



Pagophone
Solid H₂O (Ice)



Hydraulophone
Liquid H₂O (Water)



Idratmosphone
Gas H₂O (Steam)



Plasmaphone
Plasma "H₂O" ("Lightning")

Hydraulophones and the "States of H₂Orchestra"

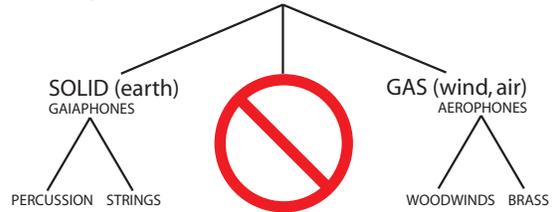
Dihydrogen monoxide H₂O exists in the familiar states-of-matter or phases, known as ice (solid), water (liquid) and steam (vapor, gas).

FUNtain's "H₂Orchestra" demonstrates a wide range of artistic and design creativity and an ability to invent a wide range of new sculptural forms such as musical instruments that exist in all four "Elements" of H₂O: "Earth" (solid H₂O, ice); "Water" (liquid H₂O); "Air" (gaseous H₂O); and "Fire" (H₂O-initiated plasma).

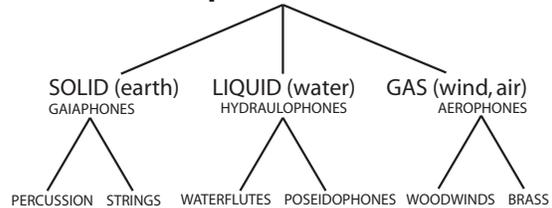
The States-of-H₂Orchestra was born in Canada in the early 1980s, with the invention of the hydraulophone. It was inspired by the sounds of liquid flowing through valves, by inventor Steve Mann whose work has been shown in numerous museums around the world, including the Smithsonian Institute, National Museum of American History, The Science Museum (Wellcome Wing, opening with Her Majesty The Queen June 2000), Museum of Modern Art (MoMA in New York), Stedelijk Museum (Amsterdam), Triennale di Milano, Austin Museum of Art, and San Francisco Art Institute. Mann also won the Coram International Sustainable Design Award (first place) for this interactive musical aquatic play invention/sculpture. These inventions are covered by an extensive patent portfolio, by patents filed in various countries.

Although water has been used to make music for many centuries, (ancient Greek and Roman water organs, Handel's water music, etc.), the hydraulophone is the first musical instrument in which the sound originates from turbulence and vortex-shedding phenomena of water itself. It is also the first musical instrument in which water itself is the user-interface (i.e. to be played by touching the water directly). The water organ and hydraulis of ancient times made sound from air, using water merely as a source of power to push air across a fipple mechanism or through some other kind of aerophone, controlled by a keyboard (i.e. non-water) user-interface.

Typical Orchestra (incomplete)



Complete Orchestra



Typically acoustic instruments produce sound by matter in its solid state (percussion or string instruments), or by matter in its gaseous state (by air in wind instruments). The invention of the liquid-based hydraulophone suggests that the space of known acoustic musical instruments should be broadened to include all three states of matter: solid (percussion or strings), gas (wind), and liquid (a new category of musical instruments). No orchestra is complete without a water section!

Interact with the ground nozzle by touching the water jet. Sculpt the water in different ways to intricately change the sound timbral properties.



The hydraulophone is available as an acoustic musical instrument, but it can also be ordered with sensors and controllers so that it can actuate other devices using MIDI, DMX512, or custom communications protocols like FUNtain's FLUIDI (TM). FUNtain's "Foot Frolic" product allows architects and waterpark designers to have ground nozzles that are general-purpose input devices. Stomping on this water jet can play a musical note, or change the programming, such as the lighting pattern or water spray sequences in the rest of the park, or elsewhere. Using water itself as a user-interface eliminates problems associated with other sensors used in waterparks.