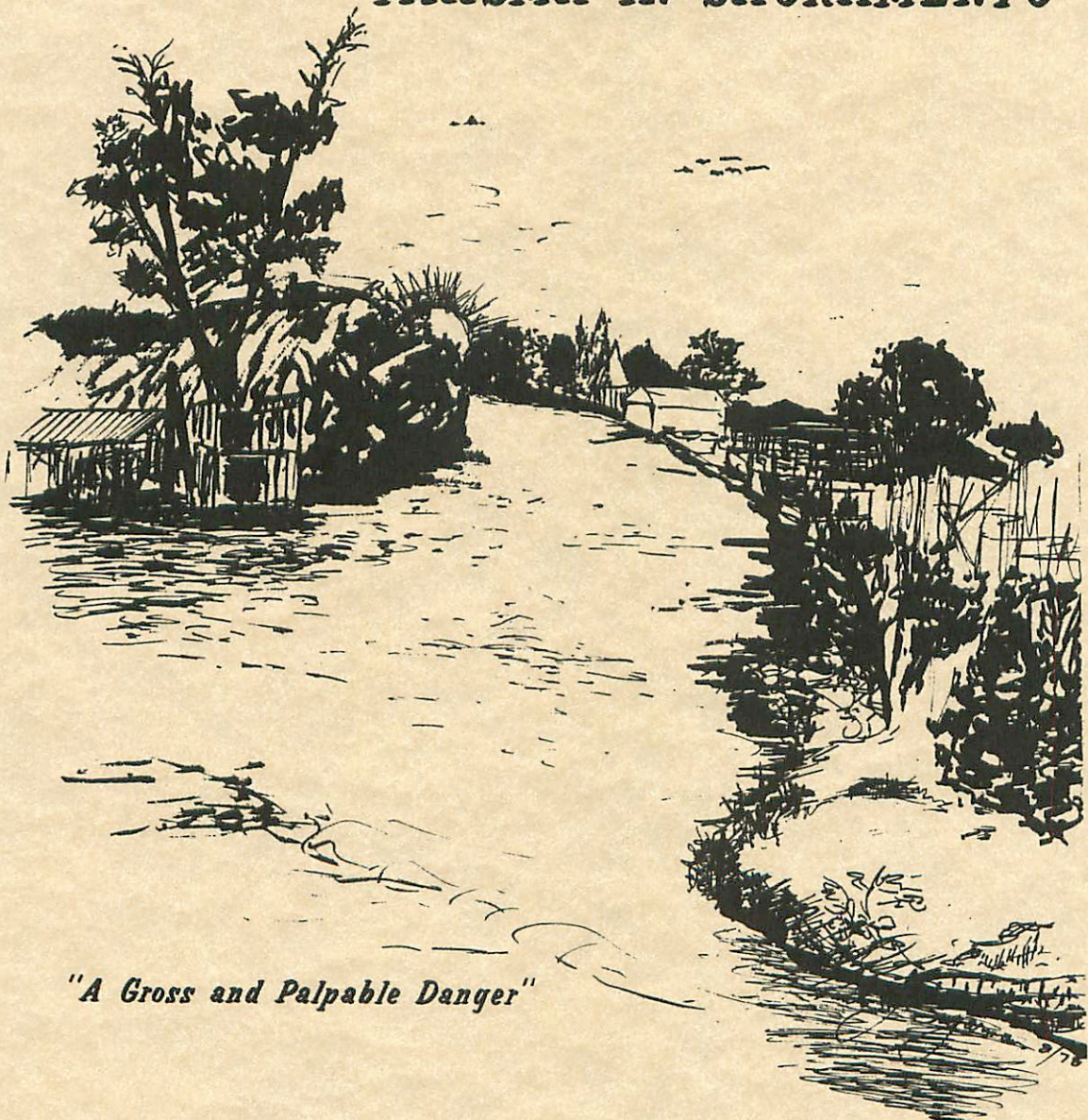


# GOLDER ☆ NOTES

VOLUME 24 NUMBER 3

FALL 1978

## *MIASMA IN SACRAMENTO*



*"A Gross and Palpable Danger"*

SACRAMENTO COUNTY HISTORICAL SOCIETY

**MIASMA IN SACRAMENTO:  
“A GROSS AND PALPABLE DANGER”**

Sacramento's warm summer evenings prior to 1900 were often made hideous by a strong stench which drifted over the city from which it was all but impossible to hide. Although this unpleasant aspect of living has scarcely been mentioned in the city's history, it was a matter of great concern at the time for it seemed to threaten not only the sensibilities but also the welfare of all citizens. It was in the words of a health official, “a gross and palpable danger.”

