Oscillation of the sea

By Takis
text by anTonis Kiourktsis

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Takis, *Oscillation of the Sea, Hydrodynamics III*, 1969. Courtesy Takis Foundation Archive.

In 1968, sculptor Takis during his scholarship at the M.I.T. Center of Advanced Visual Studies had the chance to collaborate with some scientists and engineers. At that period, his interests focused on an idea that he had came up with in 1955. He used to visit Venice in the summers and it was there, while waiting on the floating piers for the vaporettos to St Marco's square, where he first experienced, "the power of the sea". Those piers, although full of people, moved really intensively. Normally one's first impression would be to relate the move of the piers to the waves of the passing vaporettos. Takis though, observed that even on the calm sea surface, the big boats that were docked and loaded with stones, continued to move.

"Many times, I approached the loaded boats, and I tried to hold them still, but I couldn't make it. The existence of the invisible sea power was more than obvious."

This observation was a revelation for Takis and this is how his first plan for the construction of his kinetic sculptures and the production of electricity through the power of the sea, arouse. On the 6th, of October 1968, he conducted, along with Professor Aien Sonin, his first experiment, on the Black River coast, at Hingham Bay. The experiment was successful, and Takis invented a device that transformed the motion of the sea surface into kinetic energy. This invention was called *Oscillation of the Sea* and soon began to attract the interest of Treadwell, a scientific corporation that specialised in engineering and construction. The corporation came into agreement with Takis and bought the invention in order to use it for commercial purposes.

According to the agreement:
"Takis had invented a device that translates the motion of the surface of a body of water. This device is characterized by:
a) its ability to translate such motion even if the motion is similar to that normally found in calm bodies of water and therefore of less than one inch of amplitude.
b) its ability to translate the sea surface motion into fixed velocity rotary or fixed frequency reciprocal motion, or combinations of them, even if the motion of the surface of water is not of a fixed frequency. This can be achieved by introducing into the mechanism that translates such motion an energy accumulator of a mechanical or of pneumatic nature (e.g. wound coil spring with pawl release or a hydraulic accumulator with pressure or flow regulation).
c) Its ability, to translate, if desired, the mechanical motion into electrical energy by rotating a generator or by reciprocating a core within a coil. This would also provide the possibility of accumulating the generated electrical energy into condensers or batteries.
d) Its ability to translate motion propagated on the surface of a body of water, when the axis of such motion is in any direction, absolutely, or relative to the device."

In parallel to his invention, Takis constructed a sculpture, tribute to Marchel Duchamp (who died on October 2nd 1968), by applying the main concept of the *Oscillation of the Sea* and translating the motion energy of the sea surface into the kinetic energy that spins a bicycle wheel similar to Marchel Duchamp's *Bicycle Wheel* from his *Readymades* collection. Takis named his sculpture *Hommage a Marchel Duchamp*.