the Wentworth Springs Road, close to the ditch; it was later expanded by addition of sites across the road. My father's first camping destination in the area was the original campground near the pool at the downstream end of the flume over the South Fork Rubicon River.

From the family photo album, it appears my father's first trip to the South Fork Rubicon River area was in 1932, before he met my mother (who also worked at the Pacific Telephone and Telegraph Company office at 13th and J Streets in Sacramento).

South Fork Campground: My father's camp near the west end of the flume over the South Fork Rubicon, an open area under a canopy of large trees. July 1932.

South Fork Campground: My father's umbrella tent is right beyond the end of the flume at Mile 0.59 of the South Fork Ditch. June 1932. (I still have the tent.)

Dad was busy courting my mother in 1933 and 1934 (they married on August 29, 1934), so there was no camping expedition in those years. They returned to South Fork Campground for the last time in 1935, bringing along my father's favorite aunt, Sarah Malissa McDeid (1861–1955), who was then a sprightly 74. After missing a 1936 trip because of my arrival, they moved to the unimproved "Brown family campsite" at Mile 1.95 of the Gerle Creek Ditch in 1937.

Somewhere along the line, probably about when the ditch was abandoned after the 1961 season, the U.S. Forest Service built an all-new South Fork Campground entirely north of Wentworth Springs Road. Without the ditch, the new campground, which is designed to accommodate large groups, is not particularly attractive and doesn't get much use. The area is open to anyone when not reserved by groups; I made it my headquarters on my ditch trips in 2002. [Update: The campground was closed to such casual use in 2003, 2004, and 2005.]

In the good old days, with the ditch in full flow, the South Fork Campground received heavy use. Art Rasor maintained a paternal attitude toward the campers, even intervening when bears became unruly. I went out with him one afternoon, watching as he hung a bacon rind in a tree at the road junction just west of the campground. We drove back in his battered pickup that evening, with Art's .30-.30 rifle in the gun rack; when he flicked on the high beams to light up the tree I was crestfallen—the bear hadn't taken the bait. (But he got it later, when nobody was looking.)

The current campground occupies the northern half of the original campground. The southern

South Fork Campground. My father, Linton A. Brown, and his favorite aunt, Sarah Malissa McDeid of Winnemucca, Nevada. June 1935.

My parents' camp at South Fork Campground. Looks like they retreated to this canvas lean-to and gave Aunt Malissa the umbrella tent. June 1935

The South Fork Campground area shown in the accompanying photos is on the left here–looking south from old Wentworth Springs Road. June 27, 2002.

portion, where my parents camped, was unidentifiable in 2002, being right on the edge of a recent clear cut. For some inexplicable reason, Sierra Pacific Industries put up a sign with their name on it to mark the boundary of the devastated area; you have to wonder about their public relations awareness.

Loon Lake

The California Water Company built the South Fork and Gerle Creek ditches to gain access to the runoff of Gerle Creek. To conserve some of Gerle Creek's early season flow to meet needs in late Summer/early Fall, the company needed storage, which it obtained by enlarging Loon Lake.

Figure 1, on page 3, shows the general location of Loon Lake. Figure 6, derived from 1952-53 U.S. Geological Survey "Loon Lake" and "Wentworth Springs" quadrangles, shows the lake as it existed in the 1950s, with an overlay of the larger replacement lake completed by the Sacramento Municipal Utility District in 1963.

Loon Lake History

The 1950s version of Loon Lake Dam was the culmination of at least five distinct construction efforts. Loon Lake began as a small natural lake with maximum depth of about 65 feet—as indicated by the reported 165-foot maximum depth of today's Loon Lake [Sacramento Municipal Utility District, p. A-10]. In the first construction phase, the California Water Company built a trial dam on the outlet of the natural lake, probably within a year or two prior to this 1874 report:

> *"A temporary dam, nine feet high, was constructed at the outlet of Loon Lake...to see if any of the water of Loon Lake, when dammed, would seep away. The lake remained full all summer. Loon Lake so dammed connects with Pleasant Lake, making both together about three miles in length, and half a mile in width."* [Bowman, p. 169]

A second construction phase, a few years later, enlarged the temporary dam considerably, as evidenced by this quotation, dated November 26, 1879:

> *"The head of the 'water system,' and the main source of summer supply, is secured in 'Loon Lake,' lying in a northerly course, 32 miles by a wagon road from Georgetown. The altitude of this lake, as taken by barometer by Prof. Ashburner, is 6,300 feet above sea level. The storage of water is secured at the narrow outlet by a dam, 22 feet high and 405 feet long, constructed of small logs with poles and brush cross-sectioned on the outer face, and with compact loam on the inner face, and is in good order.*
>
> *"...The immense drainage into this basin, carved out of solid granite and surrounded by a high rim of bold granite mountains, some of which hold the winter's snow in perpetual embrace of the entire year, and supplies a vast volume of un-utilized water...suggests the importance of larger storage...by the construction of a new dam of split stone, easily obtained on the ground..."* [Hutchins, p. 2B]

In 1880, the financially reinvigorated California Water Company (with "and Mining" now appended to its name), followed Hutchins's advice and set out to construct a larger, permanent Loon Lake Dam. Just as the first temporary dam connected Loon Lake and Pleasant Lake, this dam raised Loon Lake to merge with another small neighbor, Bixby Lake (Figure 6). The 1880s dam was some 700 feet downstream from the 1874-79 dam, "the bed of the channel between the two dams being very nearly on the same level" [*Georgetown Gazette*, September 23, 1882].

In 1881, under the watchful eye of Managing Director Thomas Findley, construction of the permanent dam was in full swing. The main section of this Loon Lake Dam was a nearly-vertical-appearing masonry section, made up of dry-fitted stone blocks quarried nearby from the monolithic granite prevalent in the area. The granite blocks were typically about 2 by 3 by 4 feet, each weighing approximately 2 tons. Naturally, the masonry zone was porous; the intended water barrier was an upstream dam zone of silty soil that was probably difficult to find in the vicinity of the dam. The editor of the *Georgetown Gazette* described the construction technique of the stone section as follows:

> *September 23, 1882: "Four derricks are employed. The car track is built upon trestle work, and is about 1000 feet in length....Mr. Thorson, Superintendent of the stone work and masonry department, constructed this track after a plan of his own, and to witness the loaded cars as they glide from the quarry with increased speed and then slacken up just right after passing the curve towards the lower end, without applying the brake, wins admiration of the beholder. An average car load is five tons, and some days as many as 150 tons are transported. A boy can push a car back to the quarry."*

These further quotes from the *Georgetown Gazette* trace the progress of construction:

April 15, 1881: "A force of workmen are now engaged in raising the dam at Loon Lake....We also notice that they have been cleaning out and widening portions of their main ditches between here and Loon Lake."

July 22, 1881: "The Cala. Water **&** *M. Co. has commenced the erection of a substantial stone dam at Loon Lake. The wall is to be built entirely of granite, which is found in inexhaustible quantities, and of the best quality, right on the ground....A force of experienced quarrymen have been engaged, a number of whom have already gone forward, remainder will follow before the end of the present week."*

September 2, 1881: "The dams [sic] being constructed by the Cal. W.&*M. at Loon Lake are composed of Granite and the works are of the character to do service for the ages..."*

October 21, 1881: "There were some forty men engaged on the work of the Cal. W.&*M. Co. at Loon Lake. C.H. Jones, the Superintendent of construction, says that a more faithful and better lot of men he never saw anywhere, and to the credit of Mr. Jones, we have heard it remarked by several of the men that a better boss they never worked under. When the spring opens, a much larger force will be employed, and the works completed during the season."* **[quoted in Gernes and Deibert, p. 99]**

June 23, 1882: "We noticed yesterday 1200 ft. of 1-inch wire cable in front of the California Water Co's office, which goes to Loon Lake for guys to support a large new derrick used in moving the ponderous blocks of granite from the quarry for the everlasting dam which the enterprising management of the Company is constructing at that point." **[Remnants of this cable may be seen in some of the photos from the 1930s and 1940s. LB]**

July 14, 1882: "Superintendent Wolf of the California Water Co's works at Loon Lake was down on a hurried visit this week. He reports that work on the dam is progressing rapidly; the force increased, a new derrick being put up, making the fourth derrick, and that he believes the dam will be completed this season. A more faithful and practical force of men were never employed in the interest of a corporation than are these men selected by Managing Director Findley."

July 21, 1882: "The fact that Hon. Thomas Findley of Nevada county was selected as Managing Director, shows the enterprise to be one of more than ordinary importance, and we doubt if there is an enterprise in the State better managed....Four derricks and a force of experienced quarrymen are employed, besides a large force of other **[Chinese? LB]** *laborers."*

September 23, 1882: **[Loon Lake Dam's]** *"... trunk is a beautiful piece of masonry work, and was executed by Mr. McGuire of Rocklin, one of the best stone cutters in the State."* **[Rocklin quarries, 25 miles southwest of Georgetown, furnished granite for part of the State Capitol and many buildings throughout the Central Valley and San Francisco Bay Area. LB]**

October 7, 1882: "A portion of the quarrymen employed on the Loon Lake dam came down this week on account of the storm and signalized their intention of quitting for the season, as they believed winter had set in. There being a couple of gaps in the dam yet to close, and Managing Director Findley feeling satisfied that there would yet be plenty of good weather in which to complete the work, tried to persuade the men to return, but they refused. **[so much for never seeing a "more faithful... force of men"? LB]** *Yesterday Mr. Findley started for the lake to utilize the force already there to the best advantage. He will see that the two gaps are filled, and you may depend upon it."*

October 21, 1882: " Work on Loon Lake Dam was suspended for the season on the 19th inst....The early and unprecedented storms of snow and sleet which visited this region during the first two weeks of this month created a stampede among the stock men and people generally in the higher altitudes, who hastened to the lower hills....Managing Director Findley comprehending the danger which threatened the unfinished condition of the dam, and failing to persuade the men to return, started himself for Loon Lake in a cold driving rain. His arrival in camp was hailed with good cheer, and when he told the boys, rain or snow, come what may, those gaps must be closed...For days they worked in stormy, cold, disagreeable weather, and at the end of two weeks the gaps were closed...and the dam left in good condition."

After the shortened 1882 construction season, Findley probably expected to return to complete Loon Lake Dam in 1883. But his return was apparently delayed until 1887. This reference indicates that the delay in starting the fourth construction phase resulted from a financial squeeze:

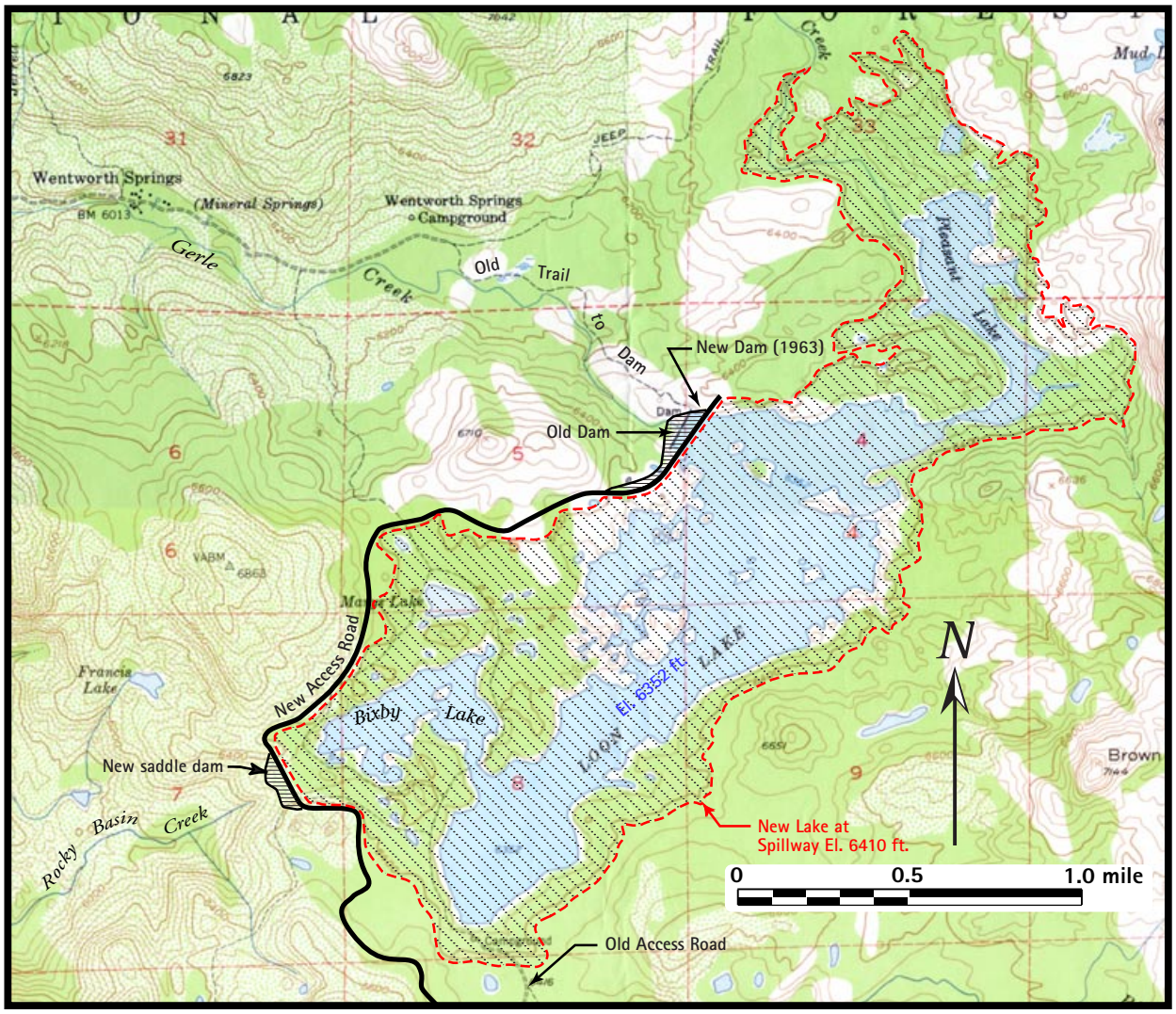


Figure 6: Loon Lake

Loon Lake Dam: Panorama of downstream face, showing chronic leakage problem. Lake was 5 feet above the spillway lip at this time. A composite of three photos by Eugene V. Poe, California Department of Public Works, Division of Water Resources. July 3, 1953.