The disagreeable odor resulted from the inability or unwillingness of the city or its inhabitants to dispose of organic waste, animal or human, in a sanitary manner. Specifically, it was caused by the lack of an adequate sanitary sewer system, the dumping and decomposition of animal remains in low-lying lots, alleys and sloughs, and the failure of the average citizen to keep his own nest clean.

A few examples taken from the period of 1860-1880 indicate the severity of this problem. China (Sutter) Slough or Lake, on the present site of the Southern Pacific depot, was a major source of these “foul and disgusting” odors. Chinese laundries located along I Street between Second and Fifth frequently dumped their wastes into the slough. According to Dr. Roy Jones (in his *Memories, Men and Medicine* p. 274), who based his account on the Minutes of the Board of Health for 1876:

the question of Sutter Lake was taken up. Dr. Oatman said that despite the ordinance prohibiting it, the Chinese privies, the filth of the wash houses, the running of the houses, are led into the lake, and that when workmen pass across “the bridge of sighs” [2nd Street] over the slough many of them are nauseated and made very sick by the stench from the slough.

Animal refuse contributed its share to the city's stench. Slaughter houses, banned from the city proper, dumped the unused remains of animals into Burns Slough and the Thirty-First Street canal on the eastern edge of the city and at Twenty-Seventh and P Streets (Jones p. 284-85).

The seven dairies within the city limits (Union Dairy at Eighth and N Streets; Excelsior Dairy at Sixteenth and R Streets; Brighton Dairy at Twenty-Second and S Streets; Gehrinz's Dairy on Twenty-Second between S and T; Pleasant Hill Dairy at Twenty-Second and F Streets, and the Sacramento Dairy at Seventeenth and F Streets) contributed to the evening "scent" until banished from the city in 1896. The glue factory at Thirtieth and U Streets and hog yards also added to the unwelcome odor.



The great number of privies was a major source of the unpleasantness. Most houses in the city relied on simple pits dug a few feet into the ground for the disposal of human wastes. When one was filled another would be dug elsewhere in the yard. According to Dr. F.W. Hatch, a preeminent Sacramento sanitarian, writing in 1879 ("City of Sacramento—Its Sanitary Condition" in *State Board of Health Report* 1880, p. 60)

In other yards, and for the use of those occupying the more finished residences, and for the best hotels, cesspools have been prepared for the reception of wastes from water closets ....In some instances the cesspools are located in the cellar, permitting the escape of offensive gases into the rooms above ....This state of things, so far as regards privies, has been going on upon the building lots of Sacramento for at least twenty-eight years—since the Fall of eighteen hundred fifty-two—when everything visible was destroyed, perhaps purified, by fire. A block of ground, three hundred and twenty feet square, may contain sixteen twenty-foot lots, along each of its sides. If the buildings upon each side were equal, there would be sixty-four lots, and, as a consequence, sixty-four privies, open or vaulted upon each block. How many times, during twenty-eight years, these privies have been filled, covered over, abandoned, and new ones dug, must be a subject for conjecture only.

Dr. Hatch took aim at hotels and boarding houses as being among the worst offenders. As a member of the Board of Health in 1871, he proposed this resolution (Jones p. 270):

Resolved, that the Health Officer be instructed to see that the premises of Hotels and large Boarding Houses, are disinfected at least once in two weeks, and that other places or sewers, cleansed, but liable to the accumulation of filth, be examined at least once a month and properly disinfected as occasion may require.

Building a municipal sewage disposal system to carry offensive matter beyond the city limits was another approach to solving the dilemma of the great stink.

