

Pipes, Pools, and Privies: Some Notes on Early Island Plumbing

Robert C. Schmitt

Few subjects are so basic to modern living, so commonplace, and yet so poorly covered by the historical literature of Hawaii as bathroom plumbing. The opening paragraph of Bushnell's pioneering paper on "Hygiene and Sanitation Among the Ancient Hawaiians," for example, referred to the paucity of materials on pre-contact sanitary practices, and ruefully added: "As a matter of fact, very few people have paid any attention at all to the unromantic details of the business of living even in the years since the islands were discovered."¹ The following pages present a modest effort to fill some of these gaps.²

THE YEARS BEFORE PLUMBING

Even the most rudimentary plumbing was unknown before Captain Cook's arrival. The ancient Hawaiians depended on streams and springs for their water supply, sometimes carrying calabashes of water great distances over rugged terrain. They bathed in streams, mountain pools, *auwai* (irrigation ditches), shore pools, and the sea. Commoners typically used the bush as a bathroom; they would dig a hole to bury their waste, together with the leaves or small stones or wisps of grass with which they cleaned themselves when finished, and then would carefully cover the hole to hide it from the *kahuna ana'ana*. Adult *ali'i* used *'umeke* (wooden bowls) or *ipu* (hollowed gourds) as chamber pots and waste receptacles. Family privies and community latrines were generally unknown.³

Robert C. Schmitt is State Statistician with the Hawaii State Department of Planning and Economic Development.

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Although the first foreign settlers initially relied, like the Hawaiians, on streams and springs for their water supply, they eventually explored other sources. One of these settlers, James Hunnewell, later recorded that the earliest attempt to dig a well in Honolulu was by William R. Warren, in the central part of the village, around 1820, but this effort was abandoned before any water was reached. The first successful well was dug by Joseph Navarro in his yard near the present intersection of Bethel and King Streets some two years later.⁴ Tyerman and Bennet, visiting Honolulu in 1822, noted that "good fresh water is obtained from wells sunk eight or ten feet through the coral reef."⁵

Windmills provided an early means for pumping the water, but the date of their introduction is uncertain. Masselot's lithograph of Kinau returning from church, drawn in 1837, shows at least two huts surmounted by windmills in its background.⁶ A windmill erected in the yard of William French in the middle of what is now Alakea Street, pictured in an 1853 lithograph by Emmert, has also been described (by John Cook) as "the first windmill in Honolulu."⁷

Both Hawaiian and foreign dwellings in the 19th Century usually included a backyard *hale li'ili'i* (little house).⁸ The native facilities were especially primitive; an 1852 visitor wrote, "Their *water closets* are excavations covered in atop, leaving a small square hole for business. I took them for wells!"⁹ As late as 1880, Walter Murray Gibson found it necessary to issue detailed instructions on the construction and maintenance of privies, the need for frequent bathing, and other matters of hygiene.¹⁰

PIPED WATER

Work on a piped water supply system for Honolulu was first undertaken in the late 1840s. Ladd & Co. had imported 14 reels of 1½-inch lead pipe in October 1838, but seven years later 10 reels remained on hand. This supply was finally sold to the government in September 1847, for temporary use in Honolulu's pioneering water supply system until iron piping could be obtained. The new line, completed by March 31, 1848, conveyed water from a taro patch mauka of Beretania Street, between Fort and Emma, to a water tank erected "for the convenience of shipping" in the basement of the new Harbor Master and Pilots' Office, near the wharf at the foot of Nuuanu Avenue.¹¹

The new system was soon expanded. By 1851 a small masonry reservoir had been completed near Nuuanu Avenue and Bates Street; connected to the harbor by a 4-inch iron main, it served the vessels coming into port as well as the businesses and dwellings along its route.

A year later, five hydrants were placed along Nuuanu Avenue and cisterns were constructed at various street intersections.¹² The hydrants served to prevent a recurrence of the messy slapstick that took place a few years earlier, when Honolulu's first firefighters mistook a cesspool for a well.¹³

The system was sporadically extended and improved, but it remained inadequate well into the 20th Century. Major expansion took place in 1860-61, for example, but by the end of the decade users complained of low pressure and alarming pollution.¹⁴ The first artesian well in the Islands was drilled in 1879, and eventually artesian water supplemented the water from mountain streams in Honolulu's supply. Purity remained a problem, however, and health officials urged the construction of a filtration plant for the water from the Nuuanu reservoirs.¹⁵ As late as the 1920s, homes in the uplands did not receive a regular supply of water, and others received unfiltered, muddy water from Nuuanu and had to buy drinking water. No substantial progress on solving these problems was achieved until the creation of the Board of Water Supply in 1929.¹⁶