"In 1881 and 1882, the California Water Company built the present masonry dam at Loon Lake, using funds obtained by a bond issue. Funds were depleted before completion of the dam, leaving it at a height of 26 feet." **[California Department of Water Resources, 1965, p. D-11]**

Additional information on the 1887 construction phase comes via these excerpts from the *Georgetown Gazette*, as reprinted by Gernes and Deibert:

April 16, 1887: "It is very evident that the California Water Company will expend a large amount of money this summer in raising the Loon Lake dam and making other important improvements. When Mr. Findley shall have finally overcome the obstacles which have prevented him from greatly enlarging the water supply of the valuable property, not only will El Dorado county be abundantly supplied, but Placer county also." **[p. 178]**

May 17, 1888: "This is one of the most droughty seasons ever experienced in California, yet this divide is favored with a greater supply of water than ever before. We owe this to the enterprise of the manager of the California Water Company, who raised Loon Lake dam last summer." **[p. 194]**

The 1887 effort was not as thorough as the contemporary newspaper accounts indicated, for the granite blocks were not brought up to a uniform level. As the accompanying 1932 photo shows, the top four courses of stone were not fully completed, leaving a section in the center of the dam about 8 feet below the highest segments of the dam crest. To overcome these omissions, a timber crib and parapet wall were constructed (at some unknown time) to bring the dam crest level with the top of the next-to-highest course of stones. The parapet wall and its supporting braces are featured in the 1930 photo to the right.

In 1934, the Georgetown Divide Water Company (successor to the California Water Company) undertook the fifth and final phase of construction on the old Loon Lake Dam. The company replaced the timber crib and parapet wall with granite blocks that had been quarried during the original construction, but never placed in the dam.

The 1934 work entailed adding up to three courses of stone, with a maximum height increase of about 6 feet. The highest original course, which was probably placed in 1887, was only a few blocks long in the center of the dam; I remember that section as making a nice seat, visible below and in the 1953 photo on the next page.

Several photographs show that the 1934 construction effort was limited to placing just one row of blocks on the upstream face of the masonry portion of the dam; the builders did not attempt to complete the original design section, which called for a crest width of 6 feet. The

Loon Lake Dam: View from north abutment, showing timber parapet wall installed to compensate for incomplete placement of granite blocks during 1887 construction. Photo by H.R. Howells, California Dept. of Public Works, Div. of Water Resources. September 1, 1932.

Loon Lake Dam: View from the left (south) abutment, showing the timber parapet wall that was replaced by additional granite blocks in 1934. Photo by California Department of Public Works, Division of Water Resources. August 5, 1930.

finished one-block-wide dam crest could barely accommodate the narrow-gage rails that were laid to trundle the heavy granite blocks for placement.

In researching this history, I was given access to the files of the California Division (now Department) of Water Resources, which was given expanded jurisdiction over the safety of non-federal dams by legislation passed in 1929 (in response to the disastrous March 12, 1928 failure of St. Francis Dam in Ventura County). DWR's files include photographs of Loon Lake Dam dating back to 1930, many of which are included in this section.

From the DWR files, I learned for the first time that Art Rasor was construction superintendent on the 1934 Loon Lake Dam work. But my biggest thrill was finding Art standing in the background in a 1934 photo taken by a State dam inspection engineer (right, and enlarged in inset). I recognized Art immediately from the posture, which is remarkably similar to that in the 1955 photo on page 62. He is also wearing his trademark riding pants and knee-high lace-up boots. This is my earliest photo of Art Rasor.

The old Loon Lake Dam continued in service through the 1962 season, after which it was unceremoniously demolished to make way for a larger replacement dam constructed by the Sacramento Municipal Utility District.

Project Data and Design

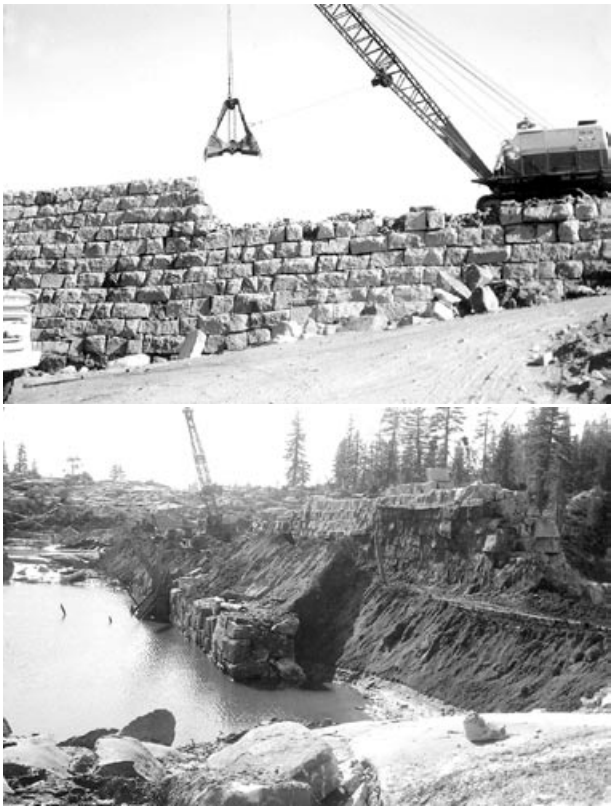
Early appraisals of Loon Lake storage and inflow were grossly over-optimistic. One of the first such comes from the 1879 *Report Upon the Property of the California Water Company:*

Loon Lake Dam: Downstream side of spillway—showing a few of the wooden flashboards used to increase storage in the spring. Granite blocks were added to the piers in 1934 (below). Photo by H.R. Howells, California Department of Public Works, Division of Water Resources. September 1, 1932.

Loon Lake Dam: View of the upstream side of spillway on right (north) abutment, during the 1934 enlargement. Art Rasor (inset) was superintendent on the job. Photo by W.A. Perkins, California Department of Public Works, Division of Water Resources. October 11, 1934.

Loon Lake Dam: View from north abutment, showing how the 1934 construction put only one row of blocks on the vertical upstream face. The resulting dam crest was barely 3 feet wide, making for a rather scary walk out to the center of the dam. Photo by David Cleavinger, California Department of Public Works, Division of Water Resources. July 31, 1953.

Loon Lake Dam: View from within reservoir area after the 1934 construction. The crumbling tower once provided access to a gatewheel that controlled a headgate on the upstream end of the outlet pipes. Photo by W.A. Perkins, California Department of Public Works, Division of Water Resources. October 11, 1934.



Loon Lake Dam: The end of an era. SMUD's contractor begins demolition of the old dam, in preparation for construction of the new, larger dam in 1963. Photo by Eugene V. Poe, California Department of Water Resources, Division of Safety of Dams. October 30, 1962.

"The principal source of supply of water is from Loon Lake, which lies high up and near the summit of the Sierra Nevada range of mountains, where it receives the drainage of the rains and melting snow over a catchment area of about 63 square miles of territory. The altitude of this lake is not far from 6300 feet above sea level, and its original size has been much increased by the construction at the outlet of a dam 22 feet high and 405 feet long, so that now, as I understand, it covers an area of about 3500 acres, over an average depth of some 10 feet." **[Ashburner, p. 1A.]**

Ashburner's numbers translate to a Loon Lake storage volume of 35,000 acre-feet at about elevation 6342 feet. According to USGS Water Supply Papers, the pre-SMUD Loon Lake Dam, at its normal pool elevation of 6352 feet, had a "usable" capacity of 8000 acre-feet. SMUD [page B-2] refers to the "10,000-acre-foot Loon Lake," apparently the total volume as contrasted to USGS's usable volume. The USGS 1:24,000-scale maps show the surface area of old Loon Lake as about 560 acres. Finally, SMUD shows the drainage area of Loon Lake as only 8.0 square miles (vs. Ashburner's 63). I don't have exact numbers for the lake size Ashburner was describing, but I estimate that his storage and lake area numbers are 5 to 7 times too high.

In Ashburner's defense, we must acknowledge that he had a huge task and probably relied on earlier wildly enthusiastic (but clearly inconsistent) numbers published by Amos Bowman. Nobody had any reliable maps in those days, a period that spawned the still-used (and indispensable) engineering term, "horseback estimate."

New Loon Lake Dam: Some of the granite blocks from the old dam were set aside for display as sentinels along the roadway on the new dam. June 27, 2002.

Early appraisals of the water supply available from Loon Lake were similarly overstated, but it never made much difference because the demands on the system never developed as anticipated. Bowman (p. 170) projected that Loon Lake could furnish a flow of 10,000 miner's inches during the 150-day dry season. That translates to a total volume of 78,000 acre-feet, ten times what he described as "required for present wants" (p. 166) but 3.5 times Loon Lake's mean annual inflow.

Flow records in Appendix C show that the annual ditch delivery to the Georgetown Divide from 1947 through 1961 averaged about 10,000 acre-feet, of which almost exactly 5000 acre-feet came via the Loon Lake—Gerle Creek Ditch—South Fork Ditch system. From SMUD data [p. B-3], one may estimate that Loon Lake's natural inflow averaged about 22,000 acre-feet per year. In all but the driest years there would have been sufficient inflow to refill the 8,000 acre-feet of usable storage space in old Loon Lake, so it appears the lake was seldom overtaxed in meeting the demands of the Georgetown Divide.

SMUD's data on its project operations include estimates of drainage area and mean annual runoff (MARO) of the entire Gerle Creek basin and the South Fork Rubicon River at Robbs Peak Reservoir (essentially synonymous with the old diversion dam for the South Fork Ditch). With a little guesswork, I allocated SMUD's runoff values among the Gerle Creek sub-basins as shown in the following tabulation, which is presented merely as a general indication of where the water is, or was.

Drainage	*Area Sq. Mi.*	*MARO Ac.-Ft.*
Gerle Creek		
Loon Lake	*8.0*	*22,000*
LL to Gerle Cr. Div. Dam	*17.0*	*40,000*
GCDD to mouth	*7.5*	*16,000*
Total Gerle Creek	*32.5*	*78,000*
South Fork Rubicon River		
Robbs Peak Reservoir	*16*	*34,000*

(Note that mean runoff doesn't tell much about summer flows in dry years; mean runoff is heavily influenced by water that surges past during winter or spring floods.)

Bowman foresaw the need for eventual expansion of the system to include diversion from the upper Rubicon River basin, which he described in the flowery language of the time as follows:

> *"Rubicon basin, with its perpetual snows, is one grand store-house of the aqueous element, which changes into self-transportable fluid only in the dry season, when it is wanted.*
>
> *"Running lengthwise—northwest and southeast—in the heart of the Sierras, for a distance of 15 or 20 miles, the Rubicon River basin holds several hundred* [more like 40? LB] *square miles of snow, 10 to 30 feet deep; the melting of which begins in April or May in the bottom of the valleys and recedes to higher and higher altitudes as the wants of the dry season require it. Until, in the latest and driest months, there is still an inexhausted supply held over, into the succeeding year."* [Bowman, p. 166]

Bowman [p. 171] mentioned visiting the Rubicon basin in 1871, and "...ordering a survey for a line of ditch to throw the waters of the Rubicon into Gurley Creek...." He saw the Rubicon extension as a future project stage, with Loon Lake recognized as clearly adequate for the foreseeable future. The Rubicon diversion scheme that Bowman advanced is similar to the one that SMUD built as part of its Upper American River Project in 1963 (Rubicon and Buck Island dams, plus two tunnels to connect to Loon Lake). So, Bowman had a good idea, about 90 years before its time came.

As an occasional early summer visitor to Loon Lake, I never really got a good look at the upstream half of the old dam, which was submerged during my visits. Fortunately, a State dam inspection engineer measured Loon Lake Dam in 1937 and drew the section that is reproduced on the next page as Figure 7.

Figure 7 helps explain Loon Lake Dam's chronic leakage problem. The earth section was sized for the 26-foot-high dam that was left after the 1881-82 construction, probably a reflection of the California Water Company's shortage of funds for dam completion. This earth section was not enlarged when the dam was raised in 1887 and 1934. So, when spillway flashboards were installed to raise the lake surface up near the higher dam crest, water was able to find its way into the masonry section, often exiting on the downstream dam face (photo, page 43). State dam inspectors nagged the Water Company for years, and several attempts were made that helped stem the leakage, but the leakage problem was finally resolved only by the dam being dismantled in 1962.

