

# Flush Toilet May Be Down the Drain

By William Moore

For more than a century, the flush toilet has probably been Western man's most reliable technological companion, a venerable constant in an age of flux.

Now, though, there are ever increasing signs that we may be on the brink of a world historical development: the decline and fall of the flush toilet as we know it.

The drought currently gripping the western states has height-

ened public awareness of the prodigal expenditure of water that is necessary to keep our commodes operating.

In California alone, according to state authorities, an estimated 27 billion gallons of water is flushed each year, enough to cover 840,000 football fields with a foot of water.

That's nearly half of all the water used in California residences.

Each flushing of a conventional toilet requires an average of six

gallons—in some cases, nine gallons.

Predictably enough in these thirsty times, all sorts of critics and inventors are beginning to come out of the water closet, as it were.

"Even without a drought, it's crazy to use the amount of potable water we do on flushing," said State Architect Sim Van der Ryn. He has allowed as how he wouldn't mind seeing an obituary written on the conventional commode.

"It's an ass backwards system," he muttered. "What we need is a toilet that requires no water or very little water, and what water is used should be reclaimed along with the nutrients in waste matter.

"Instead of doing this, we have been working against the natural cycle, rather than cooperating with it."

Several alternatives to the conventional toilet have gone on the

market recently, and many of their manufacturers are reporting brisk sales.

The alternatives include toilets that rely on pressurized air, either in the tank or underneath the bowl, and require as little water as two quarts for flushing.

They include vacuum-caused suction toilets, chemical toilets, mineral oil toilets, even composter toilets akin to complicated privies but dependent on a process of

biological decomposition.

The tradition of water-based toilets has been with us since very ancient times. The first known commode was built by the Sumerians of the Near East in about 3500 B.C. It had a raised seat similar to that manufactured these days.

Such raised seats were also built in about 2000 B.C. near the Indus river in India, where street drains were apparently used to transport sewage.

It was not until 1872 that Thomas Crapper of England invented the first modern toilet, a Victorian device for which he was able to guarantee a "certain flush with an easy pull." The principle of his design is still in use today in approximately 150 million American johns.

"The conventional flush toilet was such a good, cheap, sanitary invention that for a century it blinded us to all other opportunities," mused Ed Burton of Willits, an inventor of a compressed air commode. "As long as there was plenty of water, it was unassailable.

"Only recently, as people have begun to see that water is not an unlimited resource, have we begun to have alternative inventions. This drought has focused so much attention on the problem that other systems are becoming more and more marketable."

To be sure, many of the alternatives face obstacles—from plumbing and other lobbies which have a vested interest in our huge sewage systems, from entrenched cultural attitudes and from health authorities who worry about possible sanitation hazards in urban areas.

But it is clear that a number of state officials have become disenchanted with conventional flushing.

Among the realities facing toilet manufacturers is a state law, scheduled to go into effect next January 1, requiring that all new toilets installed use no more than 3½ gallons per flush.

The biggest firms in the business have already started marketing products that meet those standards.

Spokesmen for the Kohler and American Standard companies, the nation's two largest suppliers of conventional flush models, said their firms are continuing research

## Water Hole Tantalizes A Small Town

By Dale Champion  
Chronicle Correspondent

Bodega Bay,  
Sonoma county

In this small seaport town, where the drought is pinching the feeble water supply, everyone is looking covetously toward Bodega Head, the massive granite promontory that shelters the fishing fleet on the north.

A huge pit, left behind when Pacific Gas and Electric Co. scrapped its plans 13 years ago for a nuclear reactor on Bodega Head, contains 20 million gallons of fresh water. And the people of Bodega Bay, 50 miles north of San Francisco, mean to lay their hands on it.

But frustrating their object pursued officially over the last five years by the Bodega Bay Public Utility District, are authorities of the state Department of Parks and Recreation.

In 1973 the department bought the PG&E property, including the water-filled "Hole in the Head," fed by underground seepage. Since then the park officials have beaten back all attempts to claim it for the local district.

Ray Chapman, a Sacramento spokesman for the department, said much more than the Hole in the Head water is involved.

The district, he said, also wants to annex Bodega Head and other Sonoma State Beach property into its service area and acquire the

district."

As the battle has intensified in recent weeks, the utility district cut off water during the three-day Washington's Birthday weekend to the state's Bodega Dunes campground. Three hundred families had to be turned away because of the water shutoff.

