

CAPE TOWN'S PIONEERING USE OF RENEWABLE ENERGY COMMEMORATED AT GREEN POINT COMMON



Green Point Common is a wonderful place to be visited by Capetonians and visitors alike. Here the past, present and future meet in the most remarkable way - one of the most significant legacies of the 2010 FIFA World Cup. Green Point Common, with the backdrop of Signal Hill, Table Mountain, Lions Head, and the football stadium has been crafted by the most skilled landscape architects, horticulturalists, and engineers. Working under the guidance of the City of Cape Town this has become Cape Town's newest and most impressive asset.

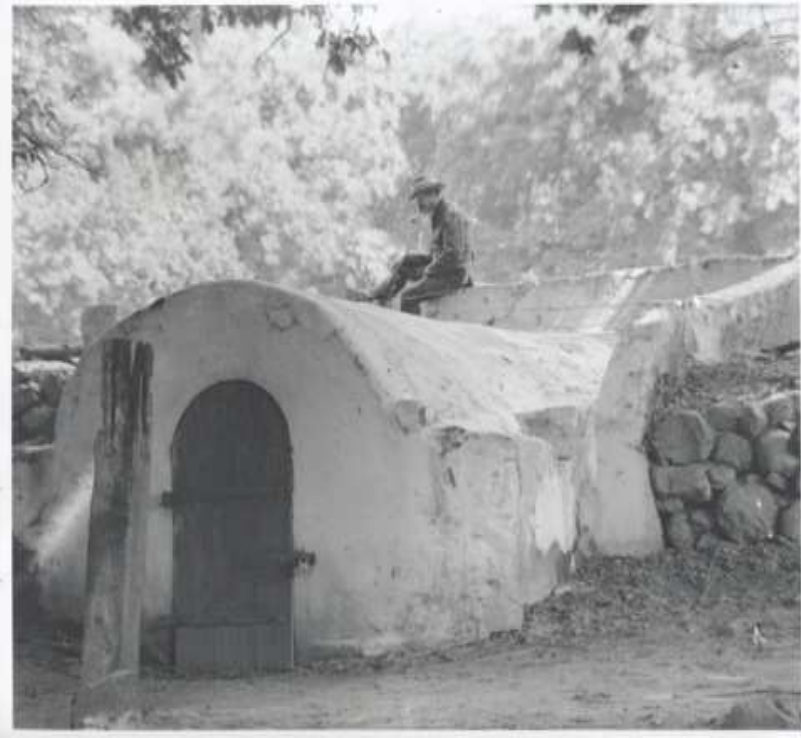


Originally a vlei, and public open space, history has come full circle, and Green Point Common again has water to sooth the urban sole.

The water that is now used at Green Point Common now comes from the Main Spring (Stadsfontein) in Oranjezicht, the original source of water that enabled Cape Town to be established in 1652. The reliable flow from these springs was identified by mariners, and supported those who lived here many centuries ago. The amount of water that still flows has not changed. There is sufficient water, not only to be used at Green Point Common, but also in the City bowl as an asset for its citizens. This modern initiative has been inspired and nurtured by the Reclaim Camissa Trust, an organization formed to promote the reclamation of Cape Town's connection to the water, and to ensure that the public is able to enjoy its right to this water.

The Stadsfontein, and several other springs are located on the lower slopes of Table Mountain in Oranjezicht, above to the Castle. The Stadsfontein and several other springs are located in the Field of Springs, which is a tranquil place to visit, adjacent to Oranjezicht Park. In 1686 a water collecting chamber was constructed in the Field of Springs. This was covered with a vault in 1813, and still protects the Main Spring, and the water which flows as reliably as ever.

Now, on Green Point Common, you will find the symbolic recreation of the origin of this water as it wells up trough sand and flows into the ponds.



As Cape Town grew, water was conveyed from the springs, and distributed in open “grachts” and woodstave pipes, with some of those grachts still carrying the water to this day, but lost to the modern view, below the current level of the streets known as Heerengracht and Buitengracht. Wagenaars canal is a fragment of the historical water system that can be seen at the lower level of the Golden Acre.

The spring water was used for agriculture – Oranjezicht was named because of the orange tree orchards which provided the mariners vitamin C which warded off scurvy. The slope of the ground also enabled use of the power of the water, in being conveyed down the slope to provide energy for the operation of water wheel driven grain mills for the production of flour. In 1657, the first mill was situated on the site of Cape Town High School. The Hope Mill (Corn Mill), was erected in 1685 and gave its name to Hope Street. By 1830, there were six working mills at the foot of Table Mountain, in the area of what is still named Mill Street. Gortmolen was one of these.