Figure 7 shows the downstream dam section as ashlar ("hewn or squared stone; also masonry of such stone") masonry. The note indicates the

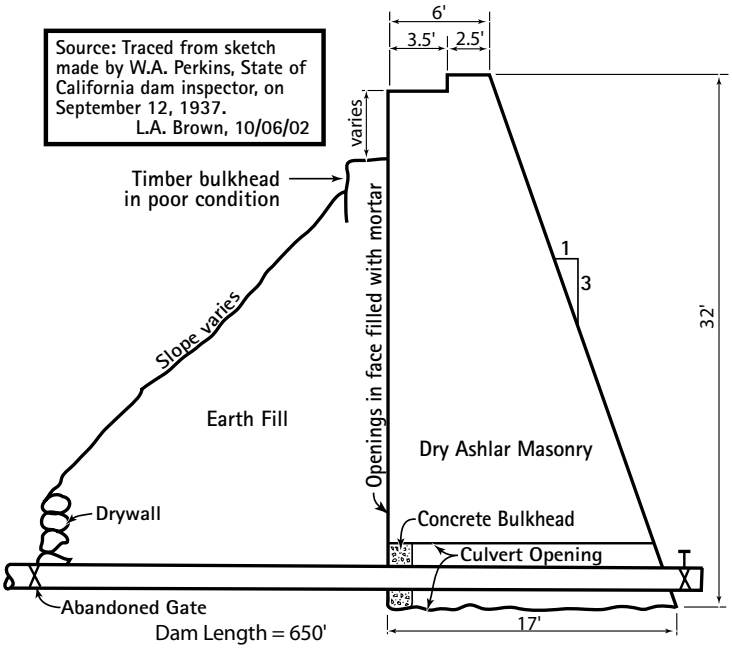


Figure 7: Loon Lake Dam, Maximum Section at Outlet

joints on the upstream face were filled with mortar, which was done in 1936. Owner George Devore described the work as follows:

> *"Repair work was started September 10th, 1936. A trench of sufficient width for men to work in was excavated on the upper side of the masonry structure beginning at the south end, it being necessary to timber the trench in places in order to prevent the earth fill from caving.* [It took a brave soul to work in such trenches in those pre-OSHA days! LB] *A trench from the south end to within 90 feet of the outlet gate was excavated to the rock foundation. The masonry was washed clean and the cracks cleaned to a depth of approximately 12 inches and then filled with cement made with a one to two mixture. The trench was refilled (as the cracks were filled) with earth and moistened so as to give a good pack...."* [Devore]

A rather bizarre manifestation of the leakage problem arose in 1953; it can probably be categorized as a "nice try" by the new owners of a troublesome facility:

> *"Georgetown, El Dorado Co.—An atom bomb blast was blamed for cracking the Loon Lake Dam and causing severe leaking. The dam, the source of the local water supply, is near the Sierra Divide, about 30 airline miles east of here. Roy B. Rutz, manager, and Lawrence Coonrod, ditch foreman of the Georgetown Divide Public Utility District, said they inspected the dam during the weekend and found it leaking. They reported it appeared to be in good condition when they had viewed it a short time previously. Rutz said he believes the jolting from an atom bomb caused an earth shift. He stated that at the time of the blast, a crew was working on a slide at flume No. 1 and that the jolt caused the flume to shift one foot downhill."* [*Sacramento Bee*, July 2, 1953]

In response to the increased leakage described in that newspaper account, State dam inspectors Clifford Cortright and Eugene Poe visited Loon Lake Dam on July 3, 1953. They estimated total leakage as 35 cubic feet per second with the reservoir 2 feet below the dam crest; they did not feel there was an immediate hazard, as the reservoir was receding, but "considered it essential that the leakage condition be repaired before again using the reservoir to capacity" [Edmonston, pp. 2-3]. David Cleavinger of the same office, returning on July 31, 1953 when the lake had dropped to 6 feet below the dam crest, found leakage "much less than on the inspection of July 3." At the State's urging, the Georgetown Divide Public Utility District immediately began repointing the mortar joints near the dam crest. The work was complete by the fall of 1953, as shown in this photo:

Loon Lake Dam: Upstream face showing repointing of joints to reduce leakage. Photo by Elmer W. Stroppini, California Department of Public Works, Division of Water Resources. November 9, 1953.

After more than a half century, former State dam inspector Clifford Cortright still has clear memories of his travels to Loon Lake Dam:

> *"In 1948 an inspection trip from Sacramento to the old dam was an all day but interesting event: up Mosquito Road by passenger car through Pino Grande and then axle-deep in dust to Uncle Tom's Cabin and along Gerle Creek to Wentworth Springs. From there it was on foot over the bare granitic country rock to the dam. Today it's a piece-of-cake traveling on the modern access roads of SMUD's Upper American River Project from the river at Highway 50."* [Cortright, 2002]

By 1953, State dam safety officials were growing increasingly concerned about the structural stability of Loon Lake Dam, as well as about the possibility of erosion of the earth fill by piping through the masonry section [Edmonston, p. 3]. There were undoubtedly some sighs of relief around the State office when SMUD announced its plan to replace Loon Lake Dam with a modern rockfill structure.

Looking back from the comfort of today's armchair, it's pretty clear that Loon Lake Dam's builders got off to a poor start, from which their successors never recovered. The masonry downstream section of the dam was not originally intended to retain water; its function was to support (and protect) the earth section that formed the water barrier. But the earth section was not high enough or sufficiently impervious to do its job. There was never enough funding to go back and expand the earth section, so repairs over the next 75 years focused on inexpensive attempts to create a water barrier at the upstream boundary of the masonry section.

The possibility of enlarging and raising the earth section must have arisen a number of times over the years. It was explicitly mentioned in State dam inspector W.A. Perkins's report on his September 12, 1937 inspection, which included this:

> *"...Mr. Devore was uncertain as to the best method of repair, inclined to the belief that the placing of additional fill might correct the condition and made a fairly thorough search for material for this purpose. The only material available is a granite sandy loam which is of rather poor quality for embankment purposes."* [Perkins, 1937]

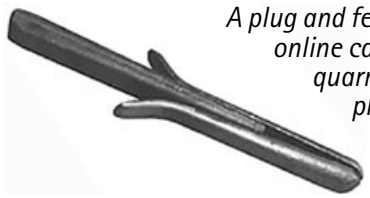
This raises the interesting question of where the original builders obtained the material for the upstream dam section. As Devore's efforts reaffirmed, suitable soil was in short supply, which may account for the so-called "drywall" at the upstream toe, as shown on Figure 7.

And, where did the builders obtain the granite blocks? The stones were hand quarried on the north end of the dam, as indicated by the rails and cables still around in the 1940s. I never visited the quarry area, but the August 11, 1883 *Georgetown Gazette* indicates, "Within 75 or 100 yards of the dam they have a great mountain of granite, which is taken out in large blocks..."

The 1930 photo below shows vertical rock faces that probably mark the quarry site. The area is now permanently submerged by the new lake, so it's too late to check it out. (It's possible that they quarried rock on both ends of the dam, to minimize the problem of moving the heavy granite blocks, but there's no evidence to support this two-quarry idea.)

Many granite blocks show evidence of drill holes along the faces. In a December 2002 e-mail, Cliff Cortright suggested that the "plug and feather" method was probably used to quarry the stone for Loon Lake Dam. Plug and feather is an ancient technique that is still used in specialized circumstances (such as trail building in wilderness areas where blasting is not allowed or in collecting fossils where damage must be prevented). The process begins with the drilling of a series of shallow holes along the line of the desired break.

Then, a "feather" consisting of a split cylinder is inserted into each hole, with the split of the feather aligned with the line of holes. A tapered "plug" is driven into the split of each feather (photo), expanding it to press the sides of the feather against the sides of the hole. The quarry-



A plug and feather set, from the online catalog of an Italian quarry equipment supplier. (http://www.sclaverano.it/)

Loon Lake Dam: Probable old quarry area is visible across the lake in this view from the dam left abutment. Photo by California Department of Public Works, Division of Water Resources. August 5, 1930.

man needs only a light sledge hammer as he gives a blow or two to each plug before moving to the next hole. The final break is quiet and gentle.

The plug and feather method is consistent with the evidence. As I recall, the holes were shallow and relatively close together and, most important, they showed no signs of the trauma that one would expect if explosives had been used. I plan to take a thorough look at the blocks lining the roadway on my next visit to Loon Lake Dam.

One final issue: How did they drill the holes to split the granite blocks? My recollection is that the holes were smooth and straight, which indicates they were drilled with some kind of mechanical drill rather than by hand (which would have been a huge task, requiring many John Henrys). As noted in the 1882 news article on page 42, an expert stone cutter from the well established Rocklin quarries was on the Loon Lake job, so it's likely the work was done with the best technology of the times.

The larger Loon Lake Reservoir constructed by SMUD in 1963 has a "normal maximum capacity" of 76,200 acre-feet at its normal pool elevation of 6410 feet, a 58-foot increase from the original Loon Lake's elevation. The new rockfill dam is 108 feet high and has a crest length of 2130 feet. [Sacramento Municipal Utility District, p. A-10]

As Figure 6 shows, the larger reservoir necessitated an auxiliary dam at the saddle at the headwaters of Rocky Basin Creek. That saddle dam (called the "Francis Fill" on Brattland's web site) is 95 feet high, with a crest length of 910 feet. So, did the original Loon Lake project include a low dam at this saddle as well?

The USGS Loon Lake quadrangle, with a 40-foot contour interval, shows the saddle elevation as below 6360 feet. But there is no indication of a dam and the 6352-foot lake edge is well back from the apparent saddle location. SMUD's 95-foot-high auxiliary dam has a crest elevation of 6418 feet, so its base is at elevation 6323, obviously the bottom of a fairly deep foundation excavation. If there was an auxiliary dam in the original project, it cannot have been very high.

New Loon Lake: Saddle dam at lake's southwest corner, with granite blocks from old dam. June 27, 2002.

Access to Loon Lake

Today, the trip to Loon Lake Dam is a pleasant cruise up a smooth, well-designed two-lane highway that skirts the south and east shore of lake all the way around to the main dam at Gerle Creek (Figure 6). Prior to SMUD's arrival, a narrow, rocky road followed the same path up the canyon, high above the upper South Fork Rubicon River.

That old road turned off the Wentworth Springs Road just south of Angel Creek and extended about 5 miles to a campground at the south end of Loon Lake (Figure 6). The first 3½ miles had a few rough spots but were reasonably passable for a passenger car. Beyond that stretch, the road, which was cut into the steep hillside, became too loose and rocky for the average two-wheel-drive vehicle. My family made the drive up the Loon Lake Road nearly every year and we always had to turn tail when the road became too rough for our 1939 Plymouth. Turning around was thrilling, as the road was narrow and the drop-off breathtaking. My mother always grabbed me and got out of the car "just in case" while my father was backing and forthing to turn around.

Baker and Shoup credit the California Water and Mining Company with opening up the roads into the upper basin:

Road to Loon Lake: Defeated again. My wife, Mary Brown, sighs with relief after we had just turned our 1958 Beetle around at this "wide" spot. We were ready to head back down, not realizing we were seeing this old road for the last time. Chipmunk Butte is on the far horizon. August 1959.

> *"Prior to 1872 the area to the east of the Pilot Creek Reservoir and north of the Georgetown cut-off road* **[Riverton to Georgetown, LB]** *was essentially a roadless wilderness occupied only during the spring to fall period by a few explorers, shepherds, hunters, and trappers. This changed during the 1870s, when a group of San Francisco capitalists decided to invest in and develop some of the mining and water resources of the area. During the 1880s they expanded their investment. Their efforts resulted in the construction of a road to and beyond their new ditch and sawmill camp on the South Fork of the Rubicon..."* **(Baker and Shoup, p. 15]**

Old newspaper accounts indicate that the old Loon Lake Road up the South Fork Rubicon canyon was the California Water Company's main access to Loon Lake starting in about 1874. In the 1940s, that road ended at the campground at the south end of the lake and did not connect to the dam area, which was another 2 miles around the west side of the lake. But a 1916 Eldorado National Forest map excerpted on Mike Brattland's "gerlecreek.com" web site clearly shows the road continuing along the lakeshore to the dam.

