

HORNSBY WATER SCULPTURE

“MAN, TIME AND THE ENVIRONMENT” THE PHILOSOPHY AND DESCRIPTION

By VICTOR CUSACK

This mobile water sculpture is a unique environmental statement, particularly relevant to Hornsby, an area retaining extensive unspoiled natural areas with abundant land and marine based flora and fauna. Its symbolism is contrasting Man's historically joyful creativity with his rapidly increasing inability to co-exist with virtually all forms of life on earth.

The sculpture is designed to evoke curiosity and fascination, being a fantasy, a cacophony of movement and flying water, half solid, half liquid, constantly changing its facet and profiles. It is a celebration of joy and complexity of living, and its polarity; a reminder that we must invest responsibly or lose that joy, together with our history, our art, the environment and the ability to live as we know it.

The urgency of 'Time' is emphasised by incorporating three ancient water clock designs modified to suit the sculptural form: a IVth century B.C. Greek Clepsydra or Filling Clock, a 2.3 metre diameter XIth century Chinese Water Wheel Clock, and a XVIIth century Swiss Pendulum clock, slightly larger than 'Big Ben'.

The sculpture also incorporates a seventeen note Tubular Cast Bronze Carillon or Chime set, designed as an operating musical instrument and to ring in the hour, and based on an existing 250 year old design located in an old English church.

The complete sculpture including Clocks and Carillon are mounted on a floating pontoon rotating twice every 24 hours, symbolising our rotating 'Eco System', with a water display indicating the time on bronze Roman Numerals set in the surrounding pond. All sculpture mechanisms and movements are being driven by water only.

The sculpture suggests we have reached a 'watershed' or turning point in history, symbolised by the environmental aspects, the "DARE WE FORGET" clock face, and its emphasis on the polarity of man; that is, man's joyful complexity of creation exemplified in the ancient redesigned mechanisms incorporated, versus the environment we are so rapidly destroying. Man took 10 million years to breed 1,000 million people, but only 140 years to increase to 5,200 million, a species out of control!

It pays tribute to the ancient beauty of Hornsby Shire's environment and humanity's need to remember their responsibility to our fellow animals (human and otherwise); to consciously preserve these gifts for our children's children. Sculptured and cast in bronze are represented local fauna, including Tawny Frogmouth, Rainbow Lorikeets, Pied Cormorants (Shags), Fairy Penguin with chick, Pelican, Water Dragon, Blue Tongue Lizard, Goanna, the Grey Headed Flying Fox or Fruit Bat, Brush Tailed Possum, the noble Sea Eagle above the

Pendulum Clock weighing 142 kg with a 2.1 metre wing span, and Homo Sapiens as a mother and child, with frailty ... The only species to invent and use the gun.

This totally unique and utilitarian mobile sculpture constructed from cast Bronze, fabricated Stainless Steel and Toughened Plate Glass is eight metres tall and weighs approximately twenty tonnes complete with rotating pontoon.

The sculpture was conceived, designed, engineered and sculpted by VICTOR CUSACK and built together with his partner REX FEAKES at their FINEART BRONZEFOUNDRY.

The sculptor's descriptions of the philosophy, operation, origin and symbolism of each major part are on this and other plaques mounted around the pond wall. This Plaque was donated by the sculptor's wife, DEIRDRE STEWART.

SWISS PENDULUM CLOCK

The PENDULUM CLOCK is undoubtedly the largest water-driven PENDULUM CLOCK ever built, and is probably the third largest pendulum clock in the world, having the same 4 second completed time cycle but a heavier counterweight (350kg) than "Big Ben" in U.K.

The first crude water-driven PENDULUM CLOCK was designed, but never built, by the 17th century Swiss, Claude Perrault, in 1669. Hornsby's design is a considerably modified version using modern materials.

