

STRAWBERRY CREEK I

THE MAKING OF AN URBAN STREAM, 1860–1960

Robert Charbonneau

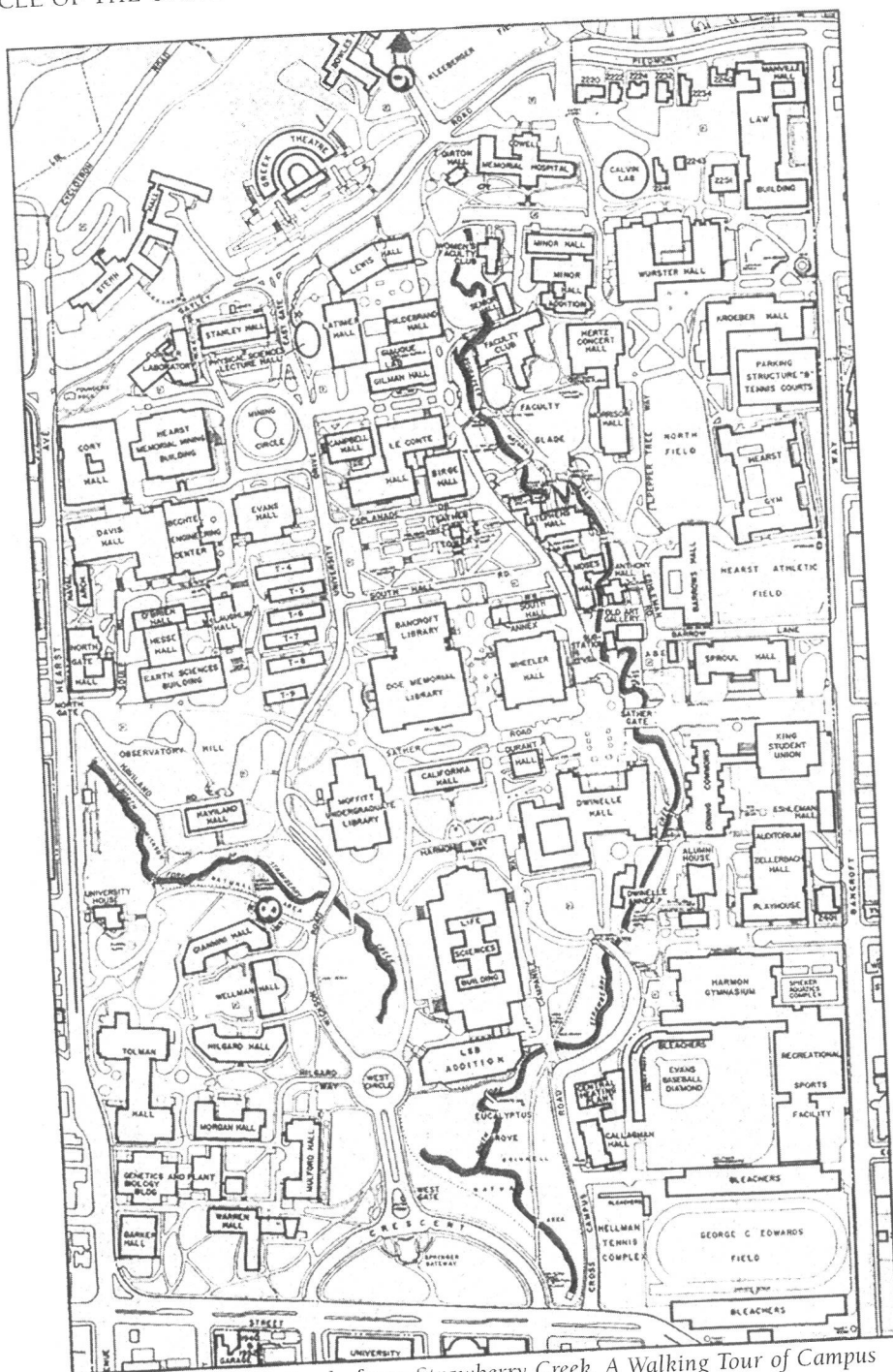
THE HISTORY OF STRAWBERRY CREEK is integrally linked to the founding of the Berkeley campus site and the subsequent development of the campus and its upper Strawberry Canyon watershed drainage area. Since its inception, the campus has taken a thoroughly utilitarian approach to dealing with the creek—first exploiting it as the primary water supply upstream and sewage disposal downstream, and soon thereafter attempting to get it under control in the name of progress. For over a hundred years as the campus grew, the creek was seen as an obstacle and hazard to overcome, and yet, oddly juxtaposed to this pragmatic view were romantic undercurrents that focused solely on Strawberry Creek's scenic amenities. Until recently, there were no indications that the creek was appreciated or even considered in an ecological or environmental context.

Strawberry Creek is a classic case of the environmental impacts of urbanization and human modification of the landscape. It serves to illustrate the vicious cycle of trying to re-engineer natural systems, only to find these efforts prove both counterproductive and destructive and inevitably lead to increasingly complex and expensive engineering solutions that must continue in perpetuity at the expense of ecological integrity. The creek's history is filled with such ironies, none more poignant than the harnessing of the creek for its own demise during the construction of the stadium in the 1920s.

The story begins with the native Huchiun peoples, who in stark contrast to the pioneers that followed, lived as an integral part of nature, rather than as conquerors destined to transform their surroundings into "civilization." What was for these peoples a small, natural, coastal stream would be transformed into an artificially engineered urban creek. Finally, until the campus changed its ambivalent attitude, Strawberry Creek would remain just another neglected and degraded urban stream.

Prior to the arrival in the Bay Area of the Spanish explorers and other pioneers in the late 1700s, native peoples of the Huchiun-Ohlone group occupied the Strawberry Creek watershed for several millennia. Living in harmony with the creek, they maintained some temporary habitation sites in lower Strawberry Canyon. The only remaining signs of their long presence are middens (refuse deposits) along the creek on the central campus. These upland sites are related to the massive shellmounds located along the former Berkeley bay shore (Spenger's parking lot off University Avenue at Third Street), which date back three to four thousand years. The Huchiun probably used the area of Strawberry Creek for fishing, hunting, and terrestrial food gathering before returning to the village sites at the shellmounds.¹ The Huchiun also actively managed the landscape by controlled burning of grasslands and underbrush to facilitate acorn gathering and the growth of seed-bearing annuals.

The campus and hill area appeared as an open oak woodland and grassland filled with perennial bunch grasses and herbaceous flowering plants. Tree cover was generally limited to the narrow creek corridors, with strips of riparian vegetation lining the channels from the hills down through the alluvial flatlands to the bay. Salmon and trout spawned in the larger perennial reaches of the streams. Legend has it that the Strawberry Creek got its name from the abundant native vines once found along its canyon banks.