Sacramento had begun to install sewers as early as 1853 but they were primarily for drainage of overflow water and not intended for the disposal of human waste. Moreover, these first sewers were constructed of three-inch redwood planks, about eighteen or twenty inches wide. An 1879 map of the system indicates that at that time these redwood plank sewers were laid down Ninth Street between D and L, along Seventh Street from I to L, along Third and Fifth Streets from I to L and along Front Street between J and K. There was also a line down the alley between J and K from Seventh to Second Streets.

The disastrous floods of 1861-1862 prompted demands for a more adequate sewer system. According to Dr. Hatch, writing in the April, 1863, *Annual Report of the City's Board of Health*:

Gloomy forebodings were everywhere prevalent. The waters which swept with destructive violence over the city, were still standing upon more than half its surface; stagnant pools, the receptacle of filth and debris of a superficial drainage, lay exposed in the heart of the city; and depositions of decaying animals and vegetable matter, steaming under the influence of a warm sun, diffused their exhalations about them. All the circumstances surrounding us were pretentious of evil and well calculated to excite alarm. If ever the recognized conditions necessary to the production and propagation of diseases were present, they were thought to exist here ..... even medical men participated, to some extent, in the apprehensions of the unprofessional public.

In these last sentences Dr. Hatch was referring to the then widely held

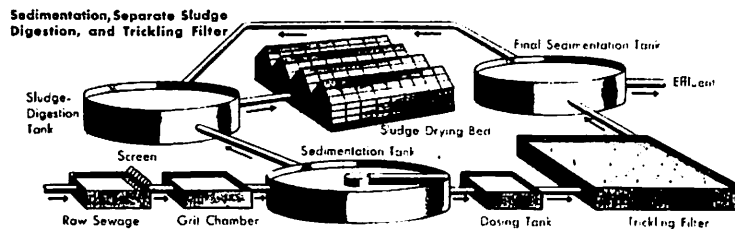
belief that filth could cause disease merely through the stench it emitted. And so both doctors and the public focused attention on 'miasmas' associated with the still mysterious processes of decay. Understandably, sanitarians concerned themselves with the elimination of miasmatic sources: fetid water on low lots, manure piles, open sanitary vaults and cesspools, improperly trapped drain pipes, slipshod house plumbing and perhaps most dangerous of all, inadequate or outmoded urban sewage.

These potentially lethal post-flood conditions spurred the Sacramento Board of Supervisors in March 1862 to establish a Board of Health, of which Dr. Hatch was made chairman. The new board soon urged the city to adopt a centrally planned sewer system to carry off surface runoff and sanitary sewage. Offering London as a model, the city's health board presented its proposals in 1863. Ultimately, the authorities hoped, Sacramento would acquire "a complete system of covered sewers." For the present a more modest system seemed appropriate, one calling for draining city lots through pipe sewers laid below the ground surface in the center of street alleys, connecting with branch pipes leading to syphon traps joining each backyard to the alley sewer. The alley sewers in turn were to connect with larger street sewers at the intersections. Street sewers might be covered with planking or left open; but where streets intersected they would not simply be covered to allow traffic to move, rather silt boxes, screened by grates designed to prevent the entry of such things as dead animals, vegetable offal "and other improper things" into the sewer system, were to be constructed. "Keep the surface clean and sweet—let us abolish from our midst stagnant pools of water, and all exposed reservoirs of putrefying filth, and Sacramento will become as noted for its cleanliness as it now is for its remarkable salubrity."



Within the year the city adopted a drainage plan that incorporated some important aspects of the health board's recommendations. The design for intersection siltboxes was not adopted, at least as standard

practice, for the most detailed accounts of the sewer system as it existed in 1880 fail to mention them. Instead, manholes placed at appropriate intervals, set with bricks and extending three feet below the sewer bottoms served as settling basins for solids. But a comprehensive city-wide drainage pattern was established by 1864. All sewers emptied ultimately in the direction of the low ground south of R Street, toward which the Burns Slough ditch, which passed Sutters Fort and East Park, already headed. As the system was strung together over the next fifteen years, often on an *ad hoc* basis, and sometimes with a regrettable disdain for hydraulic principles, it came to consist of wooden, brick and pipe sewers, and a notorious drainage ditch that led to Snodgrass Slough and the tidewater below the city. No worse than most other systems of similar complexity, still it was far from the best system to be had with the then current technology. The open drainage portion never worked well. Along the route of the drainage ditch from Burns Slough one could find reeking pools of stagnant water. One such pond, located at the present site of Broadway and Eighteenth Street, acquired the sinister reputation of “terror of the south winds.” It was these winds which swept the stench from open sewer canals south of the city over Sacramento on summer evenings.