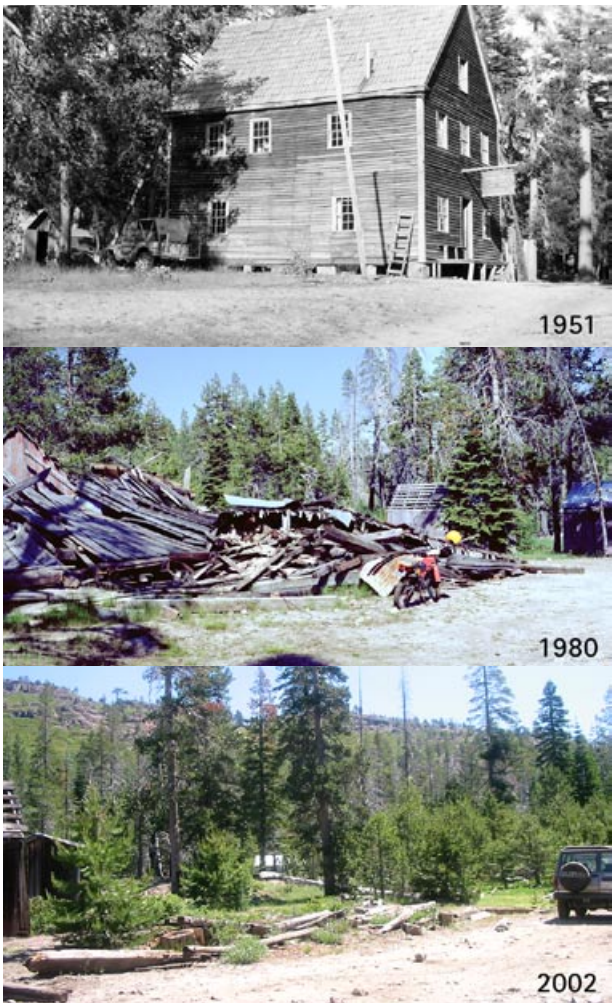
Loon Lake dam construction was well under way in 1881, so this newspaper quote confirms that the builders' main access was not via Wentworth Springs:

> *"Through their determined energies the Wentworth brothers have finally constructed a wagon road through to the springs from South Fork via Jacobson's and Gurley's dairy ranches, which is now very passable, and will be improved still more in time for next Summer's travel."* **[***Georgetown Gazette***, September 8, 1882]**

However, the trail from the dam site to Wentworth Springs was in use during the construction period, as indicated by this dispatch from "Wentworth's Soda Springs" to the ***Georgetown Gazette*****:**

> *"After a good night's rest three of us went on a deer hunt, as the Loon Lake boys who come here to drink, told us game was plenty."* **[***Georgetown Gazette***, July 28, 1882]**

My folks and I walked in along the road to the campground at the south end of Loon Lake once or twice, but almost all our experience with lake access was via the hiking trail from Wentworth Springs Campground, the "Old Trail to Dam" on Figure 6. The trail to Loon Lake Dam started near the Wentworth Springs Campground, about a mile east of Wentworth Springs hotel/store.



Wentworth Springs hotel/store: elevation 6013 feet. Approximately the same area, over a 51-year span. The building was newly collapsed in 1980. Most of the debris had disappeared by 2002.

Wentworth Springs hotel/store: July 1951. Sign says: "Office Cabins, Boats for Rent, Jeep Trips, Beer, Groceries." My mother and the family 1939 Plymouth are lurking in the background.

Loon Lake Dam: Looking southerly along dam crest. The rowboats are those rented at Wentworth Springs store; they were badly deteriorated by the 1950s. Photo by W.A. Perkins, California Department of Public Works, Division of Water Resources. July 12, 1937.

In the 1950s, the Wentworth Springs Road was maintained in good condition as far as the trailhead; from that point east, it was strictly a four-wheel-drive track, the one made famous by the Jeepers Jamboree (which now starts at Loon Lake Dam, bypassing the fragile first mile of the old road beyond Wentworth Springs Campground).

By 2002, Wentworth Springs was long abandoned. The main building collapsed sometime prior to 1980 (photos) and the last 4 miles of road beyond pavement's end were no longer maintained regularly. One short section of road, on the rocky ridge near the Jerrett Creek bridge just west of Wentworth Springs, was passable only by four-wheel-drive vehicles in the summer of 2002. (Jerrett Creek is apparently named for Dan Jerrett, prominent Georgetown merchant who was frequently mentioned in the *Georgetown Gazette* as up fishing in the Wentworth Springs area.)

This newspaper article provides a sharp contrast to the desolate ruin shown in the 1980 and 2002 photos on page 51:

> *"We arrived at Wentworth's Wednesday evening, and was surprised to find so many people there—ten camps besides 12 or 15 boarders which Mr. W. and his energetic wife were accommodating. We counted more than 50 people there the following day. Quite a number were from Sacramento city and county, and Georgetown, Greenwood and vicinity were largely represented. We found this health and pleasure resort a much better place than we expected. The water is very palatable, sparkling, and health-giving to all who drink it....Mr. Wentworth is building a fine two and a half story frame house 24 by 32, which will be completed this Fall."* **[*Georgetown Gazette*, September 8, 1882]**

The *Georgetown Gazette* of September 15, 1882 reveals that the lumber for the Wentworth Springs buildings came from a familiar source:

> *"The California W. & M. Co's saw mill at South Fork is turning out as fine a quality of sugar pine lumber as can be found in the State. In addition to the large amount of lumber required by the company for flumes, etc., there is a growing local demand. Wentworth's Springs, which is just beginning to grow in importance as a Summer resort, obtains all its lumber from this source, as do all the dairymen for 20 miles around."* **[quoted in Baker and Shoup, p. 18]**

The trail to Loon Lake Dam was only a mile long, but somehow it seemed longer. You began by brushing through the skunk cabbage on the marshy ground beside Gerle Creek (which carried a good flow in those days—nearly ten times the current 4 cfs minimum SMUD is required to release at Loon Lake Dam to keep fish alive). As Figure 6 shows, the last half of the trail climbed out onto the bare granite before reaching Loon Lake Dam. On the granite, the route was marked by "ducks," small stacks of stones at intervals along the route.

One of my early memories is of Art Rasor leading us off to the north of the established trail to an old airplane crash site. The story was that the pilot had some problem and tried to land, thinking the granite was smoother than it actually was (with fatal results). *[Correction, June 2003: It was not fatal; the pilot walked away, per retired San Mateo County Superior Court Judge Wilbur Johnson, who saw the wreck in about 1931 or 1932. See Mike Brattland's web site for more about Judge Johnson.]* **By the early 1940s, there was only a small pile of rusty debris. I suspect everything of interest had been packed off long before; all we saw were wires and unrecognizable metal debris.**

On the trail to Loon Lake: Art Rasor, my mother, Daisy Gerken Brown, and me, almost age 4: June 24, 1940.

One would expect the foot trail from Wentworth Springs Campground would have been developed to provide vehicle access to the dam during the1934 enlargement, but neither Mike Brattland nor I recall seeing any sign of vehicle traffic on the trail. (Such use should have left its mark on the boggy meadow beside Gerle Creek.)

An online discussion of a jeep road realignment by the "Friends of the Rubicon" refers to "a section of the original Loon access trail that hasn't seen a lot of recent use." That section is along Ellis Creek about ¾ mile north of Loon Lake Dam. This raised the possibility that the 1934 construction crew might have come in from the north, turning off the Wentworth Springs—Rubicon Springs Road about 2 miles east of Wentworth Springs. But Mike Brattland discounts this theory, noting that "...there was never any original route around to Ellis Creek...it was created basically by jeepers who started trying to make it around that way and they got some support from the Forest Service since it is pretty much solid granite and nothing that can be damaged by the...vehicles."

Operation and Maintenance

Regular operation of Loon Lake Dam involved only two sets of moving parts, the spillway flashboards and the outlet gates. As the photo below shows, the spillway was simply a gap on the right (north) abutment of the dam. There was no channel back to Gerle Creek; water passing through the spillway just cascaded over the granite to reach Gerle Creek right below the dam.

Loon Lake Dam: Spillway on right abutment, with a full complement of flashboards raising the lake almost to the dam crest. Photo by W.A. Perkins, California Department of Public Works, Division of Water Resources. July 12, 1937.

In his report on a September 11, 1934 inspection of that summer's repair work on Loon Lake Dam, State inspector W.A. Perkins noted this rather alarming proposed deviation from conventional dam operating procedures:

> *"Mr. Rasor stated it was the intention to place a mortar coat over the crest of the dam so that it could operate as a spillway throughout its length. Mr. Rasor was advised that this office could not permit the operation of this dam as an overflow structure. Upon being told by Mr. Rasor that it was the custom to install flashboards in the spillway in the fall he was advised that these flashboards should not be placed until after the danger of floods had passed in the spring."* [Perkins, 1935]

After the State's intervention, the Georgetown Divide Water Company altered its operating procedure to remove the spillway flashboards in the fall. In July 1939, the State inspector noted:

> *"Flashboards were in the spillway to the full height. The matter of removing these flashboards as soon as the water surface falls below the crest of the spillway was discussed with Mr. Rasor. He said it is the practice to leave these in until after the tourist season in the fall because of the fact that if in place there is much less tendency to destroy them or burn them up, as found by experience."* [Perkins, 1939]

Removing the flashboards in the fall brought the corresponding job of reinstalling them in the spring. This was likely one of the reasons for the over-snow expeditions that Dale Rasor, Jr. described his grandfather making:

> *"They would leave Eight-Mile House on skis and go to the cabin at Ditch Camp on the first day. The next day they would ski up to Loon Lake and back, then return to Eight-Mile House the third day."* [Rasor]

The trip Dale Rasor described entailed about 25 miles of travel on Days 1 and 3, and around 18 miles on Day 2. Robert Flynn told of making a similar trip in 1938 for a U.S. Forest Service snow survey: one day to Ditch Camp and one day for the return trip. Flynn mentioned following the license plates that were nailed about 10 feet up in the trees to mark the path of Wentworth Springs Road east of Georgetown. [Flynn]

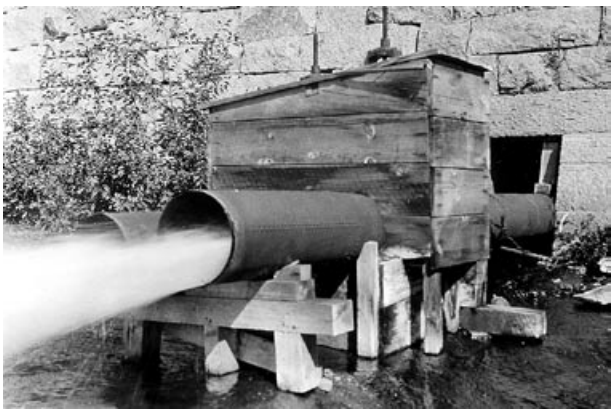
I recall those license plates well; they were each half a California Plate, orange and black and each

bore the letters "UR1." I remember the letters well, because we used to joke about them as we drove along. I didn't find any remaining license plates in a cursory drive-by in 2002, but the road has been realigned in many places. There must be some out there somewhere. My best guess of where to look is along the ridge just southwest of Uncle Tom's Cabin; the plates along there used to be on the south side of the road.

So, how did a huge stack of license plates that started with "UR1" end up nailed to trees in Eldorado National Forest? My good friend, renowned license plate collector Louis A. Beck of Fresno, California, consulted the Archives of the American License Plate Collectors' Association and found the "UR" stood for Unemployment Relief, a depression coinage that was apparently connected to State participation with the Federal Emergency Relief Administration. FERA, created in May 1933, matched funds of state and local governments for unemployment relief. The "UR" plates were issued in 1934, 1935, 1936, 1938, and 1941, numbered serially from "UR 1001" to "UR 1600." [Beck] Apparently, the State produced more "UR" plates than needed and the surplus somehow ended up in the hands of the U.S. Forest Service.

It would have been particularly important to install the spillway flashboards early in dry years; in wetter years the need for Loon Lake water would have been lower and there would have been ample inflow to fill the lake even if flashboards were installed later. So, in years with good snowpack in the Loon Lake drainage area, it was probably possible to delay the first visit to the dam until the roads were opened in the Spring.

The other moving parts at Loon Lake Dam were the outlet valves, on the two 18-inch pipes that passed through the base of the dam (above, right and Figure 7, page 48). These valves were probably left slightly



Loon Lake Dam: Twin 18-inch outlet valves at the base of the dam. Photo by H.R. Howells, California Department of Public Works, Division of Water Resources. September 1, 1932.

open in the Fall, to prevent freeze damage and to provide a modest flow down Gerle Creek. During the diversion season, Art Rasor made the trek to Loon Lake every week or so to adjust the valves in response to changes in: (a) the needed diversion to the Gerle Creek Ditch; (b) tributary inflow to Gerle Creek between Loon Lake and the Gerle Creek diversion; and (c) lake level, which affected both outlet flow and leakage through the dam. I accompanied Art on some of those valve-adjusting trips—the beginnings of my water career.

Besides the periodic attempts to reduce leakage through the dam, the major maintenance activity was occasional burning of the wood debris that accumulated near the spillway entrance (as shown by the center photo on page 45). State dam inspectors mentioned the debris pile in several reports; it sounded as though Art Rasor might have had just a bit of a problem getting around to that particular chore. My guess: He didn't like being bossed around by those State boys.

Loon Lake Dam today: just an ugly pile of rocks. The creek outlet is directly above the gray Isuzu. June 27, 2002. The grove of trees on the right is the same one shown on the 1953 photo on page 43.

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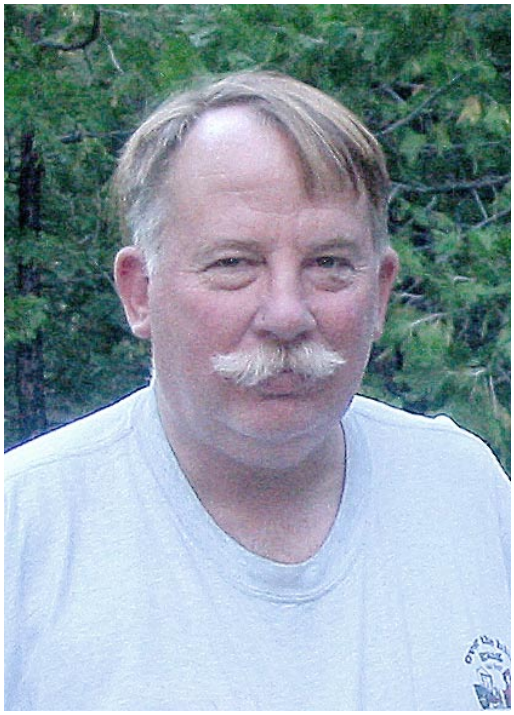
A Photo Bonus for the 2007 (And Later) Printings
(A glimpse of a few of those who contributed to this book)



Commander Mike Brattland (retired U.S. Navy helicopter pilot) at his cabin in the Gerle Creek Summer Home Tract, July 2, 2003. Mike is THE history expert for the region, and proudly maintains the gerlecreek.com web site—a "must see."