Modern Strawberry Creek, from *Strawberry Creek, A Walking Tour of Campus Natural History* (University of California at Berkeley, 1990).

In March 1772, a Spanish expedition led by Lieutenant Don Pedro Fages and Father Juan Crespi stopped for the night along the banks of Strawberry Creek—a commemorative plaque is located just upstream of Oxford Street—and there Father Crespi described the beauty of the Golden Gate vista. Spanish explorers named the East Bay “Contra Costa,” “opposite coast.” In the early 1800s, the peaceful Huchiun peoples having been moved in the

1790s to Mission Dolores, the East Bay was partitioned into land grants by the last Spanish and first Mexican governor of California. The boundaries of these tracts were often delineated by streams because they were the most obvious landscape features. The Rancho San Antonio tract, for instance, was deeded to Don Luís María Peralta in 1820 and encompassed the present cities of Albany, Berkeley, Emeryville, Alameda, Oakland, Piedmont, and San Leandro. Peralta introduced cattle into the area, which became vast open pastureland. In 1842, Peralta divided the rancho among his four sons, and gave his son José Domingo the northernmost area, now consisting of Berkeley and Albany.

The gold rush of 1849 opened the East Bay to widespread settlement. Disappointed miners returned from the Mother Lode in the early 1850s to squat and begin farming on Peralta's lands. José Domingo Peralta resisted the first squatters but could not maintain control over his desirable land. In 1853, Peralta sold off most of his land, and the next year Orrin Simmons, a Yankee sea captain turned farmer, acquired squatter's rights to 160 acres of land south of Strawberry Creek (between the creek and the Clark Kerr Campus and roughly east of College Avenue). In 1857 he obtained full title and purchased two more tracts of land to the north, giving him ownership of 700 acres, including the future site of the upper campus and the sites where the Greek Theatre and stadium are now located.

Up until this time, the creek likely remained relatively undisturbed except for stream bank erosion and sedimentation resulting from cattle grazing in and below Strawberry Canyon. Squatters had transformed the campus area landscape into pastureland and later into open fields of grain. An 1885 article reminisces about the campus site and creek prior to development:

There were no roads through that portion now known as the University grounds, only cattle-paths to guide one through the profusion of poison oak and other tangled vines, that twined themselves about numberless oak trees. Our fair University site formed a part of a most desirable cattle range, and the romantic walks by the winding creek served a very practical purpose indeed. And the creek, although its course has not been changed, is altered in other respects. There were no bridges over it, only planks thrown loosely across, and the water-bed could not be reached except where boys or cattle had made paths down its steep, slippery and brush-covered banks.²

Strawberry Creek and its watershed were soon to be changed forever, as the trustees of the College of California searched for a new campus site in 1856-57. One of the essential site selection criteria was the availability of a reliable potable water supply. The trustees had initially rejected the Berkeley site in 1856 because Strawberry Creek was believed insufficient to supply campus water needs, but they reconsidered the following year at Simmons' urging. Simmons was a friend of influential Professor Henry Durant, who became the university's first president in 1870; Simmons would later make a handsome profit on the sale of his ranchland to the college. So during 1857 the small creek and its canyon watershed were more closely scrutinized as a potential water supply.

The quantity of water in Strawberry Creek was noted through the dry season. The springs in the hills were explored. Examination was made to ascertain whether there were other sources of water supply available in the hills. It was never intended to do so foolish a thing as to locate a College, in this State of long, rainless summers, on any site, without an abundance of pure, flowing water. During the year it was satisfactorily ascertained that a

copious supply could be obtained, back in the higher hills. When this fact was finally settled, the opinion of the Trustees and friends of the college seemed to gravitate towards this spot as the permanent site of the College . . . The site, as contemplated at that time, consisted of one hundred and forty acres. It was to include both banks of Strawberry Creek, and their fine bordering of oaks, sycamores, bay-trees, and a plentiful growth of evergreen shrubbery.³



College Homestead Association Tract, 1866, project for College of California.

In 1858, the trustees voted unanimously to adopt Berkeley as the campus site and subsequently purchased five tracts of land immediately west of Simmons's ranch. However, problems soon arose concerning water rights to Strawberry Creek and its canyon springs above the campus property. This led to the 1864 incorporation of the College Homestead Association, which subdivided 128 southside lots (160 acres) for subsequent sale in order to raise funds to purchase Simmons's lower canyon ranchland, thereby securing water rights to the creek.⁴

The College Water Company was incorporated in 1867 to develop waterworks to supply water to the campus and homestead tract. A brick reservoir was built in the hills (at the foot of what is now Panoramic Way above the stadium). It was supplied by a wooden flume in lower Strawberry Canyon that collected water from various canyon springs, located in the hills around the present Lawrence Berkeley National Laboratory. In addition, water was piped from the college-owned Heywood Springs, located about a half mile north-north-east of the campus, in the vicinity of what is now Fire Station #7 on Shasta Road. Wrought iron and galvanized pipes distributed the water to the campus and homestead tract. The college also secured additional water rights to Wildcat Creek (on the east side of the hills in what is now Tilden Park) to ensure an adequate water supply:

The foundation was indeed laid for securing such a water supply as had from the beginning been considered the only thing wanting to make the College site very nearly perfect for its purpose. With all its other fine advantages, as before remarked, it would never have been chosen as the location of a great institution of learning by the Board of Trustees without a more copious and reliable water-supply than that furnished by Strawberry Creek alone. They would have felt that they never could have excused themselves to the generations of coming time for placing such an institution as a college where there was not a copious flow of pure, fresh water. . . . But when this last source of supply was assured, the College site was judged to be possessed of every advantage as the permanent location of the College and the College town. Plans could now be made for improvement of grounds and building lots without fear of drought or scarcity of water.⁵

The harnessing of Strawberry Creek's stream flow was begun in earnest. As soon as the initial waterworks were substantially completed in August 1867, the college hosted a public celebratory "rural picnic" on the grounds to inaugurate its new water supply system:

When the water was first turned from the reservoir into the pipes, and went up in spray over a hundred and fifty feet pressure, at various points on the homestead tract and College site, playing jets fifty or seventy-five feet in the air, it was a sight novel and animating enough. It was a demonstration that waterworks thus begun could be carried to any desired extent. The water could be conducted down wherever it was wanted, all over the plain, and to Oakland itself if it should appear that it could be done to advantage. It would first be for the use of the College, on its own grounds, not only for domestic purposes, but for irrigation, for security against fire, for fountains, and ornamentation generally, and then for the supply of the public at a fair rate.⁶

However, this rosy outlook proved to be overly optimistic. The thirst for water of the growing campus and environs continued to outstrip the limited supply, especially during the dry season. The campus reservoir ran dry several times in 1877 and additional small dams were eventually built in Strawberry Canyon in 1897 and again in 1904. A new 300,000-gallon water tank was built in the canyon in 1898 where Witter Field above the stadium is today, but complaints about the inadequacy of the campus water supply system persisted until a high pressure water main was finally completed along Piedmont Avenue in 1926.