PLUMBERS

The first plumber in Hawaii, G. Segelken, arrived in 1850 and opened a shop on Nuuanu Avenue near the waterfront.¹⁷ Others soon followed. In 1861, a newspaper advertisement announced that George C. Riders had "secured the services of a Practical Plumber" and was offering "an assortment of . . . Wash Basins . . . Iron Bath Tubs. . . . Those persons who intend having water introduced into their houses would do well to have the pipes laid at an early date in order to be ready when the new pipes are laid."¹⁸ The 1869 directory listed three plumbing firms in Honolulu.¹⁹

Census statistics charted a rapid growth in the number of plumbers in Hawaii over the ensuing century. The 1884 count, the first to offer detailed occupational data, reported 15 plumbers and gasfitters throughout the Kingdom.²⁰ This total rose to 76 in 1900, 248 in 1920, 748 in 1940, and 1,938 in 1970.²¹ Female plumbers did not appear in the tallies until 1940, when there were two of them, but by 1970 they numbered 28.

HOME BATHROOMS

References to home bathrooms began to appear before the middle of the 19th Century, although without any mention of their contents or exact functions. An 1846 advertisement, for example, described a house

“sent out from the U. States in frame . . . Bath rooms, Ironing rooms, Cook House, &c attached.”²² The same year an advertisement read: “To Let. Four good houses in the enclosure formerly occupied by Capt. Adams. . . . A good Cook House and Bathing House are attached.”²³ A visitor in 1848, describing the Palace grounds, noted that “the bathing house and servants lodge are the other buildings within the grounds.”²⁴ And an 1850 advertisement for a “country villa, in Nuuanu Valley” stated that “the house is conveniently arranged for the accommodation of a small family, with the luxury of a bath room.”²⁵

Bathtubs had by that time already become relatively common in Honolulu. Advertisements for basins, chamber pots, wash bowls, and wooden tubs appeared in 1838 issues of the *Sandwich Island Gazette*, Hawaii’s first English-language newspaper. In that same year, Stephen Reynolds’ journal recorded a visit to the fort’s prison, where Reynolds “looked in on a certain Billings, who was in a tub washing himself.”²⁶ By 1847 newspaper ads were explicitly listing “bath tubs” for sale, and such notices continued to appear at sporadic intervals thereafter.²⁷ It was not until 1866, however, that one of these advertisements carried an illustration of the product in question. This one-column notice—“Robert Rycroft, Plumber! . . . N.B. He begs to call attention to his Superior and Cheap BATH TUBS! Lined with Zinc.”—included a small cut of a woman seated in a high-backed tub.²⁸

Bathing at this time often took place in backyard structures detached from the main dwelling. One such facility, owned by Elisha and Mary Allen and located along Nuuanu Stream near Judd Street, was described by Mrs. Allen in 1863. “Out in the garden there was a small house built over a good sized cement cistern and equipped with a platform and seats. Fresh, cool water from the stream flowed in one side and out the other, giving the bather a delightful cold water dousing, which was refreshing and considered very healthful.”²⁹

The flush toilet appears to have been introduced to the Islands in the 1850s, long after its appearance in Europe and America. A valve water closet had been described by Sir John Harington in 1596, but was not put into general use until its re-invention by Cummings (another Englishman) in 1775 and subsequent improvement by Bramah in 1778.³⁰ Increasingly common (although far from universal) in both Europe and the eastern United States as the 19th Century reached its midpoint, the flush toilet apparently remained unknown in Hawaii.

Its earliest known mention occurred in the original plans for the new Court House on Queen Street, drawn in 1850, which showed a small room marked “water closet.” These plans were later discarded, however,

ROBERT RYCROFT, PLUMBER!



BEGS TO INFORM THE PUBLIC
of Honolulu that he has established himself in the
above business on

King Street, next door to City Market.

Where he will be found ready to attend on all customers in
his line.

N. B.—He begs to call attention to his Superior and Cheap



BATH TUBS!

LINED WITH ZINC.

Charges reasonable and work done promptly and satisfactorily.