Carolyn Beam and the late Judge Wilbur R. Johnson relax on the terrace at Ditch Camp, July 1, 2003. "Wil" was on a journey to revisit Wentworth Springs, where he spent boyhood summers in the '30s. Some of his recollections are featured at gerlecreek.com. Judge Johnson died March 14, 2007, age 79.

At their home near Sonora, Dale Rasor, Jr., his wife Laura, and their daughter Allyson preview some of the photos that were destined for this book, August 2, 2002. And, of course, they contributed many photos, which I scanned on the spot.

(Thelma) Marie Lawyer on a visit to Uncle Tom's to see her son, Doug Purrier, June 26, 2002. I was fortunate to meet her that day; Marie died on December 6, 2003, age 86.

Appendix A: Art Rasor, A Brief Biography

Although my parents were long-term friends of Art and Laura Rasor, I was never aware that they discussed much about Rasor family history. Except as otherwise indicated, what follows here was learned in recent (2002-03) discussions with Dale Rasor, Jr. of Sonora, California, who spent many weeks with his grandfather at Ditch Camp and Georgetown.

Art Rasor's ancestors immigrated to America from the area that is now Germany in the 1700s. Arthur Edgar Rasor was born to Joseph Warren Rasor and Elizabeth Poe Rasor in Ohio on November 8, 1883. Art had three brothers, Joseph, Jesse, and Oscar (1892-1961) and four half-sisters, Ella, Fanny, Jenny, and Cora. Oscar's middle name was Allan, which combined with Art's middle name to honor Edgar Allan Poe (who must have been somehow related to Art's mother?).

Art married Laura Fortney (1885-1957) in Greenville, Darke County, Ohio, which is near the Indiana line. They had two sons, both born in Ohio: George (1906-1992) and Dale (1908-1964). George lived in Sacramento, working for the State as a gardener in the showpiece gardens of Capitol Park. Dale worked with Art on the ditch at times, but spent most of his working years in the lumber industry in Sonora.

Art and Laura Rasor on their wedding anniversary in 1946. [from the collection of Dale Rasor, Jr.]

Art and Laura came to California when Dale was young, settling in Sacramento, where Art started a large automotive garage business. His brother Oscar worked there with him. Art brought in a partner, but the partnership soured when he discovered the partner was stealing from the business. Art was planning to shoot the partner, but Oscar talked him out of it. Instead, Art walked out, abandoning both partner and business.

This was a low point of Art's life—he was left out of work and short on money. But, in an often-repeated mainstay of family lore, Art heard there might be work in Jackson and hiked the 48 miles to that foothill town to check out the rumor, which turned out to be false. So he turned around and walked back to Sacramento. (This helps explain why he later seemed to think nothing of a 10-mile hike to patrol the South Fork Ditch.)

Art eventually found work at Pino Grande, an El Dorado County lumbering center about 50 miles northeast of Sacramento (3 miles southwest of the present Stumpy Meadows Reservoir, Figure 1, page 3). His experience with Westinghouse air brakes landed him the job in the shops of the Michigan-California Lumber Company, repairing narrow gage steam engines and rolling stock. (The company had a network of nearly 50 miles of track to haul logs back to the Pino Grande Mill.)

After Art got the job, the Rasors moved to a home about 10 miles from Pino Grande at Eight-Mile House, named for its distance east of Georgetown along Wentworth Springs Road. At some point while they lived there, Art had a gold claim at Whiskey Diggings near Volcanoville, which he worked with son George. They had some pretty fair success, but in a situation somewhat reminiscent of his garage days in Sacramento, Art was too trusting of others and ending up losing a good share of the hard-gotten gold.

There is no clear record of when Art started working for the Georgetown Divide Water Company. We know for certain that he was foreman of the work to raise Loon Lake Dam in 1934:

> *"The five-foot additional dam on Loon Lake is expected to be completed this week, according to word sent out by Arthur Rasor, foreman."* [*Placerville Republican*, October 11, 1934]

Another clue to his employment date comes from the 1978 oral interview of his successor, who said:

> *"There was this old gentleman in town, Art Rasor, who'd been there—he'd been there 25 years and he wanted to retire..."* [Coonrod]

Coonrod was referring to a 1947 conversation, so if we took his "25 years" literally, Art Rasor would have begun work for the Georgetown Divide Water Company in 1922, when he was 38 years old.

Dale Rasor, Jr., however, thinks Coodrod's "25 years" was an imprecise estimate. He recalls that his father began working at the Pino Grande mill at a young age, maybe 17, while Art was still em-

ployed there. That would have been 1925. Dale, Jr. also had the impression that Art did not work for Michigan-California long, so we might estimate that he started with the water company within a year or two after 1925.

Apparently, Art spent his entire career with the company working summers as superintendent of the upper facilities—Loon Lake and the South Fork and Gerle Creek ditches. But he worked some at other times and places as well. The family story trove includes tales of his skiing up to a snowbound company cabin on Pilot Creek near Mutton Canyon and of the Loon Lake ski expeditions described on page 53. And, Art once had a narrow escape after wading deep into the 1000-foot-long Tunnel Hill tunnel; dislodged debris clogged the tunnel, forcing Art and his helper to make a frantic escape back to the upstream portal as the water rose in the tunnel.

In years without significant winter flume damage, Art probably moved to the company-owned house at Ditch Camp around the first of May, in time to ready the ditches to begin delivering water to Pilot Creek in late May (a bit earlier in dry years). In years of heavy snow damage to the vulnerable South Fork Ditch flumes, he was probably fully involved with the repair crews who were sent up as soon as the area was accessible. These crews usually stayed at either Bob's Cabin (pages 11-12) or Uncle Tom's Cabin (pages 63-66).

Art stayed at Ditch Camp until October or November, leaving after shutting down the ditches and preparing them for winter. His work hours depended on what needed to be done. Art's son Dale and Laura's nephew Dick also worked for the Georgetown Divide Water Company at times. (Dick died in October 2001, taking many memories of those days with him.) Laura spent some summers with Art at Ditch Camp (pages 38-39).

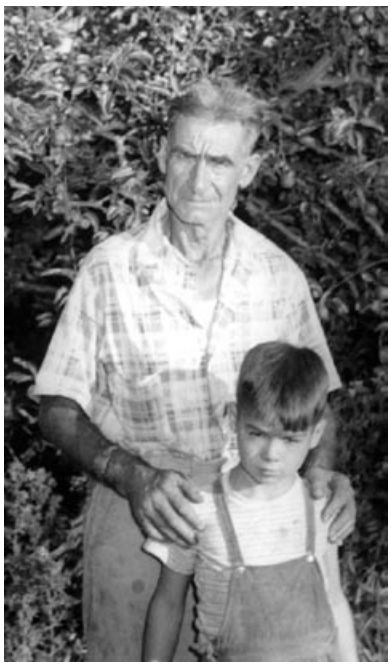
Ditch Camp, 1944: Art and Laura Rasor, with their son Dale , his wife Mildred, and their boys (l to r) John, Arthur, and Dale, Jr. [from the collection of Dale, Jr.]

About 1946, Art and Laura moved from Eight-Mile House to a place they bought in Georgetown, a house plus a 5-acre pear orchard on the adjoining hillside. Once they moved to the new place, Laura stayed home to keep things running and no longer spent much time at Ditch Camp.

Art and Laura at the Georgetown house, about 1950. [from the collection of Dale Rasor, Jr.]

Dale, Jr. remembers the pear orchard as being "a lot of work." About 450 Bartlett and Bosc pear trees had to be sprayed in spring (DDT) and fall (dormant spray).

During the summer, the orchard had to be irrigated (with Georgetown Divide Water Company water, of course) via a network of small ditches that were run three or four at a time until the entire orchard was covered.



Art and grandson Bill Rasor (Dale's fourth son, born in 1945) in the pear orchard about 1951. [from the collection of Dale Rasor, Jr.]

Carolyn Beam, George Devore's granddaughter, recalls helping Art with the pear harvest. Being the boss's granddaughter didn't gain her any special treatment; she was paid 10 cents per bucket and the pears had to be larger than a size ring she was issued when starting to work each day [Beam]. Dale, Jr., who worked on the pear harvest many years before Carolyn Beam, recalls the ring as being 2-3/8 inches in diameter, tethered to the picker's wrist by a string. He found the minimum size limit an annoying hindrance to speedy picking; he looked forward to the final picking of the season, when all remaining pears were destined for the cannery, regardless of size.

When Dale, Jr. went to help his grandfather with the pear orchard, he showed he was "a chip off the old block" by riding his balloon-tire bicycle from Sonora to Georgetown. He made this arduous and dangerous ride twice, about 1950 and 1951. The 12-hour, 90-mile trip, across the grain of the Sierra foothills, took him down into and back out of the canyons of the Stanislaus, Calaveras, Mokelumne, Cosumnes, and South Fork American rivers, plus countless smaller tributaries. What impresses me most: Dale devised a water drip system that allowed him to open a spigot valve to cool his coaster brake on the long downgrades.

Art's brother Oscar followed him to the Georgetown area. He became a medical doctor and practiced for awhile in Georgetown. Rumor has it that he ran into some difficulties over his liberalism in following what is today known as a "pro choice" agenda. I met Oscar once, probably in the late 1940s, when he was up at Ditch Camp for a visit; as I recall, he acted gruff, but had a twinkle in his eye that told you it was just an act. Oscar died in 1961; he and his wife, Adeline, are buried in the Pioneer Cemetery in Georgetown.

As a boy, I was goggle-eyed at the big old German Luger pistol that Art holstered up whenever he went out of his house. Naturally, it was strictly a "look, but don't touch" object in those days. So, it was an incredible treat when I learned recently that the Luger was still in the Rasor family. Not only that, they dug it out and put it into my hands. It was as though I was reaching out to touch the past. The Luger was originally military issue, a 1918 Artillery model; the yellow grips are replacements and the pistol appears to have been reworked [Shattuck]. This suggests it was in civilian hands when World War II ended and was likely among the many such weapons "liberated" by American troops. Dale Rasor, Jr. said the Luger was given to Art by Junior Hayes.

One of my memories of the Luger came shortly after Art acquired it, maybe around 1946. My father and I were visiting in the kitchen at the Ditch Camp house when Art brought out the Luger to show it off. In the process, a spring popped out of the clip and disappeared into the evening gloom inside the room. The three of us hunted high and low, without success. The spring reappeared in the following year at the bottom of the woodpile. When Dale, Jr. told me the story of Art having only one round in his pistol when confronting a bear on the Half-Mile Flume (page 14), I realized that bear encounter must have occurred during the year the Luger's magazine spring was hiding in the woodpile. And, Dale finally figured out why his usually well-armed grandfather was out there with only one round in his pistol.

We aren't absolutely certain when Art retired from the Georgetown Divide Water Company. Dale, Jr. is certain Art was no longer working in 1950. Lawrence Coonrod, Art's eventual replacement, was working in a mill in 1947 when Art told him he was about to retire and suggested Coonrod apply for the job. Coonrod began working with Art in 1947, but his 1982 interview makes it clear that he was not Art's designated replacement until after the 1947 season—he mentions being asked at the end of the season if he'd like to continue

Art Rasor (seated) at his chrome mine near Coloma, about 1954. [from the collection of Dale Rasor, Jr.]

with the company. So, it's likely that Coonrod entered his formal apprenticeship in 1948; if so, Art could have been ready to retire after the 1948 season, just prior to his 65th birthday. But, as the paycheck stub (and the accompanying story) on page 26 show, I know for certain that Art was working on the ditch in July 1948. And, I think I would have been aware if his retirement had been imminent at that time. Dale Rasor, Jr. thinks that Art's last year was 1949; that seems to be the best fit with the other available evidence. The only other possibility is that he left after the 1948 season.

Retirement for Art Rasor was a lot like work for the rest of us. He had his pear orchard, and began serious work on a chrome mine near Coloma that he had acquired somewhere along the line. And, he took on a night cleanup job at a lumber mill.

Art, age 71, on the steps of the rebuilt Georgetown house (with the loyal Brown family dog, "Smokie"). August 29, 1955.

At first, Art seemed to be getting along fairly well after Laura's death. He stayed close to home, tending the orchard, but things gradually began to go downhill for him.

In the late 1950s, a tree disease called pear decline appeared in the Sierra foothills; within a few years, it had destroyed his orchard and nearly all the other pears on the Georgetown Divide. Art's world was further shaken when his brother Oscar died in 1961 and then he lost his son Dale in 1964.

There is no record of Art Rasor's final visit "up the hill" to his former haunts. Undoubtedly, he would have been saddened to see that his Loon Lake Dam was gone with scarcely a trace and the ditches and flumes he cared for so diligently were abandoned and going to ruin.

Just before the Fourth of July in 1953, the Rasor house was destroyed by fire that was likely related to the wood-burning cook stove. The house was immediately rebuilt by a local contractor. The new house was similar to the old one, but with more modern conveniences. Art and Laura were back in the new house by the end of 1953.

