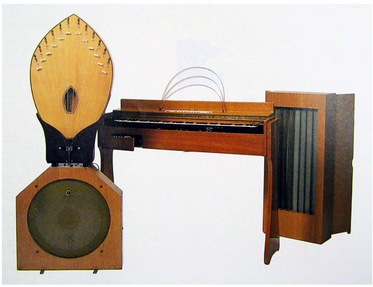
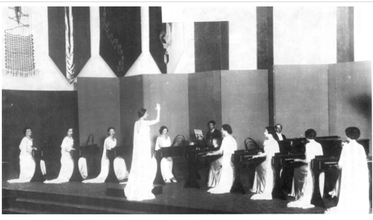
The ‘Ondes-Martenot’Maurice Martenot,France, 1928



Ondes Martenot

Maurice Martenot a Cellist and radio Telegraphist, met the Russian electronic engineer Leon Termen in 1923, this meeting lead him to design an instrument based on Termens ideas, the first model, the “Ondes-Martenot” was patented on the 2nd of April 1928 under the name “Perfectionnements aux instruments de musique électriques” (improvements to electronic music instruments). His aim was to produce a versatile electronic instrument that was immediately familiar to orchestral musicians. The first versions bore little resemblance to the later production models: consisting of two table mounted units controlled by a performer who manipulated a string attached to a finger ring (using the bodies capacitance to control the sound characteristics in a manner very similar to the Theremin) this device was later incorporated as a fingerboard strip above the keyboard.



Female Ondes Orchestra

Later versions used a standard keyboard.The Ondes-Martenot became the first succesfull electronic instrument and the only one of its generation that is still used by orchestras today, Martenot himself became, 20 years after its invention, a professor at the Paris Conservatoire teaching lessons in the Ondes-Martenot. The Ondes-Martenot’s success was the Theremins loss, although both used the vacuum tube oscillator as a sound source and were both monophonic, where the Theremin had a sliding scale and no fixed preset notes the Ondes-Martenot had a keyboard and a strip control for glissando and vibrato, organ like stops for preset timbres and an appearance that was familiar to any keyboard player.

Pre-set sounds on the later Ondes Martenot were:

- Onde (O): A simple sine wave timbre. Similar in sound to the flute or ocarina.
- Creux (C): A peak-limited triangle wave. Similar in sound to a clarinet in high registers.
- Gambe (G): A timbre somewhat resembling a square wave. Intended to be similar in sound to string instruments, as the French title would suggest.
- Petit Gambe (g): A similar but less harmonically-rich timbre than Gambe. The player can control the number of harmonics present in the signal by using a slider situated in the control drawer.
- Nasillard (N): A timbre resembling a pulse wave. Similar in sound to a bassoon in low registers.
- Octaviant (8): A timbre with a reinforced first harmonic whose intensity in the signal can be controlled by using a slider. This setting is analogous to the 4 foot stop in organ terminology.
- Souffle (S): A timbre often described as white noise, but in fact pink noise of indefinite pitch.

The sound from the instrument could be output to a number of speakers or ‘Diffuseurs’ who’s physical properties further coloured the sound, the were:

- ‘Principal’ A traditional, large loudspeaker.
- ‘Résonance’ A loudspeaker which uses springs to produce a mechanical reverb effect.
- ‘Métallique’ A small gong is used as the loudspeaker diaphragm to produce a ‘halo’ effect rich in harmonics.
- ‘Palme’ An iconic lyre-shaped loudspeaker, using strings to produce sympathetic resonances.

loudspeakers or Diffuseurs of the Ondes Martrnot: the Métallique, the palm and the Principal

The instrument also had a bank of expression keys that allowed the player to change the timbre and character of the sounds. A later (1938) version of the instrument featured microtonal tuning as specified by the Hindu poet Rabindranath Tagore and the musician Alain Danielou. The Ondes-Martenot was quickly accepted and became one of the few electronic instruments to be admitted to the orchestra (at least in France) and had a wide repertoire by prominent composers such as Edgard Varèse, Olivier Messian (The “Turangalila Symphonie” and “Trois Petites Liturgies de la Presence Divine” amongst others), Darius Milhaud , Arthur Honegger, Maurice Jarre, Jolivet and Koechlin.