In the view of park officials, the district's action was simple retaliation for the department's refusal to give up the Hole in the Head water.

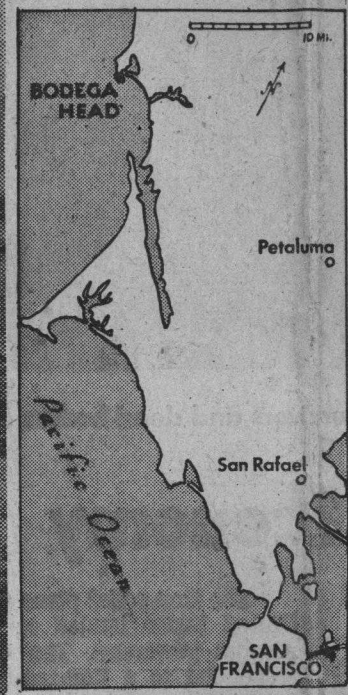
Nothing of the kind, says Otto W. Henninger, president of the utility district.

"We had just declared an official water emergency," he explained. "The Bodega Dunes campground is a surplus customer, entitled to 2500 gallons a day, and we cut them off when they had used that."

He conceded, however, that the holiday weekend turnoffs, which haven't been repeated, also served a purpose besides conserving water.

"We wanted to show them (state parks) what we were up against, and why we need the Hole in the Head," he said.

No other of the utility district's 300 metered customers have had their service interrupted. But Henninger said voluntary conservation



light to all the valuable freshwater resources within the park territory.

"Hell, those utility district people want everything, lock, stock and barrel," Chapman fumed. "They want us to give them all the water, then sell it back to us.

"They have yet to demonstrate to us that they really need the water. If they do, we'd like to help them out, but we can't legally give the water away. It belongs to all the people of California. It probably would be up to the Legislature to sanction turning it over to the

has reduced water usage in the town of 600 by about one-third.

"We were delivering 120,000 to 140,000 gallons a day," he said. "Now we're pumping under 100,000, and on one day consumption was only 60,000 gallons."

The Bodega district draws its water now from two wells on Salmon Creek, 1½ miles north of town.

"The trouble is we're struggling with salt water intrusion problems and very low stream flow," Henninger said.

## A Warning by Waldie

# Brown's Water Proposal Assailed

By Marcie Rasmussen

Governor Brown's "compromise solution" to state water problems would sacrifice the San Francisco Bay-Delta ecosystem in order to provide plenty of cheap water for continued growth in the Los Angeles basin, former East Bay Congressman Jerome Waldie charged yesterday.

Waldie, newly hired Washington lobbyist for the Contra Costa County Water Agency, told county officials they should view Brown's proposed federal water legislation

with a "jaundiced eye."

"I don't think the compromise solution is any solution at all for the north," said Waldie, who lost to Brown in the 1974 Democratic gubernatorial primary election.

"It is (a solution) for Los Angeles. They could take over Camp Pendleton and start creeping up to Fresno."

He said public policy should be to curb development in the Los Angeles basin.

## Death Strikes Again —Same Time, Place

Dayton, Ohio

A Dayton bowling alley proprietor was slain yesterday at the same location and at nearly the same time his father was shot to death 30 years ago.

Police say Harry George Zavakos, 56, was shot at 1:09 a.m. as he entered his home. His father, George, was killed in a similar manner on May 24, 1947, in front of the same house.

In 1952, police said, Harry Zavakos received an anonymous telephone call warning: "You are going to die the same way as your father did."

Minor Sorber, executed for another murder, confessed to the slaying of the elder Zavakos in 1954 while on death row.

Zavakos was owner of the Varsity Bowling Lanes and nightclub at the time of his death. His son was a co-owner of the bowling alley.

The younger Zavakos closed the business yesterday at 12:20 a.m. and was entering his home after work when he was shot. Police said he apparently died of a single gunshot wound.

Both father and son were shot within ten minutes of 1 a.m. Both were in their late 50s at the time of their deaths. Police ruled out robbery as a motive in both cases.

Officers said they have no suspects in yesterday's slaying.

Associated Press

In the foreground sits a huge pit of fresh water from the abandoned nuclear project, with a view northeast to Bodega harbor; inset is a map of the area

By Peter Breinig

High tides in early February washed over the sandbar at the mouth of Salmon creek, causing salt water to back up into the well sites. Bulldozers carved open the sandbar, easing the salinity problem. But that still leaves the prob-

lem of low creek flow.