Laura did not get to enjoy her new house for long. She was diagnosed with breast cancer in November 1956; treatment was unable to stem the spread of the disease and she died on June 13, 1957.

In 1966 or 1967, Art abruptly left his house and more or less dropped out of sight. He was still in the Georgetown area, but his contacts with the family became less and less frequent.

Art died in November 1970, struck down by pneumonia in the month of his 87th birthday (pretty fair longevity for a man who enjoyed his Kool cigarettes right up to the end). Art and Laura are buried in Georgetown's Pioneer Cemetery, as their joint marker says, "Together Forever."

Appendix B: Uncle Tom's Cabin

Uncle Tom's Cabin. June 19, 2002.

No visit to the Gerle Creek/South Fork Rubicon River country can be complete without a stop at Uncle Tom's Cabin for a cold drink and an update on the latest mountain gossip.

The most authoritative version of the origin of the name of Uncle Tom's Cabin holds that the place was named after Tom Markham, an "illiterate white farm laborer from Virginia," who built a cabin there about 1864 [Baker and Shoup, p. 14]. Other accounts, now generally accepted as folklore inspired by Harriet Beecher Stowe, make vague reference to a black man named Tom, last name unknown.

Markham moved to Tulare County prior to the 1870 census, which lists him there. After Markham left, John Brock and John Saucerman used the cabin as a base for hunting and trapping. When they left, William Vaughn and Benjamin W. "Dick" Hartless opened a beer bar and store there. [Gardner and Davis, p. 91]

At some point, the business expanded from a bar/store to a full service inn. On July 17, 1885, the *Georgetown Gazette* reported:

> *"Uncle Tom's Cabin, 27 miles east of Georgetown, is fast becoming a popular place with the traveling public. Leaving Georgetown in the morning, the traveler reaches Uncle Tom's in the evening where splendid accommodations are to be had for man and beast. Professor Cromwell just down from there informs us that from 15 to 25 travelers receive accommodations for themselves and horses daily. This is on the road to Wentworth's Springs, Rubicon Springs, and Lake Tahoe."* [reprinted in Gernes and Deibert, p. 150]

Vaughn and Hartless went on to establish (separately) small settlements west and east of Uncle Tom's. It's not clear how or whether Vaughn and Hartless were involved, but Basilio Scolari claimed and patented the site of Uncle Tom's in April 1887 [Baker and Shoup, p. 23].

Scolari transferred his interest in Uncle Tom's and the surrounding land to the Swiss Timber and Land Company, "who built a substantial building there" in the late 1880s. Scolari stayed on to operate Uncle Tom's as a resort.

Uncle Tom's main building burned down shortly after the Swiss Timber and Land Company sold out to another lumber company, but it was rebuilt [Gardner and Davis, p. 91]. The date of the fire and rebuilding is not specified, but it was apparently sometime close to the turn of the century. The replacement Uncle Tom's Cabin was constructed right on the road; the original building had been nearer the meadow.

Sometime prior to 1900, Charles Schultz (also spelled Schulze) took over Uncle Tom's and continued to operate it as a summer resort. Schultz also ran a hotel in Coloma, where he spent winters. In November 1921, Mr. Schultz died of heart failure on his way back to Coloma for the winter.

Archie and Irma Lawyer of Lotus then purchased Uncle Tom's Cabin, as noted in this article in the *Georgetown Gazette* of May 4, 1922:

> *"Uncle Tom's Cabin, the well known summer resort, will be opened to the public about May 15 under the management of Archie Lawyer. The place will be thoroughly renovated, and besides the splendid hotel accommodations,*

auto supples and groceries will fill the needs of the traveling public. **[reprinted in Baker and Shoup, p. 27]**

Archie and Irma Lawyer were to spend the rest of their lives running Uncle Tom's, as indicated by the following from a 1975 interview of Irma:

> *"Every spring for 53 years Mrs. Lawyer has left her home in Lotus to go to Uncle Tom's in the mountains, where she and her husband, Archie, went to live after their marriage in 1912. Their first home was on Pollack Creek, near Uncle Tom's, which was owned at the time by Charles Schultz. When he moved* **[died? LB]**, *she and her husband bought the property."* **[Yohalem, p. 199]**

Sometime "during the mid-1920s," fire again destroyed Uncle Tom's Cabin. The building that is there today was built as a replacement. [Baker and Shoup, p. 28]

An archaeology/history consultant swept through the Uncle Tom's complex in 1992 in preparation for improvements of Wentworth Springs Road (aka Forest Highway 137). His observations included these gems:

> *"Permanent buildings and numerous mobile trailers are scattered around the site in an apparently random manner...Of the 19 other structures(including outhouses and chicken coops) at the site of the Uncle Tom's Cabin complex, six may be over 50 years of age. Five of these are cabins that were probably erected between 1930 and 1950. They are architecturally undistinguished..."* **[Brack, pp. 1 and 3]**

My first memories of Uncle Tom's Cabin and the Lawyers date from the early 1940s. Archie Lawyer (1891-1963) was a prominent cattleman who brought a large herd to graze in the high country

Uncle Tom's Cabin. July 1980.

Uncle Tom's Cabin, July 24, 1953: Brown family headed home in their trusty 1939 Plymouth.

every summer. He spent much of his time at the Lawyer Cow Camp about 15 miles farther up the road, near Wentworth Springs, leaving Irma to run things at Uncle Tom's.

The Lawyers had two children, Raymond (1912-1975) and Ethel, a year or two younger. For many years, Raymond worked with his father in the cattle business; he went on to serve with distinction on the El Dorado County Board of Supervisors from 1965 until his untimely death in the midst of his third term of office. Ethel married Clarence Tidd and lived in Placerville [Yohalem, p. 200]; she was among the sources interviewed by Baker and Shoup in 1992. Ethel died on April 19, 2002.

In my (admittedly limited) experience, Irma Lawyer (1892-1978) definitely ruled the roost at Uncle Tom's. She was always there, calling the shots on everything that went on. In 1980, I went back after a 20-year absence and stopped, half expecting to be greeted by Irma. The man running the place said, "You just missed her; she died a couple of years ago." Indeed, she died in January 1978 at age 85. Her final summer at Uncle Tom's was in 1975 [Lawyer].

My family's camping spot was 8 miles east of Uncle Tom's; in the 1940s and 1950s that 8 miles included some pretty rough pitches between Hartless Summit and South Fork Campground. The trip took about 45 minutes in our 1939 Plymouth (including the obligatory stop at Cold Spring to fill our car canteen), so we made only one or two runs to Uncle Tom's during each year's three-week camping stay. Of course, we also stopped by on the way in and on the way home.

As a little kid, I viewed the occasional trip to Uncle Tom's as a real treat. While my folks settled in for a long visit with Irma or the other interesting characters who were always around, it was a

Uncle Tom's Cabin, July 20, 1953: The well and the hand-powered gas pump. At the far left, just in front of the car, my father sits chatting with old George (white hat, facing away).

sure thing I'd get a Royal Crown Cola, in a large glass bottle cooled in a galvanized metal washtub out by the well on the north end of the building. Then, if I was lucky, I might be treated to a candy bar or a bag of peanuts from the stash Irma kept behind the bar.

Another prominent feature of Uncle Tom's was the gas pump, plainly in view in the two 1953 photos. This was a human-powered pump, on which the operator moved a two-foot-long handle (visible in the photos) back and forth over an arc of about 30 degrees to raise gasoline from an underground tank to the 5-gallon glass bowl at the top of the pump pedestal. Once the desired amount of gasoline was in the bowl, it was dispensed by gravity flow through a conventional hose and nozzle. In the 1950s, Uncle Tom's gas was 50 cents per gallon. At the time, valley gas was around 25 cents, so my father, a famously good money manager, didn't buy much gas there (much to my displeasure, as I loved to work that hand pump).

We always visited in the middle of the day, which probably gave us a one-sided view of Uncle Tom's as a quiet country retreat. In the heydey of logging, Uncle Tom's business peaked in the evenings and on weekends when thirsty loggers came by to take a break from their hard work in the woods. I've heard that things could get pretty lively around Uncle Tom's once the sun set.

During my youth, the bar was the small room on the north end of the building and the area of the present bar was off limits to civilians, guarded by a musty gray curtain. I have a vague recollection that food was served to the boarders on a large table in that next room, but I'm not sure.

In a 1975 interview, Irma Lawyer mentioned taking care of the men who arrived in early spring to repair the flume boxes. She recalled George DeVore: "He owned the ditch that ran about eight miles from Uncle Tom's to the South Fork of the Rubicon. The men always boarded with me..." [Yohalem, p. 200]

My most lasting memory of Uncle Tom's bar was the bank of three slot machines on a shelf just inside the door, ancient all-mechanical one-armed bandits. I think they were for three different coin denominations, probably nickels, dimes, and quarters. Several times I had a nickel ready in my pocket, but I never found an unguarded moment in which to try my luck.

Reportedly, Irma had a confederate somewhere back toward town who would phone when the Sheriff was headed up the hill. This gave her time to whisk those slot machines through that gray curtain and into the back room. I never saw this—just heard the story—but whoever told it was impressed by the way Irma could handle those heavy machines. Indeed, she was a robust woman. (In the 1920s, she is alleged to have hidden the slot machines in the outhouse [Yohalem, p. 200].)

The telephone was on a U.S. Forest Service line that served the lookout at Robbs Peak (and, probably, Bunker Hill Lookout too), Ditch Camp, and others closer to town. As I recall, a single grey metal wire was strung from tree to tree, attached via ceramic insulators that screwed into the tree. I could find no trace of the phone line in 2002;

Uncle Tom's Cabin, July 1980: This was the entrance to the bar in the 1940s and 1950s. The slot machines were on a shelf just inside the door on this wall.

it was probably removed when radios came into general use or when the lookouts were decommissioned (1978 for Robbs Peak).

The Forest Service allowed Uncle Tom's and the Georgetown Divide Water Company (at Ditch Camp) to share the party line. Each place had its own ring code, a combination of short and long rings created by a hand-cranked magneto. You were supposed to answer only your own ring, but rumor had it that Irma was known to listen in on others' calls now and then. I suspect she was not alone in that habit.

To supplement the slot machine revenue, Irma kept a supply of punch boards, primitive gambling devices resembling honeycombs, in which one paid a fixed charge for the privilege of using a metal stylus to punch out a rolled-up paper about the size of a fortune cookie message. All I ever saw said something like, "Sorry, try again," but there were allegedly some nice monetary payoffs in there somewhere.

When I was there in the 1940s and 1950s, there were always several boarders and assorted hangers-on around Uncle Tom's. The only one I recall specifically was a white-haired old veteran named George. I'd like to say he was a Civil War veteran, but simple arithmetic would prove me a liar; maybe it was the Spanish-American War (1898). George always sat out front in a wooden chair, whittling and waiting to pass the time of day with anyone who stopped by.

My father was socially shy in any group setting, but he savored one-on-one conversation. He never passed up a chance to visit with George. Once they got started, I knew we'd be around Uncle Tom's for at least another hour, not the most exciting prospect once I had my Royal Crown Cola and treats. My mother must have been experiencing a similar twinge of boredom on July 23, 1953 when she dug out the camera to take the photo on the top of page 65, which shows my father and George in one of those prolonged conversations.

A short, dark-haired, stocky young woman named Anna was also a regular summer resident at Uncle Tom's. As I recall, she had some degree of mental disability and seemed to be more of a servant than a guest. I remember my mother (rightly or wrongly) privately doing a bit of hand-wringing over the way Anna was treated.

During World War II, meat was rationed; each month a person or family was issued a set number of red stamps. In the butcher shop, every cut of meat had two prices, one for money and one for red stamp points. Irma fed her boarders with Lawyer beef and collected their red stamps. This gave her a nice hoard, which she shared with my parents at least once, a generosity they never forgot.

Uncle Tom's Cabin is still in the Lawyer family, owned jointly by Marie Lawyer, Raymond's widow, and her son Doug Purrier, both of Lotus, California. (I think Doug told me that he still has one of Irma's slot machines—either that or he knows where it is.)

The beer bar is still in business, and Uncle Tom's also offers cabin and campsite rentals. The soft drinks are in cans now, refrigerator cooled. But amazingly, the only cola on the menu in 2002 was Royal Crown, the same obscure brand stocked a half century earlier.

Uncle Tom's got its start as a wayside rest for travelers. The road has been realigned to stay on the ridge, so travelers now must turn off the pavement and make a loop detour down the hill to visit this landmark. It's well worth the short side trip—don't miss it.

Update, 2004: As part of its continuing program to wall off public lands from the public, the Forest Service has now closed and locked the gate on the return road from Uncle Tom's to the Wentworth Springs Road. So, now it's "down and back" to visit Uncle Tom's. But this is a minor annoyance, not a significant distance increase for the traveler. (Doug Purrier likes the change becasue it reduces the dust churned up by lookie-loos.)

Appendix C: Ditch Flow Records

The tools have evolved, but the basic process for measuring water flow in open channels is still about the same as it was a century ago. The hydrographer locates a pool where the flow/depth relationship is likely to remain relatively constant over time, such as in a rocky stream reach where erosion or deposition are unlikely.