While much of the water was being drained out of the creek, it was simultaneously being replaced by wastewater. The first reports of problems with sewage contamination date back to 1877. A city sanitary sewer system was not even contemplated until 1883, and not actually built on campus until the 1890s.⁷ The mainline trunk sewer through the middle of campus was not completed until 1906.⁸ Strawberry Creek served as an open sewer for decades until this infrastructure was completed. In 1877:

At present unless something is done to improve the drainage from some private homes and boarding houses, the health of the neighborhood will be seriously impaired . . . let him take a twilight stroll along the windings of Strawberry Creek and from afar, will be scent that Berkeley's balmy zephyrs are freighted with the doubtful odor of essences extraneous. Just as we were

taking refuge from the scented air at Bachman's, a freshman was giving a gentleman directions to the University buildings. Said he, "Stranger, go up this creek as long as you can hold your breath, and turn left."⁹

Serious sewage problems persisted until at least 1895, but not without criticism directed at both the adverse aesthetic impacts and threat to public health, the *Berkeleyan* commented:

In moderately civilized communities, it is conceded that the use of an open water-course as a sewer is detrimental to the public health and destructive of natural beauty. Yet here at the seat of the highest learning offered by the State, where civilization may be considered as having one of its most advanced positions, we have the above shocking state of affairs. Leaving out of consideration the unsightly appearance of sewer-begrimed water, and filthily discolored banks, the effect upon the health of those living near its borders, as well as of the students and faculty working in laboratories at its very brink, should raise public opinion to the extent that it would be impossible for anyone to make use of Strawberry Creek as an easy means of removing sewage. The University of California should be the first to cease, and should use its every endeavor towards keeping Strawberry Creek what it naturally is, one of nature's means of preserving the beauty of the grounds through which it flows.¹⁰

Three forks of Strawberry Creek meandered through the central campus until the early 1880s. The meager middle fork joined the South Fork just north of Campanile Way near the corner of the Life Sciences Building Annex. It then ran northeasterly under the Valley Life Sciences Building, and split into two tiny branches with headwaters between California Hall and Durant Hall near Campanile Way, and on the north side of the central glade east of Haviland Hall around the base of Observatory Hill. In 1882, the middle fork was summarily filled in and graded to create a dry level area for a cinder running track. This relatively flat, open portion of the central campus was considered the most suitable place for the large track (now occupied by the Life Sciences Building Annex).¹¹ The Eucalyptus



The creek near Oxford Street, 1893.
University Archives (UARC PIC 200:2).

Grove was then planted to shelter the track from the strong prevailing westerly winds off the bay.

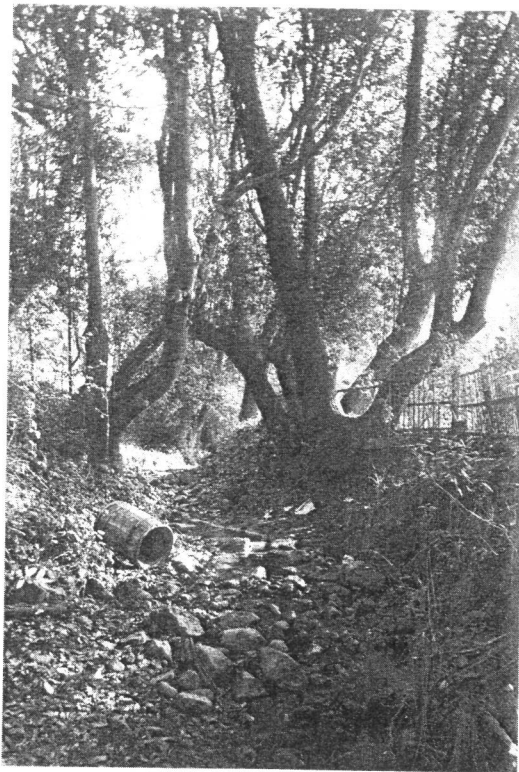
As additional ranchland was cleared in the canyon in the late 1800s, storm water runoff and sedimentation also increased. As a natural equilibrium response to greater winter flows and sediment loading, the creek channel tended to both widen and incise (deepen) to accommodate the heavier load. The first of many rock check dams was installed in 1882 in an attempt to stop the streambed incision which inevitably led to stream bank undercutting and subsequent collapse. The dams would serve as “grade control structures,” preventing the streambed from deepening in the vicinity of the dams and raising the upstream bed profile:

Workmen of the grounds have been engaged in improving the creekbed, and making provisions for winter freshets. A few years ago the frightful gully in the creek did not exist. Prof. Le Conte explains this sudden eating away as a result of the clearing off the country, and thereby increasing the erosive power of the winter rains. Five dams have been constructed in order to prevent any further cutting away, and it is hoped that in the future no further damage is done.¹²

Of course, this was a vain hope as additional development in the watershed increased the winter storm water runoff into the creek from impervious surfaces such as roads and buildings. Only one month after these first check dams were installed, it was noted that “trees near the experimental grounds (Main Branch upstream of Oxford Street) are falling into the creek. The earth was washed away by the water, causing some lofty tumbling.”¹³ The first shots had thus been fired in the never-ending battle to control the natural erosive forces of Strawberry Creek, an engineering struggle that continues to this day. The Civilian Conservation Corps built additional check dams in Strawberry Canyon in 1934, and more were added there in 1941. Eventually, about sixty check dams would be installed along the central campus to prevent streambed downcutting and bank erosion.

The battle escalated as check dams proved insufficient to stem the channel erosion, and it soon became necessary to armor the streambanks with riprap in the early 1900s to prevent bank erosion and collapse. “In anticipation of heavy rainfall this winter, the creek just west of the heating plant [South Fork behind the old art gallery building] is being solidly embanked with broken rock and concrete.” The *Daily Californian* reported in 1904: “Last winter the creek was badly washed out at this sharp turn and proper embanking has become necessary to save adjoining land.”¹⁴

However, these efforts also proved futile, as erosion continued to worsen because