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An early bath tub advertisement in the *Pacific Commercial Advertiser*, Feb. 17, 1866.

and after the facility was completed, late in 1852, it was described as simply a “privy.”³¹

The first flush toilets for which an unambiguous record can be found appear to have been those installed in King Kamehameha IV’s new house on the Iolani Palace grounds in 1856. Entries in the Chamberlain’s account books list expenditures for “Water traps for closets,” “digging cesspools,” “oil casks for cesspool,” “bathing tubs,” “lead pipe, paper work on water closets &c,” “plumbers bill,” and “fixing water closets,” made over a 15-month period from May 1856 to August 1857.³²

Washington Place, built between 1844 and 1847 and now thought to be the oldest continuously occupied residence in the Islands, was one of the earliest private dwellings to have modern plumbing. A recent architectural study of this historic structure, formerly the home of Queen Liliuokalani and now the residence of Hawaii’s governor, states: “Personal accounts indicate there was a bathroom adjacent to the Queen’s bedroom on the first floor (probably installed in the latter half of the nineteenth century); a one-story kitchen wing, porch and servant’s toilet had been added to the rear.”³³

Newspaper advertisements did not mention flush toilets until 1861, when James J. O’Donnell offered “Bath Tubs, Wash Stands, Water Closets, etc.”³⁴ Advertising copy slowly became more explicit, and by 1879 Nott’s could praise its “Water pipes! . . . House Plumbing Materials, such as Earth Closets, . . . Hose Bibb Cocks, Sewer and Sink Traps, Urinals. . . .”³⁵ Scott notes that, by the 1890s, “J. Emmeluth & Company offered the new porcelain water closets at both their stores, under such transparent trade names as ‘Sanitas,’ ‘Deluge’ and ‘Washout,’ aimed at making slophoppers and outhouses obsolete.”³⁶

The earliest Island plumbing for which detailed descriptions have survived appears to have been the facilities installed in the new Iolani Palace, beginning early in 1881. The plans called for six flush toilets (“Smith’s Patent Earthenware Siphon Jet Water Closet”), four bathtubs with showers, and two urinals.³⁷ Subsequently modernized, these facilities have recently been restored to their original appearance.³⁸

No record exists of the first appearance of toilet paper in Hawaii, but it was presumably on hand by the time Iolani Palace was opened. Packets of toilet paper were manufactured in New York City as early as 1857.³⁹ Perforated toilet rolls, contrived by Wheeler in 1871, were produced in both Great Britain and Philadelphia beginning in 1880.⁴⁰ Honolulu newspaper advertisements for toilet paper appeared much

later, the first apparently being placed by Hop Kee's Meat Market and Grocery ("Lily Brand Toilet Paper, 4 rolls, 25¢") in 1926.⁴¹

The new-fangled flush toilets were viewed with considerable skepticism by some Island officials. An 1880 report from the Superintendent of Public Works to the President of the Board of Health called for the rapid elimination of "the privy and cesspool" but also recommended replacing water closets with Moule's dry-earth closet system.⁴² Six years later, Captain John H. Brown, Agent of the Board of Health, wrote: "And a very large danger to the public health, and particularly to the better-off classes of society, is the construction of water-closets, sinks, and baths in the interior of houses—often within bedrooms and dressing-rooms—trusting entirely to the common trap for preventing gases to escape, left without exterior ventilation."⁴³ In the same biennial report, C. B. Reynolds deplored the prevalence of cesspools and vaults and recommended against the use of the earth closet.⁴⁴

Private citizens sometimes expressed similar sentiments. An instance was in regard to "Woodlawn," the "simple one-story cottage" near Punahou Avenue and Beretania Street occupied by Frank Dillingham and his family in 1879: "To the minds of the older generation Frank was risking the family health in establishing bath and toilet in the main house instead of an out-house."⁴⁵

The first statistics on Island plumbing were those compiled in a survey of 363 representative wage-earning families in Honolulu in 1910. This survey reported 90.1 percent of the families with city water, 56.5 percent with "individual bath," 64.7 percent with "individual toilet," and 55.4 percent with "sanitary toilet (W.C.)." In one case seven families were found sharing a bath, and in another, 16 families sharing a single toilet.⁴⁶

Plantation plumbing early in the 20th Century was often confined to large outhouses behind the camp dwellings. "Each family was assigned one of the toilets for their use. Sewage disposal was primarily by 'dry box,' also called 'honey pots,' emptied every few days. Others used the open-ditch flushing method. In many camps, several families had to share not only toilet facilities, but also laundry, cooking and bathing facilities, usually located in a long narrow shed in the middle of a group of several houses near the outbuilding."⁴⁷

By 1909 up-to-date bathroom facilities were installed in the staff housing at Kalawao, Molokai, one of the remotest parts of the Territory. The Franciscan Sisters "were most interested to see our modern sanitary plumbing. They couldn't realize that the plumbing worked by merely pressing a button!"⁴⁸

The first U.S. Census of Housing, conducted in 1940, revealed continued inadequacies in Island plumbing. Only 63.2 percent of the dwelling units in the Territory had access to a flush toilet, 63.1 percent included a bathtub or shower, and 90.3 percent had running water inside.⁴⁹

