

# Splash of History

CENTURY-OLD 'WAVE MOTOR' ON WEST CLIFF PIQUES CURIOSITY



DAN COYRO/SENTINEL

Walkers along West Cliff stop to watch water shoot into the air through the blowhole between Auburn Avenue and Chico Street. The hole was drilled through the rock cliff in the 1890s to accommodate the 'wave motor.'

By STEPHEN BAXTER

[sbaxter@santacruzsentinel.com](mailto:sbaxter@santacruzsentinel.com)

*Wave Motor*

SANTA CRUZ — Shooting saltwater into the air and sometimes drenching unsuspecting walkers on the West Cliff Drive pathway, the wave motor has befuddled residents and tourists for years.

On a recent sunny morning near Chico Avenue, a Capitola man stopped his bike along the fence to look at the "blowhole" and listen to it groan with each ocean surge.

Was it an art project? he asked. Or was it part of an sewer pipe left to crumble into the sea?

Geoffrey Dunn, a Santa Cruz historian, recently explained the wave motor's origin in a Santa Cruz Style magazine article for his forthcoming book "Santa Cruz is in the Heart," volume 2.

In part because there is no historical marker at the site, he said most people don't know it is likely the longest running device of its kind in the world, dating to the 1890s.

Shooting saltwater up to a tank, the water was once taken by horse-drawn wagon to douse dusty dirt roads in town.

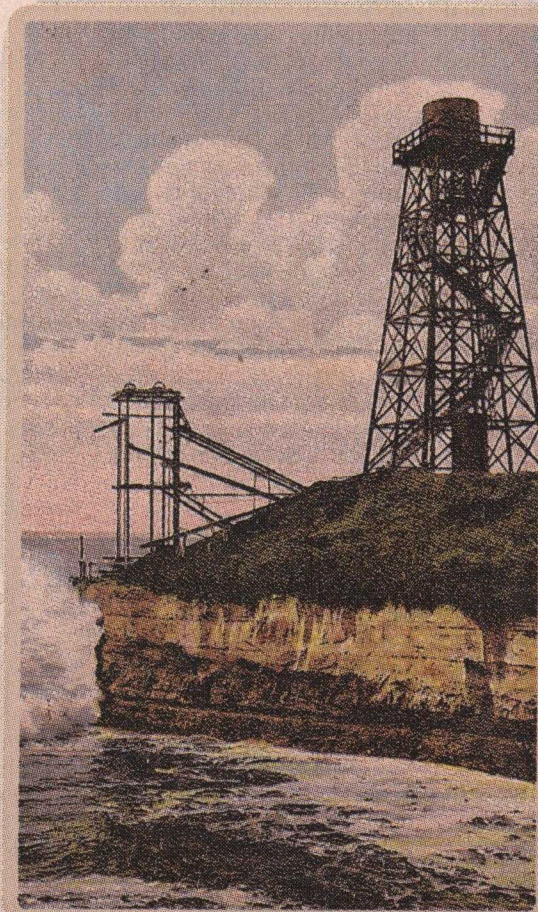
Other wave motors were more ambitious, aiming to generate electricity from the ocean surges.

"It was a part of a global phenomenon," Dunn said Thursday. "There was this great hope that human beings could harness this energy from the sea and have this eternal energy."

The West Cliff wave motor worked something like a common toilet, Dunn said.

In its original form, water rushed to the open base of a 35-foot shaft in the cliff to a float and pump system. When the water

SEE BLOWHOLE ON A3



GEOFFREY DUNN COLLECTION/CONTRIBUTED

The West Cliff wave motor worked something like a toilet, with water rushing to the open base of a 35-foot shaft in the cliff to a float and pump system. When the water receded, it forced the water to a second shaft and up a 60-foot, wooden tower to a 5,000 gallon tank that once stood on the cliff.

## WAVE MOTOR

**WHAT:** Constructed in 1898, the wave motor near West Cliff Drive and Chico Avenue shot saltwater up a shaft to collect in a tank. The water was spread by wagon to asphalt and concrete about a decade later, so the tower was dismantled because saltwater was no longer needed.

**WHEN:** Workers began paving roads with asphalt and concrete about a decade later, so the tower was dismantled because saltwater was no longer needed.

**WHY:** Today, the shaft is covered with a concrete cap that allows water to spray up when waves surge against the cliff. The 'blowhole' has entertained and puzzled passersby for decades.

**VIDEO:** Watch a video of the wave motor in action at [www.santacruzsentinel.com](http://www.santacruzsentinel.com)





GEOFFREY DUNN COLLECTION/CONTRIBUTED

A wave motor near West Cliff Drive and Chico Avenue collected saltwater to spray on Santa Cruz's dusty dirt roads in the early 1900s.

## BLOWHOLE

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receded, it forced the water to a second shaft and up a 60-foot, wooden tower to a 5,000 gallon tank that once stood on the cliff.

From there, the water was dumped on to horse-drawn wagons to spread water on Santa Cruz's rocky roads.

Similar wave motors on the Capitola Wharf and near the Cliff House in San Francisco that tried to generate electricity were short-lived, Dunn said.

In 1885, Emil Gerlach of San Francisco spearheaded a project on the Capitola Wharf that included a 30-ton flywheel.

Courting investors, he touted his invention as "the nearest thing to perpetual motion that the world will ever know," according to Dunn's research.

Gerlach spent more than \$23,000 on it — a fortune for the time.

With low wave action at the site, the wave motor eventually was dismantled.

"The Gerlach Wave Motor does not allow itself to be disturbed by the waves," noted a wry report in the Santa Cruz Sentinel from the late 1890s.

Around 1898, Santa Cruz city leaders needed saltwater for its expanding street system. They contracted half-brothers William and John Edward Armstrong to construct a new wave motor

near the city's western edge at West Cliff.

The Armstrongs originally planned the wave motor for a cliff near Geoffroy Lane at Sunny Cove, where remnants of a similar shaft remain, Dunn said.

After the more modest West Cliff wave motor opened, it was heralded as a success. An illustrated 1902 article in Scientific American also earned it national recognition.

"It was not a big investment, and it did its job," Dunn said.

About 1910, concrete and asphalt began to cover Santa Cruz's roads.

The brine was no longer needed and eventually the wave motor's tower was dismantled. The water shafts remained.

The current concrete cap on top of the wave motor was installed around 2005, said Gary Griggs, director of the Institute of Marine Sciences at UC Santa Cruz.

Griggs said the cap prevented people from potentially falling down the shafts. Holes with PVC pipe helped give the wave motor its "jet sound," said Griggs, who also has researched this stretch of coast.

To flex its true power with spray more than 20 feet high, the motor needs a big swell and a high tide.

But it can whistle and spout water even on smaller swells like the one that hit this week.

"It's a nice little show, and it's nice to know the his-

tory of it," said Dan Kirby, a 58-year-old from Capitola who watched a few spouts Wednesday morning.

"It takes you by surprise once in a while," added Jack Zajac, who lives on West Cliff Drive.

Griggs and Dunn said they hoped a marker could be placed near the wave motor to explain its history.

Griggs said it could be similar to the sign at the end of Woodrow Avenue about the old streetcar system.

"A photo of the old wave motor and a little explanation would be great," said Griggs. "Hundreds of people go by there on a weekend."

Dunn agreed. "People don't have a sense of what was here before."

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