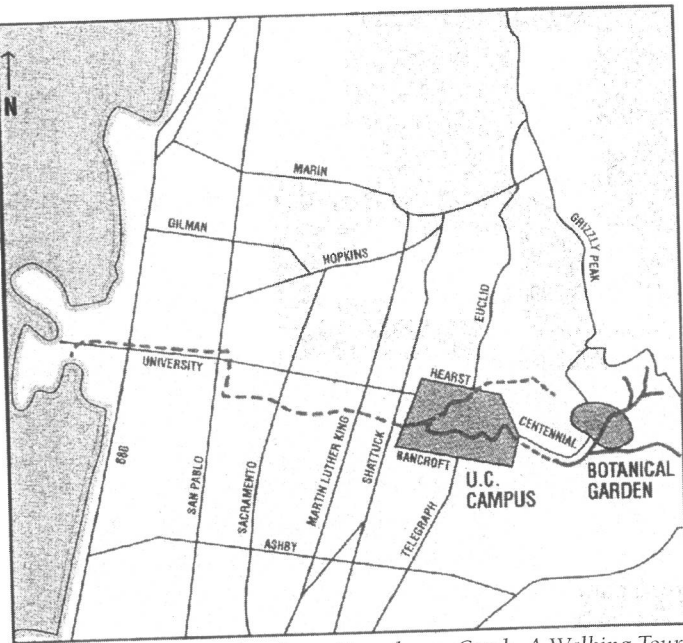


The creek, 1896.
University Archives (UARC PIC 200:45).

of higher storm flows caused by continuing development in the watershed. This situation led to a drastic engineering solution in 1907 as concrete “hardbed” was poured into the stream-bed and onto the banks, as reported in the *Daily Californian*:

Work is steadily going on lining the bottom and sides of Strawberry Creek with concrete, in order to protect the trees on the banks. Already six of these concrete linings are completed, but work will continue until the rains. This cementing of the creek is being done all the way from the Gymnasium to the Agricultural College Farm [South Fork from around Sather Gate downstream to Oxford Street] wherever necessary to protect trees.¹⁵

Eventually many rock and concrete retaining walls were built along the stream banks to protect adjacent buildings, facilities, trees, and landscaping. The channelization and confinement of the creek became necessary as the campus grew and development encroached upon the meandering creek channels. Ironically, this channel constriction only increased the scouring effects of the storm flows, and exacerbated both erosion and flooding problems. The construction of Stephens Union in 1923 right on the banks of the South Fork actually required the stream course to be realigned towards the south in order to fit in the imposing building. In a pattern that would be continually



Strawberry Creek today, from *Strawberry Creek, A Walking Tour of Campus Natural History*, ed. R. Charbonneau et al. (University of California at Berkeley, 1990).

repeated, the creek retaliated within two years as “heavy rains raised the water in Strawberry Creek to such an extent that a portion of the protecting wall was washed out at the east entrance to Stephens Union. The grading and winding of the stream was impaired.”¹⁶

The first culvert was installed in the creek in 1883 on the west side of campus underneath Oxford Street to improve transportation in the city and possibly for public safety reasons:

A culvert has been put in Strawberry Creek between Berkeley High School and the University grounds. Soon the street will be open for horses and wagons. This is a great convenience, as it much shortens the distance to be traveled by teams between the upper and lower parts of Berkeley, and in some cases does away with the necessity of wagons crossing the railroad track, which has in times past been a source of destruction of life and property.¹⁷

By 1897, the Oxford Street culvert had been extended to jog south underneath Allston Way to the west of Shattuck Avenue, where the creek then reappeared. Cement box culverts were installed along Strawberry Creek throughout its entire length westward during the

1880s, 1890s, and early 1900s. This continued through the 1930s when the Works Progress Administration (WPA) finished culverting most of the last open reaches. Nearly the entire length of Strawberry Creek down through Berkeley to the bay was eventually laid underground.

Straightening and realignment of the creek channel began in 1887, resulting in what should have been an early lesson in stream geomorphology, on the adverse effects of straightening meandering stream channels:

One of the secretaries thought to change its meandering disposition by straightening out a loop or two in its devious course, but the wayward stream resented this by burrowing a narrow channel for itself some twenty feet deep where teams had been wont to cross but a few years before. In punishment for this, it was dammed at the lower part of the grounds, and it is now dutifully filling with sediment the canon that it eroded.¹⁸

Of course, instead of respecting the creek's natural tendencies, more engineering solutions were forced upon it. The "channel in back of the gym" (the South Fork downstream of Sather Gate) was straightened in 1904, and a few years later, in 1907, major channel alteration was done along the main branch upstream of the Oxford Street culvert. This reach was deepened in an attempt to increase its storm flow capacity in order to avoid flooding the downtown commercial district:

In hope of coping with floodwaters through the campus during the winter rains, a force of men has been set at work deepening Strawberry Creek five feet, from Oxford St. eastward. The clogging of the mouth of the underground subway under Center St. last winter, threatening business property, has caused the deepening of the creek bed this summer in the hope that future trouble of this sort may be averted.¹⁹

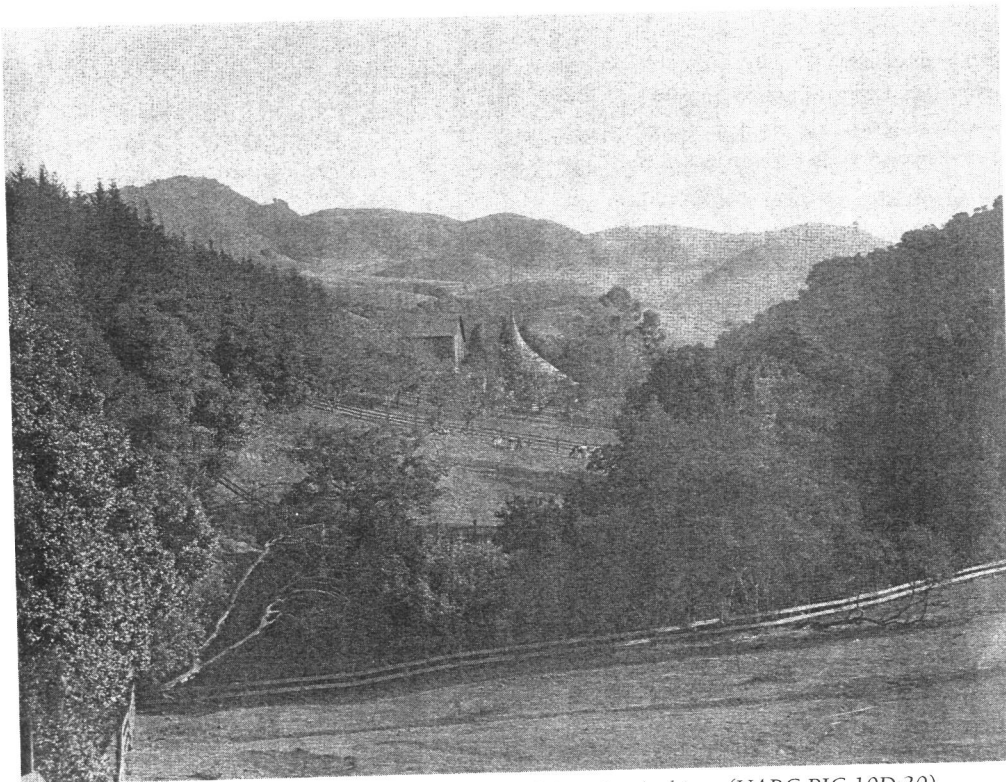
Interestingly, this culvert entrance still poses a similar problem: when high winter flows prevent campus grounds personnel from clearing the "grizzly" (metal trash rack set across the channel), it clogs with brush and debris, causing the streamflow to divert out of the channel and across the north bank, eroding it and threatening surrounding redwood trees. Campus architects and engineers continue to work on redesigning solutions to this problem.