By 1960, significant improvement was evident. Statewide data indicated that 86.8 percent of all housing units had hot and cold piped water inside the structure and another 12.2 percent had only cold piped water inside; 89.9 percent had a flush toilet for exclusive use of the unit and 3.9 percent had a shared flush toilet; and 96.0 percent had a bathtub or shower, 91.3 percent for exclusive use and 4.7 percent shared.⁵⁰ By 1980, all but 2.3 percent of the 332,213 year-round housing units in the State were able to report having complete plumbing—defined as hot and cold piped water, a flush toilet, and a bathtub or shower—for the exclusive use of the occupants.⁵¹

HOTEL BATHROOMS

Honolulu had a number of small hotels and boarding houses during the first half of the 19th Century, but information on their plumbing facilities is lacking. Most if not all presumably relied on well water and privies.

The first to advertise its facilities was Henry Macfarlane's Commercial Hotel, which beginning in 1850 boasted of its "Hot, Cold, and Shower Baths." The charge for a hot bath was \$1.00; for cold and shower baths, \$0.50.⁵² In 1859 the Sailor's Home advertised "Shower Baths on the Premises," and in 1861 the National House reported "Bath Rooms" and "Water Closets" on its property.⁵³

The first major hostelry in the Islands, and one of the earliest with modern sanitary facilities, was the Hawaiian Hotel, a 42-bedroom structure built on Hotel Street between Alakea and Richards and opened in 1872. According to an early guide book, "Water from the government pipes is laid on, and carried to every room in the building. Bath-rooms, with both cold and warm water, and water-closets, are provided on each floor."⁵⁴ Only the bridal chamber, however, "had the vast distinction of having a private bath."⁵⁵ A decade after the hotel opened, cottages were built on the grounds, each with "its own bathroom and patent closet."⁵⁶ Eventually the hotel tapped an artesian well for its water supply and after the turn of the century completely remodeled its plumbing system.⁵⁷

Downtown and suburban hotels continued to offer rooms without private baths long after 1900. The Alexander Young opened in 1903 with 192 rooms and suites, but only 128 included baths.⁵⁸ Both the Blaisdell

and Pleasanton advertised rooms "with detached bath" as well as "with private bath" through the 1920s and into the '30s.⁵⁹ The Young claimed "its own artesian well, twelve inches in diameter and one thousand feet deep. . . . Distilled water for drinking purposes is served throughout the Hotel. Hot and cold water in every room."⁶⁰

Resort hotels were more likely to provide private facilities. In Waikiki, for example, both the Moana (opened in 1901) and the new Royal Hawaiian (1927) included a bath with each room.⁶¹ The same was true of the Haleiwa Hotel, opened on Oahu's north shore in 1899.⁶² But the Kona Inn, the first modern Neighbor Island resort hotel, initially provided shared baths; when it opened in 1928 a description noted that "every room is equipped with connecting bath and toilet or connecting shower and toilet with hot and cold water."⁶³

Shared facilities disappeared from most hotels soon after World War II. The Statewide inventory rose from 2,000 hotel rooms in 1950 to 40,000 a quarter of a century later, and few if any of the new units lacked a private bath. Older hotels modernized their plumbing, and transient accommodations, like the homes of Hawaii, quickly approached a near universality of modern bathroom facilities.

PUBLIC BATHHOUSES

Three types of public bathhouses evolved in 19th-Century Hawaii, each serving a specific locale and clientele. The earliest to appear was the downtown bathhouse, catering to hotel guests, sailors, and residents. Somewhat later came beachside bathhouses, providing dressing rooms and showers for swimmers and sunbathers. Finally, toward the end of the century, the influx of Japanese laborers led to the development of community baths on many plantations.

Downtown bathhouses were in operation at least as early as 1840, when a list of Honolulu businesses included the line, "Bathing house, 1."⁶⁴ The baths and showers advertised by the Commercial Hotel (1850) and Sailor's Home (1859), previously referred to, were probably meant as much for walk-in trade as for their guests. A one-story structure bearing a sign inscribed "Warm Baths" appears prominently in an 1860 photograph.⁶⁵

The Hawaiian Hotel featured both a bathhouse and toilet structure on its grounds when it opened in 1872. A newspaper account of its opening reported that "in the yard a large plunge-bath has been built for gentlemen."⁶⁶ Another article stated that "on the grounds is a separate bath house, where guests can enjoy the luxury of hot or cold baths free of charge."⁶⁷ These facilities quickly fell into disrepair: in 1879, the

hotel's proprietor wrote to the Minister of the Interior, "The Bath houses & Water Closets in the Yard are also unfit for use."⁶⁸ Both the bathhouse and toilet structure appear on the large-scale fire maps of Honolulu for the period, but not the "large plunge-bath"—an omission suggesting some exaggeration in the initial description.⁶⁹