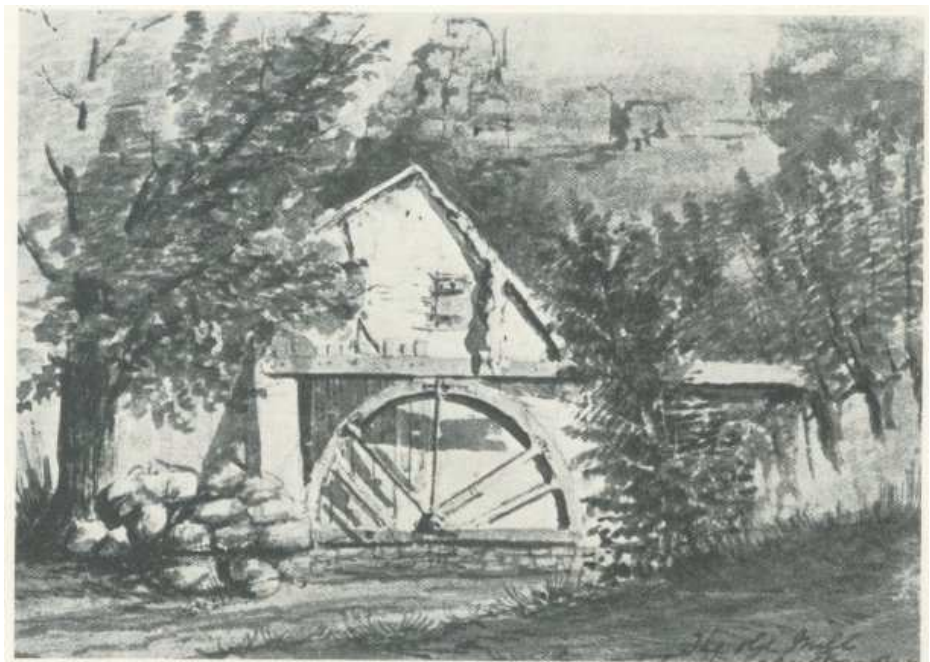
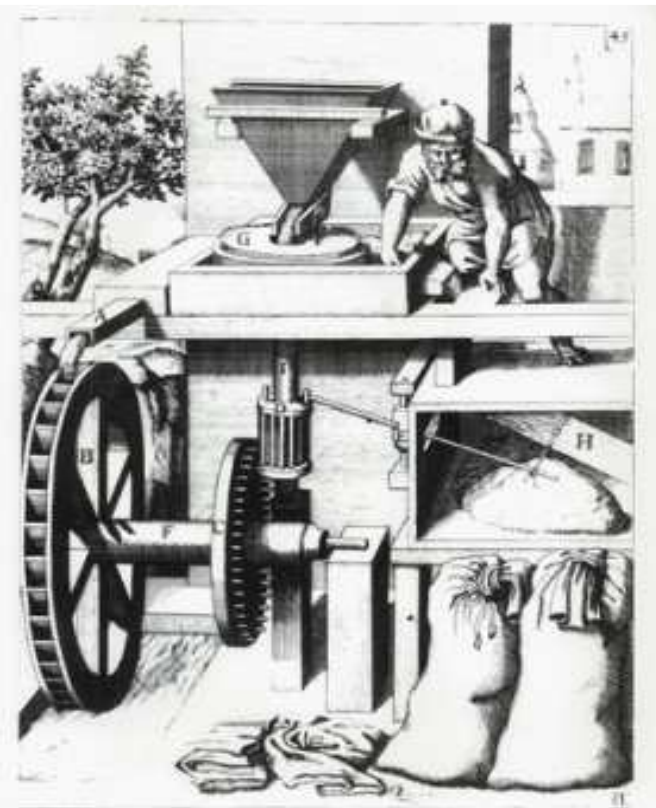


Fig. 6 The Old Mill, Annandale (Gortmolen). Painting by Thomas W. Bowler 1857 (formerly in the Library of Parliament)

The past, and the future use of renewable energy meet at Green Point Common.

The historical use of the power of water is demonstrated at Green Point Common with a water wheel. This water wheel is 3.5m in diameter. As the water fills the buckets on the water wheel, the extra weight on that side turns the wheel and drive shaft to grind grain into flour, or as seen with the water wheel at Green Point Common, to generate electricity. With 20l/second, about 0.2kW is generated. This is stored in a battery for lighting up the area at night.

In 1887, with the growth of the settlement in Cape Town and the need to supply more water to Cape Town, work commenced on the construction of the Woodhead tunnel from Disa Gorge located above Hout Bay to the Kloof Nek Water Treatment Works, and many kilometers of pipeline along the route known as the Pipe Track. The treated water was conveyed down to Molteno Reservoir, which is located above the Company Gardens. The difference in elevation enabled, in 1895, the Graaff Electric Lighting Station of the Cape Town Corporation, to generate its own electrical power from the hydro-turbine generators which still exist next to the Molteno Reservoir in Oranjezicht. Cape Town was the not only one of the first to make electrical power available for use by the citizens, but also the first in South Africa to make use of renewable energy to generate electricity !



This, and the anticipation of the use of renewable energy by South Africa to more sustainably meet our electrical power needs has inspired a demonstration of the hydro electric power generation at Green Point Common. The 50m pressure and flow of water (20l/second) in the pipeline bringing the water from the spring to Green Point Common is used through a water turbine. This spins the generator at high speed to provide some 3 kW electrical power. At Green Point Common, this water then goes to the water wheel at low pressure, and then runs through the ponds. Being a relatively dry country, South Africa has already developed most large scale hydro electric potential, and now looks forward to making use of wind and solar energy as renewable resources for generating electrical power.

City of Cape Town, and the Danish Embassy (who have sponsored the water wheel and turbine) have used the vision of Caron von Zeil and Dave Crombie (consulting engineer at GIBB), both of the Reclaim Camissa Trust to provide this remarkable feature on Green Point Common.