Two major alterations to the creek occurred in the 1920s when culverts were installed for the construction of Memorial Stadium (1923) and West Circle (1928). Ironically, culverting of the north fork channel beneath the West Circle was a direct result of John Galen Howard's "Phoebe Apperson Hearst Architectural Plan" (1908) for the campus buildings and grounds. Howard, appointed both professor of architecture and campus architect, extensively modified Bénard's original grandiose Beaux Arts plan for the campus and aligned the "University axis" with the Golden Gate, connecting the Hearst Mining Circle with the West Circle, but also slicing across the North Fork at two points (the circle and just upstream at the footbridge below the Wickson Bridge).

In a glaring example of insensitivity towards the campus landscape, not much thought was given, or it was decided against, moving the West Circle east or west along the axis a hundred feet or so to avoid superimposing it upon the meandering North Fork. There did not appear to be any protest or controversy when the West Gate and Circle part of the plan was finally implemented. It was routinely reported in August 1928: "as part of the Phoebe Apperson Hearst plan of campus beautification, improvement will start when cement workers begin the construction of a culvert and a road across the North Fork of Strawberry Creek."²⁰

So a significant reach of the North Fork was lost beneath the traffic circle, the only segment ever culverted on the central campus (besides the south fork entrance onto the eastern edge of campus).

A small meander in the South Fork was redirected around Stephens Union in 1923, and in 1934 several pools were created along the South Fork's "brand new rock-lined course . . . by building rubble retaining walls and channels. Some of these pools are three feet deep and twenty-five feet in length."²¹ No other significant alteration of the creek on the central campus occurred until the 1960s, when major flood control storm drainage "improvements" were made. A concrete high-flow bypass structure was installed in the South Fork to cut off a tight meander behind the old art gallery building, and further downstream a 300-foot reach of the South Fork from Sather Gate to the Dwinelle Annex was widened to at least ten feet. In conjunction with this, a reinforced concrete retaining wall was also built along the south bank near the Golden Bear Student Center.²²



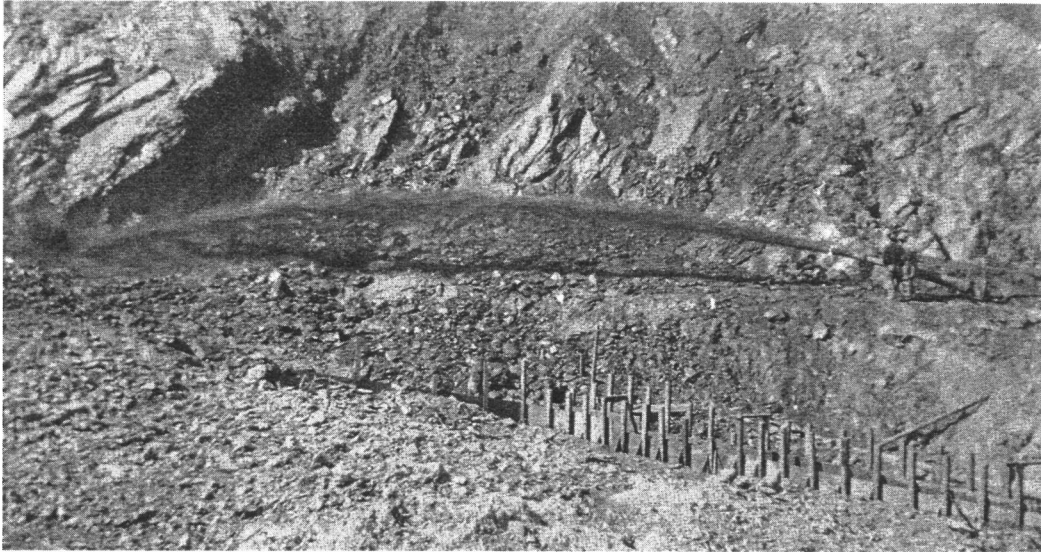
Original site of Memorial Stadium, circa 1914. *University Archives (UARC PIC 10D:30).*

The construction of the football stadium at the mouth of Strawberry Canyon in 1923 proved to be the most significant alteration of the South Fork. Several sites were considered for the stadium, but "the facts that the Canyon land is largely University property and that a structure could be erected there for a price within the amount subscribed to the Stadium fund were very prominent in the selection."²³ Other than objections from nearby Panoramic Hill residents, there did not appear to be any debate over the fate of the creek or orchard which were then located on the site. In fact, its severe environmental impact seemed only an afterthought. "When the California Memorial Stadium site was chosen it became evident that the waters of the stream had to be carried underneath the structure."²⁴ Despite this, the stadium had the enthusiastic support of the entire campus community and the alumni association.

Legal objections to the stadium were raised in April 1922 under the public trust doctrine. Ironically, it was argued that the university had condemned part of the lower canyon in 1876 for use as the campus water supply, and that it could not “devote the land to an entirely inconsistent purpose, such as the football stadium.”²⁵ However, no lawsuit was ever filed, and work was scheduled to begin by the fall of 1922. The creek would be placed into a concrete box culvert beneath the stadium. The “Little Inch” culvert originally began just upstream of the stadium, at what is now Witter Field, and emptied out onto the central campus next to the Women’s Faculty Club. Two small stream reaches remained open, between the present swimming pool, and the culvert’s entrance, and in the vicinity of the parking lot above Kleeberger Field. But both of these short reaches were eventually put underground in the 1930s to allow additional campus development.

In another cruel twist of fate, the creek was harnessed as a water supply for hydraulic sluicing of the lower flanks of Charter Hill, later known as “Tightwad Hill,” to make way for the stadium bowl. The creek was forced to become the agent of its own destruction:

First concrete was poured in the construction of a large sewer which is to carry Strawberry Creek under the field. Two dams are to be built in the canyon to pond water used in the hydraulic process. Water will be pumped into an upper dam and forced against the hill on the east side of the creek to remove the earth. An estimated 280,000 yards of dirt will be removed from the hill. Water and dirt will be stopped at the lower end of the canyon and allowed to settle. The water will be pumped back into the upper dam and used again.²⁶



Construction of Memorial Stadium, the hydraulic monitor.
University Archives (UARC PIC 10D:45e).