Then, some method is selected to record the height of water in the pool. This can be as simple as periodic (usually daily) readings of a staff gage (never "gauge" in this usage) by an observer. But the usual and more accurate method uses a recording device to make a continuous record of the gage height. Gage height recorders were once elegant mechanical devices that made a pen tracing of the water level as indicated by a float inside a stilling well anchored vertically in the pool. A recorder house atop the stilling well protected the recorder mechanism from weather and the curious. Today, the recording device is all electronic and the data are downloaded via computer rather than by removing a spool of recorder paper.

The other half of the stream gaging process starts with periodic measurements of flow of the stream over a wide range to develop a "rating curve," a graph of flow vs. gage height. Field flow measurements are made by sampling depth and velocity at twenty or more points across the channel. Velocity is determined with a calibrated propeller-like meter with which the hydrographer counts the number of revolutions over a time span of about 40 seconds. Depending upon the flow level, depth/velocity measurements may be made by wading or from a boat, bridge, or cableway.

The known flow records of the Georgetown Divide ditches are those reported in the annual United States Geological Survey Water Supply Papers. Gaging stations were operated at four sites on the Georgetown ditches during two different periods. In 1910, the Stone and Webster Engineering Company installed gaging stations on the South Fork Ditch at mile 0.53 (Figure 2, page 9) and on the Georgetown Divide Ditch 3.2 ditch miles downstream from the present Mark Edson (Stumpy Meadows) Dam (Figure 1, page 3). The station names used at the time were "Little South Fork Ditch at Sawmill near Quintette, California" and "Pilot Creek Ditch near Quintette, California" (following the USGS custom of referencing station names to the nearest permanent human settlement).

These early gages were part of some now-forgotten comprehensive study by Stone and Webster, as several other stations were installed at the same time on Gerle Creek, the (Little) South Fork and main stem Rubicon rivers, and on Pilot Creek. Stone and Webster operated the two ditch stations through September 1913 and then turned them over to the Truckee River General Electric Company, which discontinued them within months.

No photos are available of any ditch gaging stations, but in 1932 my father took the picture below, which shows another Stone and Webster gaging station, still there 18 years after its last known operation. This installation is probably similar to the others; the Little South Fork Ditch at Sawmill station was only a couple hundred feet away at the upstream end of the flume over the (Little) South Fork Rubicon River.

The recorder house for the gaging station, "Little South Fork of Rubicon River at Sawmill near Quintette," operated February 1, 1910 through July 4, 1914 by Stone and Webster Engineering Corp., is still there in this July 1932 photo. The view is upstream on the river, from the bend just upstream from the South Fork Ditch flume, near the old South Fork Campground.

Page 69 displays hydrographs of average daily flow at the gaged ditch locations during the irrigation season of each year from 1910 through 1913. (I did not graph the remaining months of the year, but the records are available.)

Because we know little about ditch losses, we should avoid the temptation to do too much interpretation, but the general message of the 1910—1913 graphs is clear: the Gerle Creek/South Fork facilities furnished a

substantial share of Georgetown's dry season supply. During those four years, Pilot Creek flow was adequate to meet system demands until sometime between early June and early July, when the Gerle Creek/South Fork diversion was started up for the remainder of the season. (The Pilot Creek Ditch itself was not opened until June 11 in 1911; this followed a wet winter—it's possible that damage delayed the opening.)

In 1947, after a 34-year gaging hiatus, the USGS installed two gaging stations of its own on the Georgetown ditch system:

- "Georgetown Ditch above Pilot Creek near Georgetown, California" was located at Mile 7.55 of the South Fork Ditch, at the upstream end of the flume section that led to Hog's Back Tunnel (Figure 2, page 9; photo, page 12). This gage, which measured the net import to the Pilot Creek basin, operated continuously from May 1, 1947 until the final trickle of flow on December 1, 1961 (after which the ditch was abandoned). In late 1954, the station name was modified to "Georgetown Divide Ditch above Pilot Creek...."

- "Georgetown Ditch near Georgetown" was about 12 miles east of Georgetown, right at the future site of Mark Edson Dam, about one mile downstream from the point at which Pilot Creek water was diverted into the ditch and about 3.2 ditch miles upstream from the "Pilot Creek Ditch near Quintette..." station that operated from 1910-13. This USGS gage operated continuously from March 29, 1947 until it was discontinued on October 31, 1960 (in anticipation of construction of Mark Edson Dam, which began in earnest in the spring of 1961). The official station name was modified in 1954 to "Georgetown Divide Ditch...."

Pages 70-72 present hydrographs of irrigation season flows measured by the USGS from 1947 through 1961. Inspection of those hydrographs and comparison with those for the 1910—13 period supports these observations:

- Flows destined for Georgetown were significantly larger in the later years, almost certainly a result of increasing population and irrigation demand. These larger demands caused the South Fork and Gerle Creek ditches to be activated earlier in the season in the later years, sometimes prior to May 1.

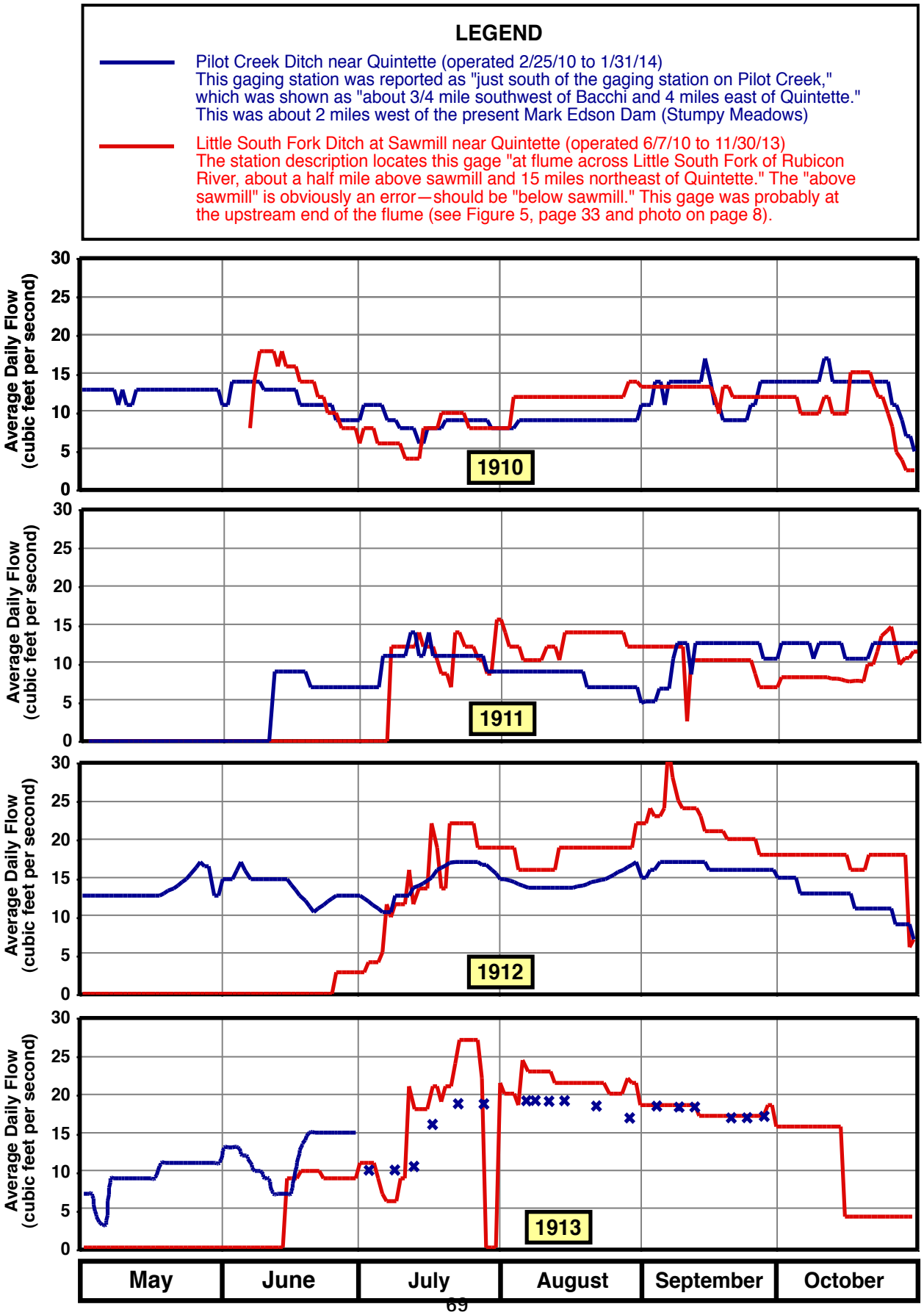
- In many years, nearly all the late summer supply came from the South Fork Ditch, a clear demonstration of the insufficiency of Pilot Creek flow that led the pioneers to build the South Fork and Gerle Creek ditches (and Loon Lake Dam) in the 1870s and 1880s.

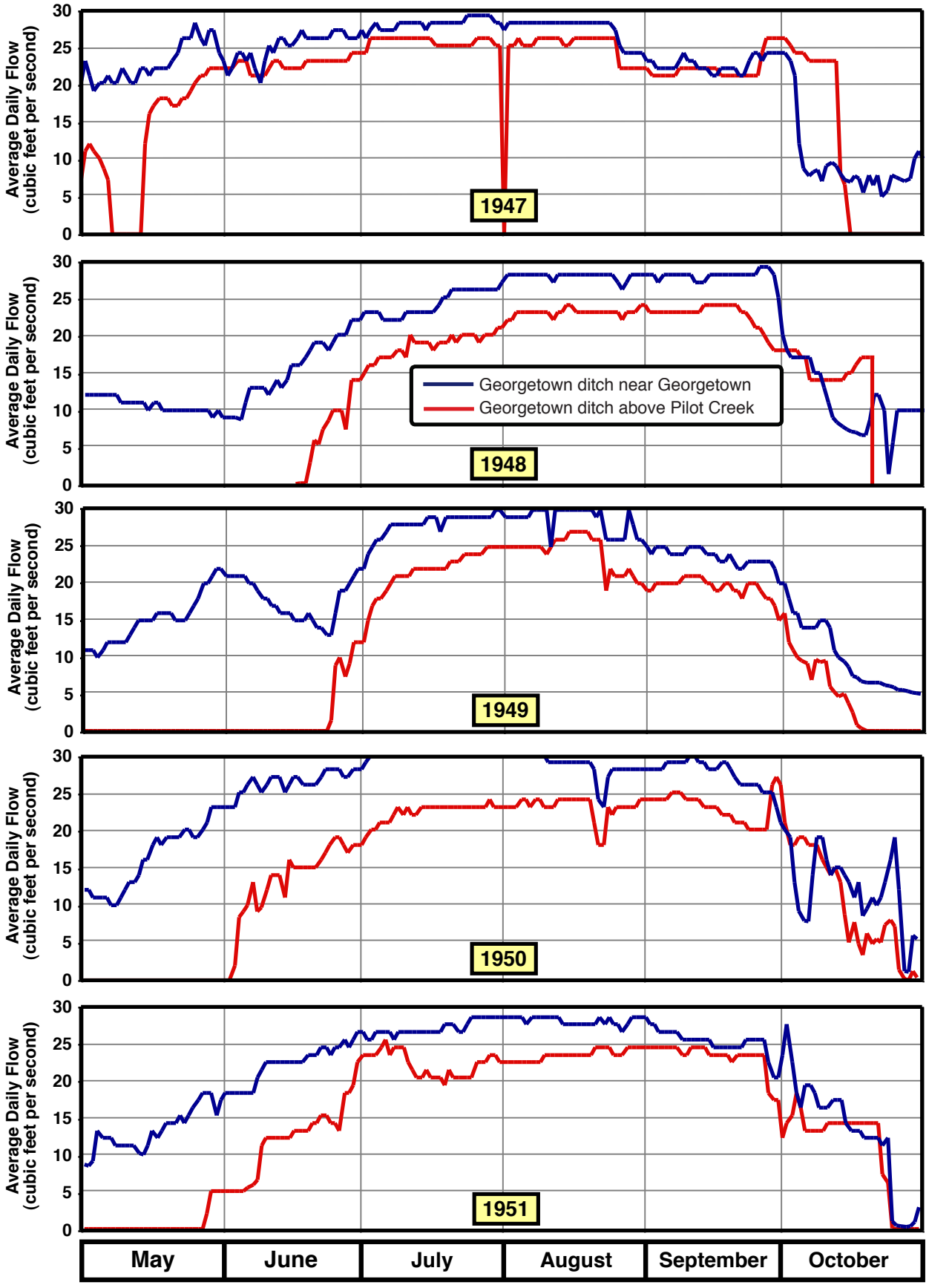
The year 1952 is clearly an anomaly, in that the South Fork Ditch did not begin delivering water to the Pilot Creek basin until August 19. As explained on page 13, this was a result of extensive repairs occasioned by major damage to flumes by snow slides and other effects of the severe 1951-52 winter.