The 1904 city directory listed six public baths in Honolulu, including one designated "Turkish"—the first to be so described in any Island directory.⁷⁰

The last of the major downtown bathhouses appears to have been the Hotel Baths, opened on Hotel Street next to the Alexander Young Hotel in 1906 or 1907.⁷¹ "Physical Culture/Swimming Pool/Turkish Baths/Bowling Alleys" were among the amenities, according to one advertisement.⁷² Another stated: "New, well-made suits have been provided. . . . The water will be changed daily. . . ."⁷³ After the baths went out of business in 1909, the *Advertiser* discussed some of the reasons in an editorial:

The passing of the Hotel Baths bears out the opinion expressed in this journal many years ago that public baths, of the housed type, except those for Japanese, could not be made to pay in Honolulu. The opposing argument was that this is a warm climate, that frequent bathing here is a necessity and a pleasure and that, as it is a long ride to the beach resorts, many people would do their swimming in town to save time. Enough capital was found to test the matter, and the Hotel Baths followed.

The Baths were well-built and well-conducted but, save for a few days at the outset and on special occasions, they were never profitable to their owners. The reasons why were partly social and partly racial, and they were not without their relation to disease. People were always finding others in the bath with whom they did not want even a hydropathic intimacy. The tone of the place was gradually lowered until its best customers became those of the class which, when the park beaches were opened to free bathing, promptly deserted it. Meanwhile society kept to the taxed beaches at the Moana and the Seaside or to its own private pools.⁷⁴

Bathhouses began to appear along Waikiki Beach during the last quarter of the 19th Century. As early as the 1870s, for example, the Hawaiian Hotel "provided a cottage on the sea-shore at Waikiki, some three miles distant, where guests can . . . enjoy a morning or evening bath in the ocean."⁷⁵ During the early '90s, beachgoers patronized the Long Branch Baths with its "comfortable dressing rooms, fresh water *douches*, etc." and the Waikiki Villa's "commodious bath house" with "fresh water shower baths."⁷⁶ The Moana Hotel, opened in 1901, offered about 75 "bath rooms" said to be "fitted with all modern appliances and conveniences" and "directly accessible to the surf."⁷⁷

A city-owned public bathhouse has stood near Queen's Surf Beach, in Kapiolani Park, at least since 1908 when it first was listed in the city

directory.⁷⁸ Photographs from 1916 reveal a charming and graceful structure, but even then city officials were urging the construction of “a better bathing house . . . more attractive and sanitary.”⁷⁹ Subsequently denounced as “unsanitary” and “an eye-sore to the community for many years,” the Kapiolani Public Baths were finally replaced in 1931 with a more modern structure, providing dressing stalls, steel lockers, showers, a refreshment stand, landscaped grounds, and floodlights for night swimming.⁸⁰

Community bathhouses for the use of workers and their families became a common feature of the larger plantations toward the end of the 19th Century. Writing in 1905, the Commissioner of Labor observed that “the Japanese bathe daily” and added, “Hot water is used, and a single large tub—in which both sexes bathe together indiscriminately—suffices for the needs of a number of laborers. Private bath houses, conducted in much the same manner, are common in the Oriental quarters of Honolulu.”⁸¹

“As [the Japanese] moved away from the plantations to their own homes in the towns and the cities,” added a later writer, “they made the Japanese bath an integral part of their own dwellings or supported the establishment of public bathhouses. Before the war there were as many as a dozen public bathhouses, numerous *furo* baths in private homes, and even a few in the homes of persons of non-Japanese background.”⁸²

Significant changes occurred in Island bathhouses after World War II. Beach hotels no longer offered dressing rooms and showers for the drop-in trade, but county-operated bathhouses, now referred to as beach pavilions, fronted most beach parks on Oahu and the other islands. Filipinos replaced Japanese on the plantations, and community bathhouses became a rarity. In central Honolulu, the old bathhouses vanished and were succeeded by massage parlors and fitness spas, which were typically equipped with showers if not saunas and swimming pools.

Before leaving the subject of bathhouses, mention might be made of their use for activities other than swimming, showering, and dressing. In other places and other times, public baths have sometimes become notorious for sexual revels of one kind or another, and the possibility of similar goings-on in Hawaii’s bathhouses comes to mind. The printed record, oddly, contains little or no hint of such hanky-panky, either heterosexual or otherwise, until fairly recently. Not until 1963, in a three-part series on “The Deviate,” did a Honolulu newspaper (the *Advertiser*) report a connection, observing: “They [homosexuals] know that the beach restrooms and showers, Kalakaua Ave., and Thomas Square are ‘contact’ points. . . .”⁸³ Prostitution, pursued at various

times in bars, hotels, massage parlors, and whorehouses, and under street lamps, has seemingly kept clear of Island bathhouses. Whether this apparent absence from newspaper accounts and official reports, at least until 1963, reflects a true lack of sexual activity (commercial and amateur, straight or not) over the years is questionable.