Hydraulic monitors (water cannons) used in placer mining were employed to blast the hill away and send it downstream into the creek and eventually the bay. The sluicing operations caused massive siltation, and surely had devastatingly lethal impacts on any living creatures that still inhabited the creek. The muddy eyesore created a general public outcry as evidenced by the following two letters to the editor of the *Daily Californian* in 1923:

Why are we allowing our Strawberry Creek to be ruined? Here we have Strawberry Creek winding on its way across the campus, but we are letting it be turned into an ugly stream with the esthetic appeal of a river of cold coffee, with canned cream and the dregs and grounds of a few thousand coffee pots in it. We all want the Stadium, and want it quickly, but do we want it at the expense of our campus beauty? It will take a long time before our creek will be clear and sparkling again. When it does regain its clearness, it will be flowing over that deposit of red clay washed down from the hydraulic excavations for the Stadium. All the rocks will be buried in the sediment, and the creek will glide on, minus its beauty. Couldn't there be another outlet for the water and dirt from the Stadium excavation? Can't something be done before our creek is completely ruined?²⁷

The second letter agrees:

In my opinion, Strawberry Creek can no longer be numbered among the beauties of the campus. It is now only a trickle of dirty water in the bottom of a decidedly unpicturesque mud channel. About two weeks ago an article in *The Californian* mentioned the creek as "the most important factor in determining the location" of the University. Evidently, it was quite different in those days when the site for the campus was chosen because of it. In old volumes of the *Blue and Gold* I have seen pictures of Strawberry Creek and have read delightful descriptions beneath them. I am sorry to say that I see no resemblance between either the scenes or the descriptions and the creek as I have seen it during my first month on the campus. Of course I realize that the excavations at the Stadium are necessary, but I cannot admit the necessity of spoiling the beauty of the campus. There must be some way to avoid having the whole hillside washed into the creek. Why not install some filtering contrivance near the bridge at the end of College Avenue? Surely something should be done.²⁸

Thus the stadium construction had acute short-term effects on the South Fork, in addition to the critical permanent loss of the creek channel from the lower canyon downstream to the central campus. The stadium may also have been a turning point in the deterioration of overall relations between the university and the community. The urbanization of the campus and canyon watershed and resulting deleterious impacts on the creek are summed up well in this 1923 editorial in the *Daily Californian* entitled "Wheels of Progress."

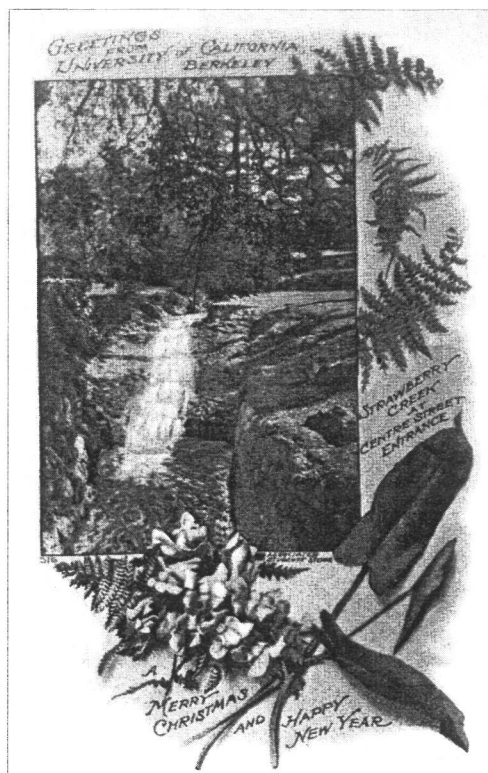
Once, in the days that are no more, there was a silver-watered brook that went its way unfettered from the Hills to the Bay. Its source was in the fingers of water that slipped down the tangled ravines into a winding canyon; its course was contentedly brisk in its upper reaches, peacefully unhurried below. Two or three modest bridges, rustic or of rough-finished timber, spanned it at intervals. Philosophers found in the stream food for quiet reflection, amorous couples the qualities of a discreet chaperone, and connoisseurs of leisure a valid excuse for doing nothing. Nor was it idle—it posed for artists and satisfied man's very real need for the companionship of running water.

Now, in the days that are, there is a ditch of viscous liquid. The water no longer steals down ravines—it rushes down deep-furrowed gullies. Well up in the hills the burn had been blocked by a concrete swimming pool; when it emerges the brook that was finds but brief respite before it plunges into the grip of some three hundred yards of rigid, dungeon-like tunnel under a stadium. Then the creek must fight its way through a choking, inert conglomerate of yellow clay and detritus before it again subjects itself to the repression of a second tunnel, substituted for the plank bridge of old. Continuing, it squirms past one building after another, thrown out of its former bed here, allowed to remain all but throttled there. Repelled by the unyielding angularity of the Union, it dives under a cinder track, suffers the intrusion of gas pipes, water pipes, steam pipes, all specie of pipes, until, finally crushed by the ponderous majesty of Sather Gate and the crass vulgarity of Harmon gymnasium viewed from the rear, Strawberry Creek wearily wanders to the edge of campus, where it hopelessly resigns itself to the inevitable and is promptly snapped into the gaping maw of the Berkeley sewer.²⁹

This bleak description stands in stark contrast to this romantic portrayal from twenty years earlier:

North-Fork is a stream of perpetual shade—a veritable tangle of wild rose and blackberry, of laurel and creek willow, with here and there a sentinel oak. Brush aside a web of creepers, and your reward is a wealth of fern, scarlet columbine, and thimble-berry blossom. Where North Fork leaves the grounds is the spot where, one hot summer, Mexican Jose turned the creek upside down in search of gold. There is gold along this creek, it is true, but it is the gold of beauty. . . . Strawberry Canyon is the most frequented tramp in Berkeley, perhaps because one may stroll along the upper creek bed and lose sight of all that reminds him of a town—forget, for a little while, streets, and houses, and gardens . . . and books. Running between the walls of the hill, over a tumbled bed of boulders, and through regular tunnels of oak and laurel and willow, and tangled disorder of creeper and fern, Strawberry Creek has an untamed beauty and waywardness that pleases as no garden or park-land can.³⁰

Eventually, the creek fought back. As the Strawberry Canyon watershed urbanized, the resulting higher-peak winter storm flows caused not only erosion problems, but also



The creek near Center Street, Postcard, circa 1900. University Archives (UARC PIC 2:144a).

posed a greater risk of flooding to campus buildings and the commercial districts both north and west of campus. Increasingly complex and expensive engineering alterations were made to the creek and the associated storm drain system in attempts to alleviate the flooding problem, first noted in 1904:

The creek was roaring full along its entire length and the force of the water did much damage to the banks. Many drifting logs were carried down to Oxford Street, where the creek flows into an underground culvert, and did much damage. The North Branch overflowed its banks, the water coming down Euclid Avenue in a torrent swept across the street and down into the channel of the creek.³¹

City officials blamed university grounds personnel for placing logs and other materials in the creek channel as riprap to armor the banks, subsequently these were washed downstream and blocking the culvert inlet, and causing flooding and erosion damage.³² This directly led to the deepening of the main branch channel upstream of the Oxford Street culvert in 1907.