"Salmon creek should be running full now," Henninger said. "Instead it barely has a trickle. I'm afraid that by June 1 it'll be dried

up."

The district already has told the state parks department it should not expect to get any more water from the utility system after June 1.

## Bill Proposes Water Meter For Everyone

Sacramento

Legislation requiring the installation of water meters in all California homes and businesses was introduced in the Senate yesterday.

The bill by Senator Alfred Alquist (Dem-San Jose) requires the state Water Resources Control Board to establish standards for water meters and to develop a schedule for the installation of the devices.

Currently, Alquist estimated, about three million Californians live in communities where meters are not required. Residents in those areas usually pay for water based on the size of their home or building.

"Last week the attorney general stated the governor has the authority to ration water, but this authority is useless in areas like Sacramento where water services are not metered," Alquist said.

"There's no way to enforce a rationing program if you cannot measure the water use," he added.

Alquist, chairman of the Public Utilities, Transit and Energy Committee, said the board estimated that Sacramento's water consumption is 300 gallons a day per person. In a community with water meters, the rate is about 180 gallons.

Sacramento, with a population of 250,000 and 80,000 residences, is the largest of the state's meterless cities.

When the citizens of that city approved the first expensive water intake plant on the Sacramento river in 1920, they also voted for a

## Rides at Zoo Grind to Halt— No Insurance

Amusement riders at Fleishacker Zoo were canceled during the weekend because of an insurance hassle, San Francisco Zoological Society reported yesterday.

The problem should be resolved and the merry-go-round should be spinning again by tomorrow.

The society, which operates the merry-go-round, a sightseeing Zebra Zephyr and the Little Puffer miniature steam railway, was forced to halt the rides when full liability insurance could not be obtained by last Friday.

Lloyd's of London wanted to cut its liability from \$10 million to \$3 million and canceled the policy, the society spokesman said. Other coverage is being sought.

Only the merry-go-round operates on weekdays during winter; all of the rides operate on weekends.

charter prohibition against water meters.

Other cities operating chiefly without water meters include Fresno, Bakersfield, Modesto, Chico, Eureka, Delano, Hanford, Madera, Merced, Tulare, Visalia, Davis and Red Bluff.

United Press

## Tungsten Mines

Bishop

Tungsten miners at Pine Creek Mine in mountains overlooking Owens Valley (Inyo county) go up to work not down. Most deposits lie above the 8,100-foot entrance level.

Associated Press

into additional ways to conserve water in their products.

Both spokesmen were bullish about the future of water-based toilet systems.

"The toilet bowl is here to stay," insisted Al Ellrodt, marketing director for Kohler.

Leonard Grimes, one of Governor Brown's top authorities on the subject and director of the state Department of General Services, countered:

"The flush toilet may be here for some time, but even if we continue with this water-based approach, it won't be the kind of flushing we've known. It will be vitally necessary that the amount of water the toilet uses be significantly reduced."

As one interim solution to the extravagant amount of water that gushes through existing toilets, a number of residents in drought-parched Marin county have discovered that they can turn off the valve beneath their toilets that supplies the water.

A Sausalito businessman, who asked not to be named because he was afraid his wife would receive crank calls, related:

"What we do in our home is keep the bathtub plugged up and the toilet valve shut off. Then, when we need to flush, we scoop the gray water out of the tub with a bucket and pour it into the toilet bowl. It flushes just fine that way, and it's with water we have already bathed in and sometimes even washed our clothes with."

Bill White, executive director of the Plumbing Contractors Association of Marin and Sonoma counties, endorses this conservationist approach.

"I'd recommend pouring the gray water into the toilet tank, though," he said. "If you do pour it into the tank, make sure you disconnect the supply tubes that lead up from the valve to the tank. The public can do this easily.

"Otherwise, if there's a leak in the valve—even though it is shut off—you run the serious risk of the gray water backing into the drinking water supply and contaminating it."

Grimes of the State Department of General Services said his agency has even considered contingency plans, in the event the drought continues, to shut off the toilet valves in all state facilities—"as an example for the public."

"What we really need to do," he said, "is materially re-engineer toilets. And it's going to happen. Make no mistake about it."