TOILETS IN OTHER PUBLIC PLACES

Public plumbing eventually appeared in a wide variety of structures. The planned installation of a flush toilet in the 1852 Court House has already been described. In succeeding decades up-to-date fixtures were added to hospitals, theaters, government buildings, schools, comfort stations, and similar structures.

One early example was The Queen's Hospital, opened in December 1860 with several "bath rooms" on the first floor.⁸⁴ Information on the type of plumbing installed in The Queen's is unfortunately lacking, but the indoor locations suggest something more advanced than the old-fashioned privy.

There is also some uncertainty regarding the conveniences available in Aliiolani Hale (the present-day Judiciary Building on South King Street) when it opened in 1874. Rowe's original plans, later adapted by Stirling, specified, "At each side of staircase are retiring rooms with W. C.'s &c."⁸⁵ The plumbing facilities actually installed, however, were initially "of the 'backyard' variety," and interior fixtures were not added until 1900 or later. Even then, "the unsophisticated 'sailors and ignorant Chinamen' apparently didn't know how to use them," some sitting on the urinals.⁸⁶

Ground was broken for a new opera house in July 1880; located at King and Merchant Street, it included "a retiring room in each corner of the dress circle" and "beneath the stage . . . toilet rooms and water-closets."⁸⁷

Most schools relied on outhouses, but a few enjoyed indoor plumbing. The makai classrooms in Old School Hall at Punahou each had "an inside corner made into a closet and lavatory;" whether these lavatories were present when the building was first occupied, in December 1851, is however unknown.⁸⁸ Even in Manoa, "unsightly outhouses" and "dilapidated structures" were in use until 1916, when more modern facilities were erected.⁸⁹

"The first comfort station built in Honolulu" (according to an official account) was constructed in Kapiolani Park in 1916, at a total cost of \$1,029.19.⁹⁰ The first public comfort station in downtown Honolulu was not authorized until 1942.⁹¹

SEWERS

One of the more backward aspects of 19th-Century Honolulu was its lack of a sewer system. What seemed tolerable in an earlier period, when technology was simpler and Honolulu was smaller, was viewed with far less equanimity toward the end of the century, in a rapidly growing city with some densely packed neighborhoods. This sanitary laggardness was especially perplexing in view of Hawaii's eager adoption of telephones, electricity, and other modern conveniences.

The biennial reports of the Board of Health regularly discussed the problem. In 1884, for example, the Board concluded that the "preponderance of opinion is against such a system [of sewers]" and recommended against any hasty action.⁹² Two years later, however, the Board urged the installation of a sewer system, particularly in Chinatown, and held to this position for the remainder of the century.⁹³

The 1880 legislature had indeed passed "An Act to Provide for the Drainage and Sewerage of the City of Honolulu," authorizing the preparation of a drainage and sewerage plan and instructing the Minister of the Interior to draft the necessary detailed maps.⁹⁴ The same session enacted a measure "To Provide for the Sanitary Condition of Dwelling Houses."⁹⁵ The latter act stated: "The yard and grounds about all dwellings shall be well drained and kept free from rubbish of every description, with a closet, or privy, also to be kept in repair by the lodging-house keeper or employer of laborers, for every six adults." But the implementation and enforcement of such measures were sketchy at best, and in both 1886 and 1888 the Board of Health requested "the power of regulating the location and construction of vaults, cesspools and other receptacles for offensive matter."⁹⁶

Conditions were indeed grim. The Board of Health observed that "the cesspools of half the dwellings in the thickly populated portion of the city were concealed under the main floors of the houses, the connections to the same being hidden pipes or holes in the floor." The Board's report continued: "Most of the buildings in Chinatown are of two stories, the majority of the population living on the upper floors, which in most cases are let out as lodging or tenement rooms. Very few of these upper floors have sinks or drain-pipes to convey the slops to the cesspools, so the tenants throw the same from the balconies or openings to the ground below. This nuisance has caused many complaints from persons who have been unfortunate enough to be passing, just in time to receive the bath."⁹⁷