The culverting of the South Fork beneath the stadium in 1923 resulted in much faster conveyance of storm water onto the campus. The flows now ran through a smooth straight concrete culvert, instead of winding down a rough naturally meandering channel. The following is an account of a winter storm in 1925:

The soil of our campus took leave of us through Strawberry Creek—or rather what used to be Strawberry Creek. T'was only Thursday that the “deluge” tore away the rocks from one side of the creek and turned it into a huge river. . . . Pessimistic students were predicting the transfer of our Alma Mater to Mount Tamalpais for protection against old Dame Nature. Imaginative frosh hoped heartily for a second Noah's Ark. Said one, “No more shall it be called Strawberry Creek, even though that does sound luscious and lovely—our creek has graduated and may now be called ‘U.C. River.’” And then, the “fixers” arrived and waded around in their big rubber boots, replacing huge rocks until our big river became just Strawberry Creek again.³³

Flooding problems would only worsen in the future. A 1940 winter storm flooded the Northside district due to an obstructed culvert. The same storm caused extensive damage and landslides in Strawberry Canyon, and flooded both Gilman Hall and Stephens Union, ultimately causing \$50,000 in damages to campus facilities, mainly in the canyon. The university responded in the usual fashion in the fall of 1940 by building culverts, “grizzly” trash racks, check dams, and “all necessary reinforcements” in the lower canyon area.³⁴

In 1951, a larger “Big Inch” creek bypass culvert was built starting in the canyon just above the Strawberry Canyon pools, following Rimway around the stadium, and emptying out next to the Faculty Club on campus. The “Big Inch” was built at a cost of \$225,000 due to the possibility of structural failure of the original “Little Inch” culvert. Cracks were discovered in the old culvert caused by displacement along the Hayward fault zone.³⁵ The failure of the culvert under the stadium would later combine with the failure of an adjacent sanitary sewer line to cause serious sewage contamination of the creek during football games.

From the 1940s through the 1960s, the Radiation Laboratory (now Lawrence Berkeley National Laboratory, LBNL) was extensively developed on the steep hills north of Straw-

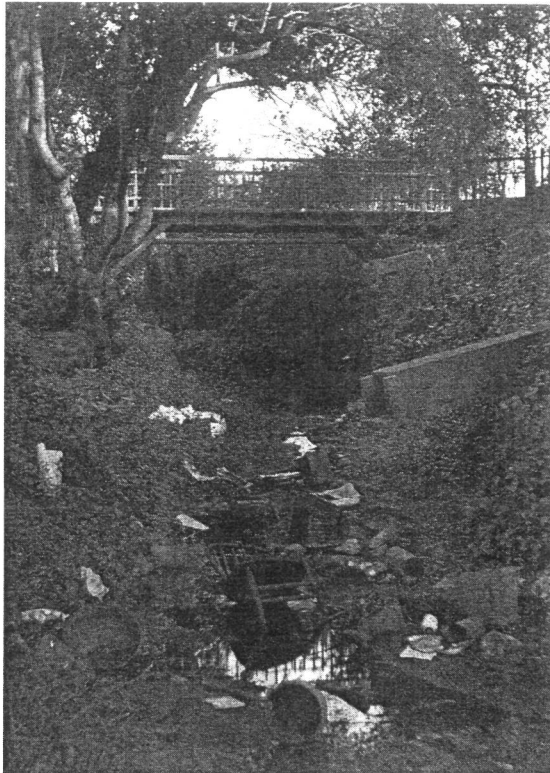
berry Canyon. The upper reaches of the North Fork and numerous seasonal tributaries were culverted and incorporated into the laboratory's storm drain system. Radiation Lab buildings and roadways created large volumes of storm water runoff which was conveyed rapidly downhill into both the North and South Forks, resulting in significantly larger peak flows and higher flood stages downstream. The lag time (interval between peak precipitation and peak runoff in the creek) was reduced from about two hours for rainwater to run off the hills, down to just fifteen minutes. Storms that were easily handled by the creek in the past now posed a potential threat of severe erosion and flooding.

It did not take long for these threats to become reality. In April 1958, rains caused \$70,000 of damage to canyon roads and storm drain systems: International House was flooded and landslides blocked parts of the Radiation Lab and fire trails in the canyon. Only four years later in October 1962, fifteen inches of rain fell over four days, one of the heaviest storms ever recorded in the San Francisco Bay area. The "Big Inch" bypass culvert was clogged with debris, causing the torrential South Fork to flow into the Strawberry Canyon pool complex, down Centennial Drive and right through Cowell Hospital and International House. Mudflows closed roads and filled the pools. Damage to campus buildings and grounds was estimated at over \$200,000. In 1964, the university spent \$519,000 on extensive storm drain and creek "improvements" to alleviate flooding problems.³⁶

In 1966, the university extended the "Big Inch" bypass culvert further upstream to an earthen retention dam built in Strawberry Canyon, at the entrance to the lower fire trail, across from the poultry area. The "Big Inch" culvert now travels 4,300 feet to its outlet at the Faculty Club. The dam and retention basin would store flood waters during winter storms and regulate flow into the culvert by means of a hydraulically operated gate, thereby preventing recurrence of the extensive flooding damage that occurred in 1962. Also, in 1966, a high flow bypass was built into the city's storm drain system on the North Fork to relieve the flooding threat caused by increased runoff from Lawrence Radiation Laboratory in the hills above Northside. These storm drain improvements were done at a cost of \$145,000 shared by the city and university.³⁷

The culverting, re-engineering of the upper reaches of the creek into an artificial storm drain and flood control system, and numerous channel alterations of the open lower reaches were all completed in 1966. Not coincidentally, urbanization of the creek's watershed was also essentially complete, although there would be continuing incremental development in the canyon over the next thirty years.