A latter day sanitation system

Modern urban sanitation owes its origins to the public health movement of the nineteenth century. The systematic, scientific approach setting the movement off from the generally inconsequential activities of local boards of health and urban health officers began in England with commissions appointed to investigate the periodic cholera epidemics that swept with so much devastation through crowded cities. Spurred by the “sanitary idea” of Edwin Chadwick and others, a movement to protect the public health by cleansing the cities got underway. In the

United States the movement was mainly post-Civil War, no state having a statewide board of health, for example, until Massachusetts established one in 1869. By the end of 1872 only two other states had followed her lead (California among them) but by then the American Public Health Association had organized. In 1873, some 134 cities, including Sacramento, as has been noted, were served by some form of functioning health board. The professionalizing public health movement, both in California and the nation at large, was now a reality.

Meanwhile, inventive minds were devising ways to improve household sanitation. By 1770 some of the finest homes in England had individually designed disposal facilities using water to carry off wastes but it was not until the late 1770's that the first patent for a water closet was granted. A century later significant improvements fostered the introduction of water closets into average homes but initially they met with much resistance because they were difficult to clean and when flushed allowed sewer gas to enter the home. A report of the State Board of Health of 1902-1904 describes the problem in the State Capitol:

The toilets, old and antiquated, are foul to the extreme – not for want of care on the part of officials in charge, but on account of the construction being such as to make cleanliness impossible.

Thus the new conveniences, marred by imperfections as is often the case in new technologies, met with resistance. Several decades were to pass before the art of interior house plumbing was accepted with unquestioned confidence. In the earlier period, extending well into the 1880s, perfectly rational concerns about inferior workmanship and design were augmented by pre-microbe era fears of deadly miasmas arising from sewer gases. This prejudice often was aimed primarily, though not solely, at the supposedly deadly water closet itself. Dr. Hatch warned that from his own personal experience many of the city's water closets, both in hotels and private homes, were frankly unsafe, "badly constructed; for the most part cheap and inefficient concerns; and seldom properly ventilated." There was wide agreement on the nature of the threat. One of Hatch's contemporaries put it this way:

That disease is frequently conveyed into houses through the medium of in-door water closets connected with cesspools and, especially with the large sewer of a city, is one of the

**facts which sanitary science has rendered altogether probable.**

**Another authority, even more fearful than Hatch of the insidious, often undetectable poison gas noted somewhat later that:**

**it required no vivid imagination to picture the dark labyrinths of the sewer, as the haunt and lurking place of myriad demons of death, watching their opportunity to find their way by stealth into our houses, and feed upon the lives of our best loved. The demon is there; only we call it a disease germ, and fortify against it with traps and ventilators, and make war upon it with disinfectants.**

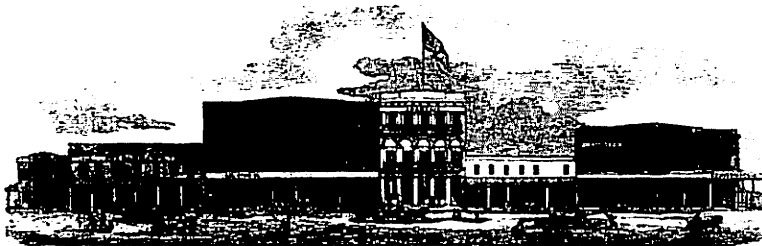
**Interestingly enough, seeing no way out of the dilemma, he recommended that the conveniences of indoor plumbing were far outweighed by the dangers of bringing sewers into the house. "The water-closet within the walls of a dwelling," he warned, "I cannot look upon as a safe thing."**