These problems came to a head with the onset of the bubonic plague epidemic late in 1899. A Special Sanitary Committee investigated conditions in Chinatown and described "cesspools reeking with filth and vermin, from which come clouds of flies; where restaurants have cesspools with no other covering than the kitchen floors, into which cockroaches crowd by the thousands . . . foul-smelling privies . . . cesspools and privy vaults are crowded together or combined and left unopened year after year. . . ."98 Clean-up squads looked into "foul-smelling sinks and outhouses." One volunteer inspector reported cesspools "horribly full of stench. . . . I found them under the floor of the living quarters and had to rip up the floors to get at them." Another noted, "Most of the cesspools and sinks were in a terrible condition, and maggots could be seen crawling about on the surface."99

The plague resulted in far more stringent sanitary controls for the city. On January 26, 1900, the Board of Health adopted its Sanitary Regulations for Honolulu District. One of the 23 sections stated: "Within 30 days after the public sewer system is put into operation the use of privy-vaults and cesspools shall be entirely discontinued within the limits of such sewer system, except in so far as permission may be granted by the Board of Health to transform the same into approved water closets connected with the sewer system."100 On May 29, 1900, the Board adopted Plumbing Regulations for Honolulu District.101 Not long afterwards *The Friend* complained of "the octopus character of the plumbers' trust that has entrenched itself in this city by virtue of the Board of Health rules relative to sanitary conditions of buildings, etc."102

Construction of a sewer system for Honolulu began soon after annexation, and was underway at the very time that the bubonic plague was raging. The first contract was signed January 13, 1899, work was commenced early in August 1899, and by mid-1901 almost 34 miles of sewers had been completed. The 1901 report of the Governor stated: "Connections are rapidly being made, and in a few months the entire business section of the city will be using the system, together with a greater portion of the residence district."103

Even at the outset many urban areas remained unserved, and over the next half-century the system could not keep up with the rapid growth of metropolitan Honolulu. No service was provided initially mauka of Beretania Street, waikiki of South Street (except for the King Street branch to Ward Avenue) or ewa of River Street. Substantial extensions to the original system were made in 1907 and the 1920s.104 As late as 1929, only 75 percent of the dwellings in Honolulu and 40.3 percent of

all dwellings on Oahu were connected with street sewers, and privy vaults and cesspools were still deemed to be serious problems.¹⁰⁵ By 1944 the Honolulu sewer system ran from Middle Street to Palolo Valley and Kapiolani Park, but still missed Kalihi Uka, the middle and upper reaches of Nuuanu and Manoa, Punchbowl, Moiliili, Kapahulu, Kaimuki, Wilhelmina Rise, and Kahala.¹⁰⁶

Rural areas had to wait even longer, although a start was made in the 1920s. Writing in 1940, Mellen reported:

Since 1921, and especially during the past decade, nearly every town of any size, and all sugar and pineapple plantation towns have put in modern sewerage systems of the type best suited to local conditions: ocean dilution, primary treatment septic tank or primary and activated sludge. Where cesspools are still necessary they must pass inspection for drainage before sealed for use.¹⁰⁷

SWIMMING POOLS

One of the last types of modern plumbing to reach Hawaii was the swimming pool. Mention has already been made of the facilities offered by some of the downtown bathhouses, such as the "large plunge-bath" on the Hawaiian Hotel grounds (1872) and the swimming pool of the Hotel Baths (1906 or 1907). Whether the former was a true swimming pool cannot be determined from the evidence.

The first full-scale swimming pools in the Islands appear to have been those constructed at Punahou School and Kamehameha School for Boys in the late 1880s. According to Alexander and Dodge, "Punahou's first cement swimming tank, *mauka* of the buildings and backed by sugar cane, was completed in January, 1888. It had been built at a cost of \$1,530, partly by subscription but largely by a gift from Mr. H. P. Baldwin, whose son Harry and daughter Maud (Mrs. J. P. Cooke) were boarding at Punahou."¹⁰⁸ This tank, 47 feet long, was replaced in 1922 by the 75 by 35-foot Waterhouse Memorial Tank, and the latter was in turn succeeded by a deepwater pool, 25 yards by 50 meters, in 1981.¹⁰⁹

The Kamehameha School for Boys acquired its pool sometime between October 1887, when the school opened, and 1889, when Uldrick Thompson recorded the existence of a 12 by 18-foot swimming tank.¹¹⁰

Other early swimming pools included those at Palama Settlement and the Honolulu Y.M.C.A. The tank at Palama opened on October 17, 1908.¹¹¹ A swimming pool was added to the court of the Central Y.M.C.A. (now the Merchandise Mart Building) in 1915.¹¹² The Y.W.C.A. building on Richards Street, dedicated in 1927, and the Army

Advertisement for Pleasanton Hotel swimming pool in *Directory of Honolulu* 1914.