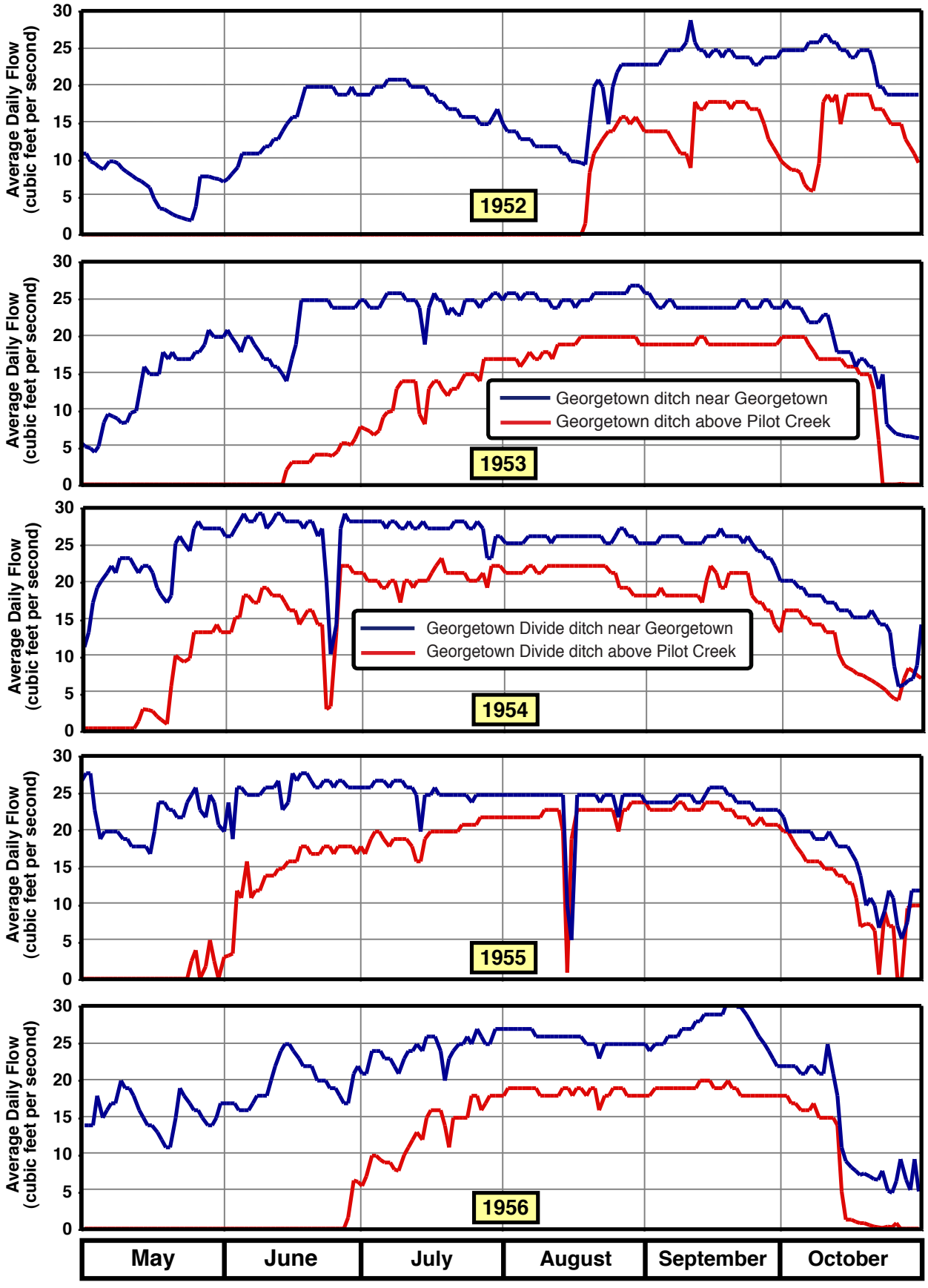
Finally, the tables on page 73 summarize all the gaged monthly flows on the Georgetown Divide ditch system prior to completion of Stumpy Meadows Reservoir.

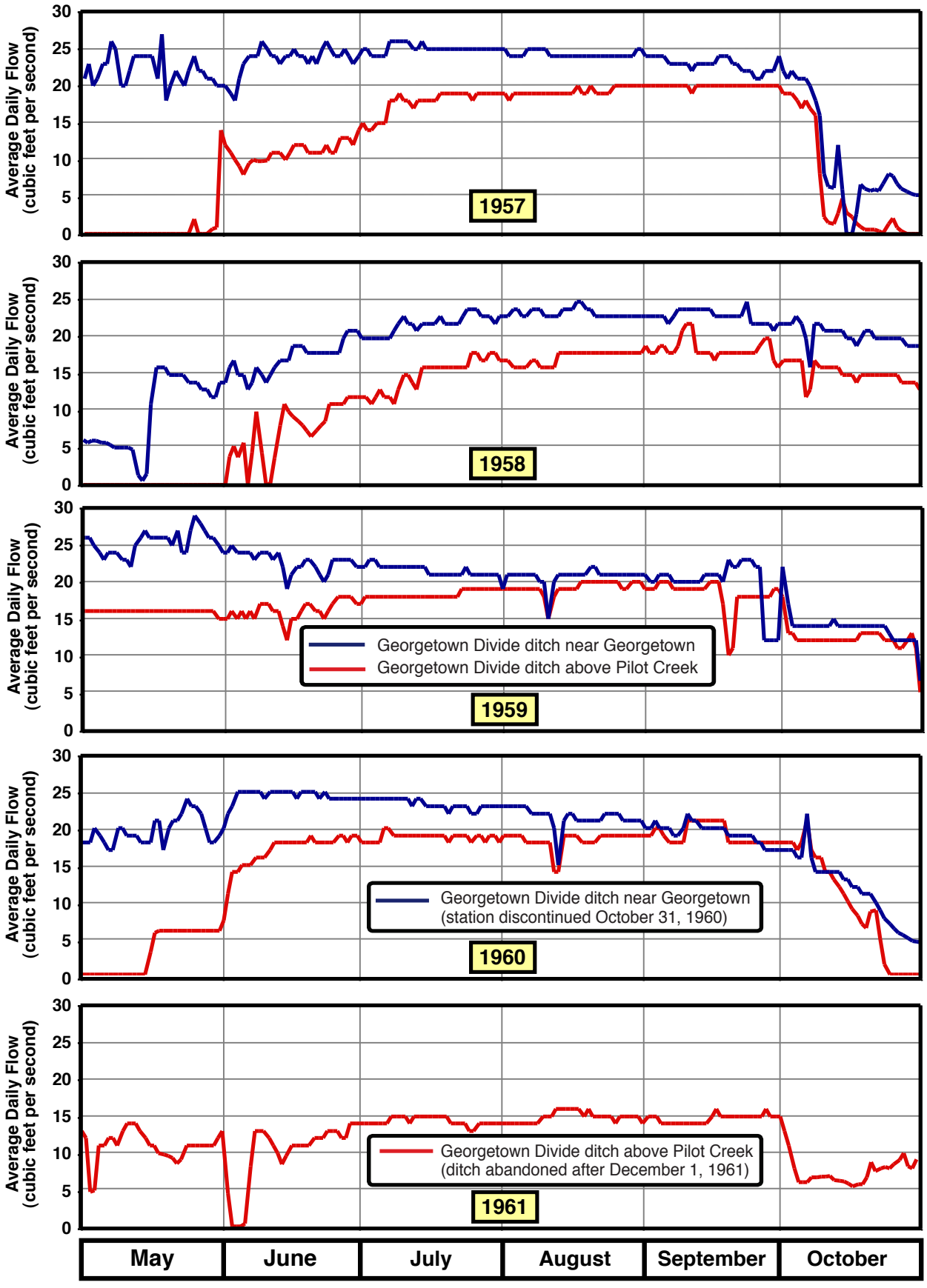
The South Fork Ditch began delivering water to Pilot Creek in 1875 and operated every season through 1961, a total of 87 years. From the monthly flow summary table on the top half of page 73, we may make a reasonable guess that the average annual delivery from the South Fork Ditch over its lifespan was in the vicinity of 4500 acre-feet. So, the total quantity of water delivered over the 87 years of operation was close to 400,000 acre-feet, twenty times the capacity of the present Stumpy Meadows Recervoir. Not bad for a bunch of guys with picks and shovels!


1942


LEGEND
Pilot Creek Ditch near Quintette (operated 2/25/10 to 1/31/14)
This gaging station was reported as "just south of the gaging station on Pilot Creek," which was shown as "about 3/4 mile southwest of Bacchi and 4 miles east of Quintette." This was about 2 miles west of the present Mark Edson Dam (Stumpy Meadows)
Little South Fork Ditch at Sawmill near Quintette (operated 6/7/10 to 11/30/13)
The station description locates this gage "at flume across Little South Fork of Rubicon River, about a half mile above sawmill and 15 miles northeast of Quintette." The "above sawmill" is obviously an error—should be "below sawmill." This gage was probably at the upstream end of the flume (see Figure 5, page 33 and photo on page 8).
Average Daily Flow (cubic feet per second)
0
5
10
15
20
25
30
1910
1911
1912
1913
May
June
July
August
September
October


Average Daily Flow (cubic feet per second)
30
25
20
15
10
5
0
1947
1948
Georgetown ditch near Georgetown
Georgetown ditch above Pilot Creek
1949
1950
1951
May
June
July
August
September
October


Average Daily Flow (cubic feet per second)
30
25
20
15
10
5
0
1952
1953
Georgetown ditch near Georgetown
Georgetown ditch above Pilot Creek
1954
Georgetown Divide ditch near Georgetown
Georgetown Divide ditch above Pilot Creek
1955
1956
May
June
July
August
September
October


Average Daily Flow (cubic feet per second)
30
25
20
15
10
5
0
1957
1958
Georgetown Divide ditch near Georgetown
Georgetown Divide ditch above Pilot Creek
1959
Georgetown Divide ditch near Georgetown
(station discontinued October 31, 1960)
1960
Georgetown Divide ditch above Pilot Creek
(ditch abandoned after December 1, 1961)
1961
May
June
July
August
September
October

Summary: Gaged Flows of South Fork Ditch

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
	Little South Fork Ditch at Sawmill near Quintette: Measured Monthly Flow in Acre-Feet												
1910						631	455	726	762	640	14	0	
1911	0	0	0	0	0	0	584	781	601	585	637	nr	3188
1912	0	0	0	0	0	28	879	1120	1310	1050	0	0	4387
1913	0	0	0	0	0	298	941	1320	1060	594	79	0	4292
Average	0	0	0	0	0	239	715	987	933	717	183	0	3774
Georgetown (Divide) Ditch above Pilot Creek nr. Georgetown: Measured Monthly Flow in Acre-Feet													
1947	0	0	0	0	760	1340	1570	1490	1320	592	nr	nr	7072
1948	0	0	0	0	0	250	1210	1480	1390	659	0	0	4989
1949	0	0	0	0	0	121	1320	1490	1160	261	0	0	4352
1950	0	0	0	0	0	778	1370	1410	1370	645	51	1	5625
1951	0	0	0	0	34	702	1340	1410	1360	637	0	0	5483
1952	0	0	0	0	0	0	0	331	903	863	52	0	2149
1953	0	0	0	0	0	127	764	1150	1130	736	0	0	3907
1954	0	0	0	0	292	957	1250	1290	1090	601	173	0	5653
1955	0	0	0	0	31	858	1210	1340	1350	714	36	0	5539
1956	0	0	0	0	0	28	803	1130	1120	438	0	0	3519
1957	0	0	0	0	35	659	1090	1180	1190	354	0	0	4508
1958	0	0	0	0	0	426	920	1070	1100	932	278	0	4726
1959	0	0	0	189	982	954	1120	1180	1090	746	167	0	6428
1960	0	0	0	0	184	998	1150	1130	1140	569	0	0	5171
1961	0	0	0	152	672	591	881	916	873	475	445	0	5005
Average	0	0	0	23	199	586	1067	1200	1172	615	86	0	4948

Summary: Gaged Flows of Georgetown Divide Ditch

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
	Pilot Creek Ditch near Quintette: Measured Monthly Flow in Acre-Feet												
1910	nr	nr	726	393	787	708	541	547	732	806	369	467	6076
1911	160	0	0	0	0	309	646	498	649	750	720	219	3951
1912	101	428	646	637	830	815	885	892	970	738	464	357	7763
1913	0	0	129	440	566	720	861	1140	1010	nr	nr	nr	4866
Average	87	143	375	368	546	638	733	769	840	765	518	348	6129
Georgetown (Divide) Ditch near Georgetown: Measured Monthly Flow in Acre-Feet													
1947	nr	nr	nr	758	1390	1480	1720	1670	1340	578	415	322	9673
1948	538	710	543	789	720	987	1550	1770	1700	730	435	439	10911
1949	31	28	309	785	924	1050	1720	1760	1410	609	377	282	9285
1950	246	204	290	408	996	1560	1870	1760	1640	763	277	224	10238
1951	224	192	162	233	801	1300	1630	1690	1470	776	372	517	9367
1952	454	575	224	684	423	897	1130	947	1450	1430	507	251	8972
1953	251	97	137	215	811	1240	1520	1570	1450	1020	360	311	8982
1954	286	270	239	374	1350	1580	1670	1580	1490	906	379	265	10389
1955	526	503	562	1260	1350	1530	1560	1460	1450	923	408	897	12429
1956	331	44	44	309	958	1170	1490	1580	1610	815	183	200	8734
1957	195	348	305	335	1360	1400	1540	1490	1360	617	328	341	9619
1958	380	526	387	428	584	1020	1350	1440	1370	1260	688	326	9759
1959	304	271	430	1000	1560	1360	1330	1270	1180	844	368	352	10269
1960	569	302	701	784	1200	1450	1430	1320	1150	708	nr	nr	9614
1961	nr	nr	nr	nr	nr	nr	nr	nr	nr	nr	nr	nr	nr
Average	334	313	333	597	1031	1287	1536	1522	1434	856	392	364	9998

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