**The era during which water closets progressed past being occasional curiosities appears to have begun about 1870. Though as early as 1855, shortly after Sacramento got its waterworks, water closets were being offered to those affluent enough to consider retrofitting their houses with plumbing devices, the wares and services advertised by Sacramento plumbers prior to 1870 did not commonly include water closets. In 1871, Gleason and Brother, Plumbers, were advertising water closets and references to water closet permits appear for the first time in the City Council Minutes. In the Sacramento directory for 1882, another plumber advertised "water closets put in order", possible evidence of their increasing numbers as well as of their unreliability. Perhaps for reasons of delicacy few advertisements for these devices are to be found, but the trend is clear, however difficult it is to quantify the plumbing revolution. In a rare reference to the subject in the newspaper, a San**

Franciscan was reportedly found dead of suicide in a water closet on the upper floor of the Benton Restaurant on Second Street between J and K Streets. This was in 1874. What sort of water closet fixture was in the room is left to our conjecture, but the date fits in neatly with the trend of other evidence.

The introduction of water closets in the decade of the 1870s was spear-headed by the building not only of the better class of houses, but larger institutional buildings, such as schools, prisons, and hospitals. By the 1870s, optimum hospital plan specifications called for their use, along with a warning specific enough to convince one that few architects were thoroughly familiar with how to plan for their safe inclusion. The Sacramento County Hospital in 1870 was a new building that could care for over 200 patients. Costing \$80,000, and four stories high, it relied on its own roof-top water tanks to supply its modern plumbing system. Each of the six wards had bathrooms equipped with “lavatories, hot and cold water, sinks and water closets.” During its short lifetime—it burned in 1878—it set a standard for Sacramento area plumbing that few city dwellers could match in their own homes. However, public houses began adopting the new standards within a decade. When the Capital Hotel at 7th and K Street was being rebuilt, its operators believed an impressive attraction for visitors was the fact that each of the house’s three floors “is replete with closets with the latest improved trappings, all made in conformity with the sanitary laws.”



Overall, the move to modern plumbing and indoor facilities proceeded slowly, and for years one was more likely to be found dead in an outhouse than in a water closet. The testimony of health officials,

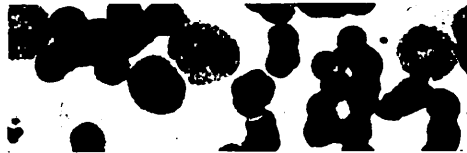
as we have seen in the observations of Dr. Hatch, indicates that primitive outhouses, and the associated evil of crude pits dignified by the term "cesspool" continued to plague the community for decades after. If a slowly growing minority was threatening itself with sewer gases in the house, the majority, it was maintained, was menaced daily by a legion of "filth pits" numbering in the thousands. In San Francisco of the 1890s there were still public schools serviced by simple privies, or "death-dealing apologies for water closets," as one outraged observer wrote of them. In one Sacramento school supplied with water closets, the girls' facilities were found to be unconnected with the cesspool, and elsewhere in town at the same time the sanitary inspectors were busy abating the more horrendous closets, cleaning out others, and occasionally condemning the plumbing at some older buildings. Complaints of odors from privy pits and open vaults and cesspools constituted the single largest category of nuisance abatement work the Department of Health in Sacramento had to deal with. In 1895 Sacramento authorities estimated the city was cursed with 2,500 of the "filth-pits." Seven years later a newspaper editorial put the number at 5,500. Either figure suffices to make the point.

The sewer system, already described in part, shared a good part of the blame for both the "filth-pits" and the resulting stenches. At no time was the entire system capable of handling all the domestic sewage, including human wastes, directly conveyed to it from house plumbing. The law required an intervening cesspool, as we shall note. After 1884, and then only with the newer sewers constructed with flush tanks at the head, was part of the system capable of taking more than the liquid portion of sewage.



State legislation to require the use of sewage disposal techniques had been proposed as early as 1870, when the newly created State Board of Health prepared a draft of proposed legislation to empower local health boards to force private landowners to dispose of sanitary wastes in certain prescribed ways. These included adequate cesspools, mandatory hookups to existing sewer systems, and the use of sanitary earth closets.