The rise of the environmental movement and ecological awareness in the late 1960s and 1970s did not seem to translate into any campus action or improvement in the creek's condition. Perhaps the turbulent



Strawberry Creek, date unknown. University Archives (UARC PIC 2:113).

campus protests of that era preoccupied both students and faculty alike. With a decidedly resigned tone the general ills of urbanization are outlined in a 1973 article in the *Daily Californian*, "Strawberry Creek's Troubled Waters":

For years Strawberry Creek has given campus passersby refreshing moments of tranquillity, but recently its natural beauty has been compromised by the demands of an urban environment. . . . Though Strawberry still has the serenity of long ago, it has undergone a sort of identity crisis. The cement banks and dams, the impure water and the excessive number of people are common complaints. . . . Though once a natural creek bed, Strawberry Creek is now part of an urban area. Planning needs have forced control of its path and flow. . . . Numerous storm sewers also empty into the stream, contributing dirty wash waters to the creek. . . . The natural absorbency and filtrating action of the soil on campus is prevented because of the acres of asphalt surrounding the stream. . . . Years ago, days of heavy rain would have been necessary to flood the creek. Today a few hours of moderately heavy rainfall can transform the placid creek into a turbulent storm sewer. . . . The winter flooding which intensifies bank decay causes further concern. . . . More stable materials, like cement, must often be used because the dirt will not hold. Another problem—one that most people have come to expect by now—is that of pollution.³⁸

In 1981, city health department officials warned that the creek was polluted by sewage, urban runoff, and chemicals dumped into storm drains:

Strawberry Creek is badly contaminated. . . . The creek may, at any moment, be filled with sewage or chemicals. . . . "Strawberry Creek is readily accessible—anything can go in it." . . . The stream is contaminated by dogs, the wash from streets and cars, and citizens who empty chemicals and sewage into the creek. . . . coliform bacteria has been found in the creek, indicative of sewage pollution. . . . The creek's contamination is the result of the attitude of people who use the stream. . . . It's treated as a sewer by people. [Campus Environmental Health and Safety] conducted a study of the contamination of Strawberry Creek several years ago and made an effort to clean up the creek. . . . In the past, EH&S has sampled the creek every couple of months in response to specific requests, but has never seemed to find the source of spills. . . . EH&S has no regular creek sampling planned. . . . advice to those who live, work, and study around the creek: "Look at it. Don't go in it."³⁹

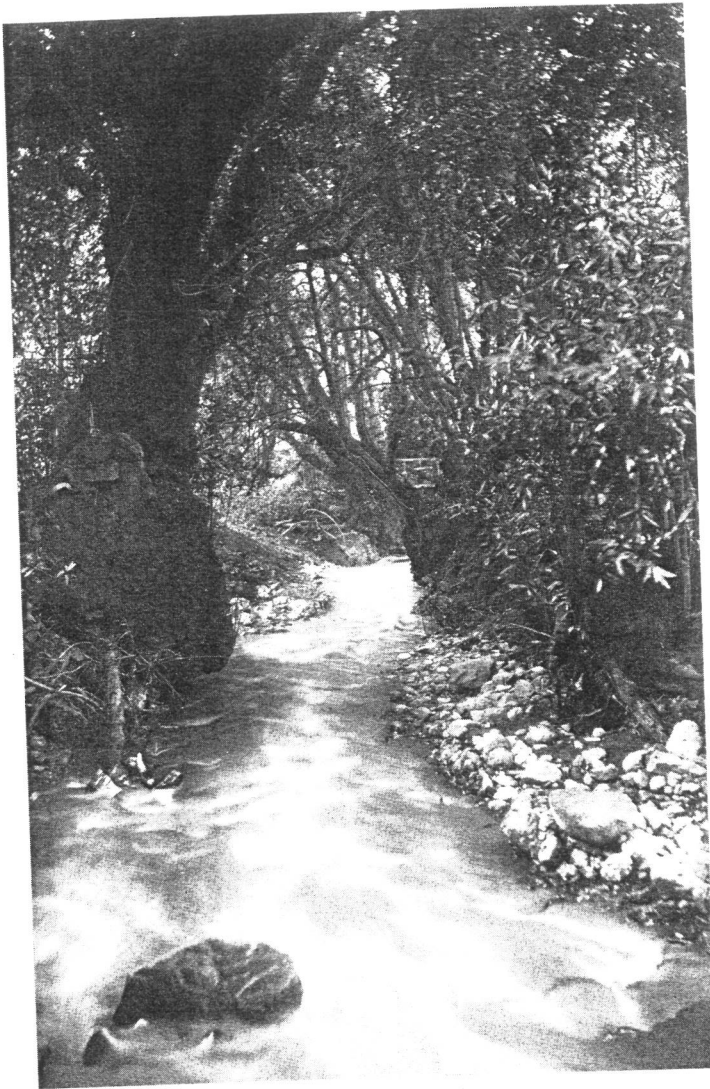
So Strawberry Creek lapsed into a steady state of benign neglect, until various forces serendipitously came together in 1987 to begin the restoration and revival of Berkeley's beloved and storied creek.



ENDNOTES

- 1 Personal communication from Professor Kent Lightfoot, Department of Anthropology, July 1999.
- 2 *Berkeleyan*, December 8, 1885, 64.
- 3 Samuel Hopkins Willey, *History of the College of California* (San Francisco: Samuel Carson & Co., 1887), 36-37.
- 4 *Ibid.*, 106-107.
- 5 *Ibid.*, 172.
- 6 *Ibid.*, 199-200.
- 7 *Berkeleyan*, January 20, 1896, 1.
- 8 *Daily Californian*, June 28, 1906, 1.
- 9 *Berkeleyan*, September 29, 1877, 7.
- 10 *Berkeleyan*, September 23, 1895, 2.
- 11 *Berkeleyan*, February 1882, 12.
- 12 *Berkeleyan*, October 23, 1882, 13.
- 13 *Berkeleyan*, November 6, 1882, 12.
- 14 *Daily Californian*, October 11, 1904, 1.
- 15 *Daily Californian*, October 18, 1907, 2.
- 16 *Daily Californian*, February 13, 1925, 1.
- 17 *Berkeleyan*, April 23, 1883, 12.
- 18 *1887 Blue and Gold*, 13 (1886), 210.
- 19 *Daily Californian*, September 17, 1907, 3.
- 20 *Daily Californian*, August 27, 1928, 2.
- 21 *Daily Californian*, January 30, 1934, 2.
- 22 *Daily Californian*, February 28, 1964, 11.
- 23 *Daily Californian*, February 23, 1922, 1.
- 24 *Daily Californian*, August 31, 1923, 8.
- 25 *Daily Californian*, April 12, 1922, 1.
- 26 *Daily Californian*, January 15, 1923, 1.
- 27 *Daily Californian*, April 3, 1923, 2.
- 28 *Daily Californian*, October 4, 1923, 8.
- 29 *Daily Californian*, November 8, 1923, 6.
- 30 *1903 Blue & Gold*, 29 (1902), 3-4.
- 31 *Daily Californian*, March 11, 1904, 1.
- 32 *Daily Californian*, March 15, 1904, 1.
- 33 *Daily Californian*, February 16, 1925, 6.

- 34 *Daily Californian*, November 1, 1940, 4.
- 35 *Daily Californian*, March 1, 1951, 10.
- 36 *Daily Californian*, November 2, 1964, 10.
- 37 *Daily Californian*, October 31, 1966, 9.
- 38 *Daily Californian*, July 2, 1973, 6.
- 39 *Daily Californian*, November 2, 1981, 1.



Co-ed Canyon (Faculty Glade), 1904.
University Archives (UARC PIC 200:25).