Pleasanton Hotel

Honolulu, Hawaii

E. G. D'USENBERG, Manager



Tropical - Quiet - Refined - Elegant - Central
AMERICAN PLAN ONLY—RATES \$2.50 TO \$10 PER DAY
Special Rates by the Month—Special Rates for Army and Navy

Located in Four Acres of Beautiful Tropical Garden

*Large Grounds - Tennis, Night and Day
Artesian Plunge, 25x50 ft. - Garage Buildings,
New and Elegant - Bedrooms, Large and Cool
Private Sleeping Verandas, Dining Rooms,
Spacious and Airy - Cuisine Unexcelled
City Phones in all rooms.*

Bring Your Automobile

Advance engagements will be greatly appreciated and will receive careful attention by the management.

and Navy Y.M.C.A., opened on the site of the old Hawaiian Hotel in 1928, also included swimming pools.¹¹³

The earliest swimming pool at an Island hotel (if we disregard the Hawaiian Hotel "plunge") appears to have been one at the Haleiwa Hotel, opened in Waialua in 1899. Guests praised its "big cemented pool of soft fresh water, filled from the wonderful springs on the old Emerson homestead (a part of the hotel property)."¹¹⁴ The site also offered ocean and river bathing.

In Honolulu, hotels with swimming tanks included the Pleasanton and Colonial. The pool at the Pleasanton, Wilder Avenue at Punahou, was in use by 1909.¹¹⁵ As described in an early advertisement, "The Plunge, within easy access of the main building, is 25 by 50 feet and 8 feet deep. It is supplied with the purest artesian water and communicates with commodious bathrooms."¹¹⁶ A "marble-lined Swimming Pool" was advertised at the Colonial, 1451-1473 Emma Street, in 1915.¹¹⁷

The first Neighbor Island hotel to offer a pool was the Kona Inn, at Kailua on the Big Island. Kona Inn opened on November 1, 1928 but did not install its swimming pool until November 1929. The tank was rebuilt in 1936-1937, with power pumps replacing the former reliance on tidal action to change the water.¹¹⁸

A number of other pools were constructed in the 1920s. One was the Schofield Barracks Post Swimming Pool in Waikakalaua Gulch, sometime before 1921.¹¹⁹ Another was the 25-yard tank installed on the Manoa campus of the University of Hawaii in 1921 or 1922.¹²⁰ One of the largest was the War Memorial Natatorium, on the beach at Kapiolani Park. This pool, 40 by 110 yards with a 9-foot depth, was dedicated on August 24, 1927.¹²¹

Home swimming pools were introduced late in the 19th Century but remained relatively rare until the post-World War II years. One of the earliest seems to have been the tank built by B. F. Dillingham at "Woodlawn," his home at Beretania and Punahou Streets, around 1898.¹²² A year later, a description of "the typical tropical home of the best class" in Honolulu observed that "a swimming pool completes the inducement to out-door life."¹²³ The first classified directory listings for firms specializing in pool construction did not appear until 1949 (in the city directory) and 1950 (in the telephone book), when Craig & Pullen advertised Paddock Swimming Pools.¹²⁴ Although statistics are lacking, pool construction seems to have increased dramatically since that time, to some extent in newly opened residential areas like Waialae-Kahala but also on the grounds of the cooperative and condominium apartment structures of the late 1950s and succeeding decades.

The 1950s also witnessed a belated boom in Waikiki hotel pool construction. Long convinced that proximity to the beach made swimming pools unnecessary, Waikiki hotel developers and operators began to view matters differently after World War II. The first with a pool was apparently Roy C. Kelley's new Edgewater Hotel, opened on the site of the Willard Inn at Kalia Road and Beachwalk early in 1951.¹²⁵ Others soon followed—the Niumalu, Reef, Princess Kaiulani, Biltmore, and numerous smaller hotels—and by 1956 swimming pools were common in Waikiki.¹²⁶

When Statehood arrived in 1959, Hawaii had almost completed a sanitary revolution spanning a century and a half. At the beginning of this long period of change, Islanders obtained their water from springs and streams, bathed in *auwai* and the sea, defecated in privies or the bush, and lacked not only sewers but cesspools. By 1960, only 6.2 percent of all housing units were without a flush toilet, only 4.0 percent lacked a bathtub or shower, and fully 99.1 percent provided piped running water inside the structure.¹²⁷ Plumbers, unknown before 1850, now numbered 1,640.¹²⁸ Sewers served not only most of Honolulu but also much of suburban Oahu and many Neighbor Island communities. The quality and length of life had vastly improved, in large measure because of these great strides in sanitation. Plumbing had indeed brought about a revolution in Hawaii.

NOTES

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