The 5 metre long pendulum, operating on a knife edge, has a theoretical 'moment' length of 3.97 metres (13.04 feet), swinging a 350kg (770lb) counterweight on a 4 second time cycle. The pendulum is driven by gravity, the small forces generated by the wind resistance and system frictions being overcome by the top drive discharging water under the Sea Eagle sculpture (the moving glass chutes).

The glass 'second wheel' is moved by uniquely shaped double 'escapement' ratchets driven in each direction by the Pendulum on a two second cycle, the wheel's 30 pins resulting in one revolution per minute. The semi-circular cam mounted on the 'second' wheel releases the large lower drive holdback arm every 30 seconds, or twice per minute.

This lower drive, which discharges 100kg water from its large glass drive chutes with each 30 second movement, moves the 'minute wheel' once every minute, and the 'hour wheel' every 12 minutes, by means of a ratchet that normally pushes against the 'minute wheel' pins, but which also catches and moves an inset 'hour wheel' pin every 12th movement. Those 1.6 metre wheels, made of toughened glass, can be seen together with the operating ratchet (driven by the lower water chutes) behind the 'clock face' and are connected directly to the 'minute' and 'hour' hands of the clock.

The "DARE WE FORGET" clock face, sculpted with its joyful background of local Lorikeets, Frogmouths, Possums, Lizards and fauna, also reminds us that we are losing species on our earth due to our sometimes insensitive land use, and to learn to preserve our shared environment for our children. The structure is sculpted with Aboriginal art forms as a reminder that Hornsby once maintained a strong tribal population that suffered the same fate as many animals are still suffering. The counterweight is sculptured in Swiss "Art Deco" in the form of "Man Chained to Time", relating back to the theme.

The Pendulum Clock is also arranged to control the pontoon's speed of rotation, to ring the chimes on the hour, and to supply water to the Chinese Water Wheel Clock.

"HOUR" CHIME STRIKE

A cam can be seen attached to the minute glass (behind the clock face) which releases the water filled copper chutes (located under the Pendulum Clock's right hand lower water drive) on the hour every hour. This mechanism is connected to the tubular chimes, and causes a preselected musical chord to be struck. The cam returns the chute to the filling position as the minute glass turns, ready for the next hourly strike.

GREEK CLEPSYDRA CLOCK

The CLEPSYDRA, the first known man-made clock, is a simple stationary vessel which is slowly filled with water trickling from a tank kept meniscus full. The rate of water filling is measured as a time scale. It was first attested to before 16th century BC in ancient Babylon, and shortly after in Egypt.

The older CLEPSYDRA had sloping sides and were rather inaccurate. Records indicate that the Greeks were probably the first to have more accurate cylindrical vertical CLEPSYDRAS and references indicate they were not uncommon in 4th century BC.

The CLEPSYDRA is an original modern version in updated materials, balancing and counterweighting two tubes on bearings side by side in such a way that they over-balance when full to discharge their own water, and return to the vertical filling position when they are empty, thus creating both movement and the display of water plunging into the outer pool. The sculpted forms include a traditional Greek Ram's head as a counterweight and a 'hermaphrodite' (male and female) Greek head, symbolising man's splitting himself, his value system, in half, in confusion.

The tipping motion occurs when the water filling either tube flows into the 'forward' set Greek Hermaphrodite head, thus overbalancing the CLEPSYDRA to empty the water.

OUTER POND CLOCK AND PONTOON ROTATION

The complete sculpture is mounted on a floating pontoon which rotates twice each day. It is rotated by means of water pumped in a clockwise direction swirling in the inner pond in which the pontoon floats, and is positioned by a water driven-cylinder pushing against the 'catch' device on the pontoon edge locked into one of the 60 plates cast into the inner pond wall (Above the water spilling into the outer pond around the pontoon). This 'catch' is released every 12 minutes by means of a lever in the Pendulum Clock impacted by the ratchet which rotates the Minute/Hour glass wheels, thus freeing the copper water-filled chutes to lift the 'catch' which releases the pontoon to rotate the distance of one plate, or five plates per hour.