By 1878 the city began its own efforts to tighten control over sewage facilities on private property, requiring, in the first of a series of ordinances that attempted to reflect the best available technology, the mandatory use of cesspools as intermediary settling tanks before hook-ups to alley sewers could be made. But a number of Sacramentans yielded to the temptation of flushing their sanitary sewage, including the contents of water closets and privies, directly into the alley sewers. In 1883 another ordinance mandated sewer hookups where sewers were available, and contained the glimmerings of a plumbing code, beginning with minimum construction specifications for cesspools. By the mid-1880s the trend towards increasingly higher standards of sanitation on private property is unmistakable. The Sacramento transition from primitive to modern sanitation and plumbing was well underway.



Pneumonia Germs

The idea that filth and dirt alone could induce disease had provided much of the impetus establishing Sacramento's sewer system. It was an idea that died hard. Even after European scientists had demonstrated that germs caused anthrax, pneumonia, typhoid and tuberculosis, the old miasmatic theories prevailed among some people. An example from Sacramento itself demonstrates the tenacity of the filth theory well into the 1880s: "In regard to the cause of sickness in the neighborhood of 12th and Q Streets, where five or six members of one family were at the same time attacked with diptheria, it is true these exhalations (from the allegedly defective sewers) might have had something to do with the same, yet the real cause in this instance, perhaps, was not so far remote as from sewer gas escaping a few blocks away, but, according to the attending physician, a member of the Board of Health, was found to be nearer at home. In the rooms adjoining the sleeping apartments of the family in question, a large quantity, about a wagonload of pumpkins were found in a state of decomposition, some of them being flattened out and covered with a thick layer of mould." A very few years later it was still necessary to refute the filth theory with respect

to diptheria: "The power of producing this disease [diptheria] has been ascribed to as many different causes as there have been conditions under which it has been observed. It has been generally described as a *filth disease*, that is to say, that it owes its existence to sewer gas, cess-pools, impure water, decaying vegetation, overcrowding, etc.; but such is not, we believe, the fact, as cases have occurred, and death has entered into homes where no such conditions existed. It is found on the tops of mountains and in secluded valleys, where no possible condition likely to give rise to the disease existed. We are therefore led to infer that it is not dependent upon conditions for its existence, but is a disease produced by a pathogenic micro-organism, and therefore does not originate spontaneously, as we believe no combination of unhygienic conditions can originate life where none existed before.

Sometime in the 1880s, then, Sacramentans changed their perception of the stench they had been enduring for years. If the older fears of disease being carried on the breezes were not put to rest, the offensive odors nonetheless remained intolerable.

And so the story of Sacramento's efforts to develop adequate sanitation continued well into the twentieth century. The introduction of river water to flush out the main drains developed between 1900 and 1910. Sutter Lake was filled in completely in the same years. But as Sacramento's population grew, so did the need for a more elaborate sewer system and a means of disposing of human waste without dumping untreated sewage into the rivers. Now, a century after the first feeble attempts were made to develop sanitary disposal, the city and county of Sacramento have a modern system that has facilitated the almost incredible growth of the urban area since 1950.

## ACKNOWLEDGEMENTS

The major portion of this paper was taken from Marvin Brienés' paper entitled *The Peoples' Potties: From Filth Pit to Flush Toilet in Sacramento, 1849-1900* (1978, 24 pp.). It was the result of a study done for the Cultural Heritage Section of the California Department of Parks and Recreation which was supervising the development of a project in Old Sacramento. Pages 4-10 of this publication are taken almost *verbatim* from this study.

However, since *Golden Notes* did not have the same objectives as the Department of Parks and Recreation, your editor used a different approach in pages 1-4. He selected material from J. Roy Jones, M.D., *Memories, Men and Medicine: A History of Medicine in Sacramento* (1950, 505 pp.) to offer a more graphic image of sanitary conditions in Sacramento in the 1860's. Your editor is solely responsible for any errors that may have resulted from trimming Dr. Brienés excellent study of twenty-four pages to the six used in this publication. We appreciate the graciousness of the Department of Parks and Recreation and Dr. Brienés in giving us a copy of the study and allowing us to use as much of it as we could.

Cover Illustration by Paula J. Sugarman

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