

the ondes martenot an early milestone in the development of electronic keyboards

By Tom Rhea

ALTHOUGH electronic music has been identified almost exclusively with the synthesizer for more than a decade, most readers of *Keyboard* will be aware that the history of electronic music is long and varied, extending back as least as far as the beginning of the century. Of course, history is a great leveller. The exciting new invention of one year quite often winds up as no more than a footnote, once the dust of time has settled. The history of electronic instruments is filled with devices that have come and gone, remaining little more than musical curiosities. Occasionally an instrument appears that makes a significant impact, either commercially or artistically. The Theremin, because of its use in such widely varied music as the film score to *Spellbound* and The Beach Boys' "Good Vibrations," is obviously a successful pre-synthesizer instrument. Is it the only one?

No, there is at least one other: The Ondes Musicales (which means "musical waves"). This instrument, most commonly known as the Ondes Martenot after its inventor, is a success—both commercially and artistically. Its repertoire includes some 600 works, including both orchestral and chamber compositions written by such composers as Olivier Messiaen, Darius Milhaud, Arthur Honegger, Jacques Ibert, Andre Jolivet, Maurice Jarre, and Edgard Varese. The instrument has been heard around the world in virtually every imaginable musical context.

Maurice Martenot (born in 1898) first conceived the idea for his instrument in 1918, while working as a "wireless" (radio) instructor. He came by his musical intuition legitimately, having devoted himself to music from his earliest years. He was barely nine years old when he undertook long concert tours as a pianist with his sister Ginette. He also studied composition at the Paris Conservatory. Despite his multiple activities as pianist, cellist, orchestral conductor, and teacher, he devoted long hours at night to giving form to his instrument. During its inaugural year, 1928, the instrument was hailed as the new voice of the orchestra, and its inventor was lionized by society. In April, he unveiled his Ondes Musicales before an elite group of scientists and

artists; and in May, at the Paris Opera and the Salle Pleyel, he and his instrument scored a triumph before the general public. Extensive European tours followed.

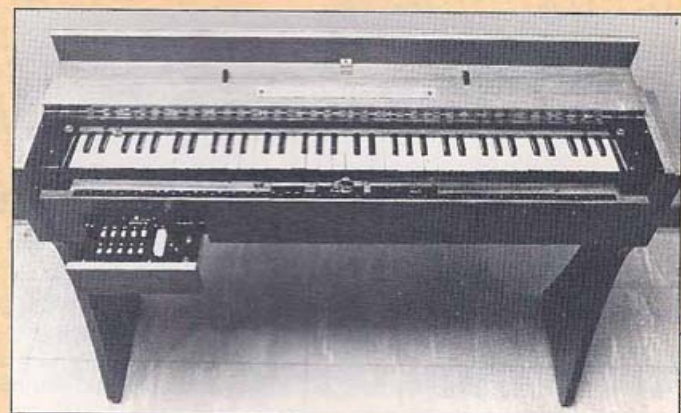
Martenot and his creation made their American debut in December, 1930, with Leopold Stowkowski and the Philadelphia Orchestra. A program announcement of the day gives us an idea of the instrument's capabilities:

The instrument to which he gives the name Ondes Musicales is not merely a curiosity. The aim of the inventor of the Martenot Instrument of Musical Waves is not primarily to imitate the sounds of other instruments, but to provide new resources of expression for composers—sonorities hitherto unknown—and novel color effects to enrich the orchestral palette. The instrument is not automatic, employing no such means as records or perforated rolls. Lamps [vacuum tubes], analogous to those used in radio, initiate electric vibrations with the aid of appropriate circuits. Modified by the playing of the executant, those vibrations become acoustic through the medium of a "diffuser" [speaker].

Various methods of performance are used, in accordance with the character of the music to be interpreted. With the aid of a ring affixed to the index finger, it is possible by simple displacement of the hand through space to modify sound.

The inventor also employs a keyboard instrument, which may be played with extreme ease. . . . The performer is enabled to make his instrument sing like a superhuman voice with a range exceeding that of the deepest bass and the highest soprano, and covering eight octaves. The varieties of effect and of timbre attainable are unlimited trills of semi-tones, quarter-tones, eighth-tones, sustained notes, staccato, glissandi, sounds resembling those of the flute or oboe in their highest register or those of the English horn, bassoon, double bassoon, horn, trumpet, saxophone, strings.

The Ondes Martenot, a monophonic instrument, uses the same heterodyning tone generation method as the Theremin: Two ultra-high oscillators produce an audible differ-



ION SIBERT

A six-octave Ondes Martenot once owned by the late Paul Beaver and now the property of the Berkeley [California] Symphony. The pitch band and ring are below the keyboard (center). Note the left hand control section, with articulation, envelope, and timbre controls.

ence tone. On the first instruments, pitch was controlled continuously using an endless wire or band arranged on pulleys to rotate a variable capacitor within the instrument. A small plastic ring for the performer's forefinger was attached to this band. To help in the location of pitches, a painted "dummy" keyboard was placed under the pitch band. The instrument was keyed by the left hand, which controlled a small button that provided articulation. Several stops governed the loudness envelope. The left hand also controlled other stops which gave a choice of eight tone qualities. Timbre was controlled by switching on filter circuits. Later improvements included the addition of more timbre stops, an acoustic resonator to improve the tone quality, a true keyboard, making non-gliding playing possible, and a more sophisticated variable-pitch scheme in place of the original pulley-controlled version. The newer pitch band can be used in conjunction with the keyboard to create portamento.

The second wave of success for the Martenot came during the '40s and '50s, a time during which Martenot's sister Ginette made a reputation as an Ondes Martenot virtuoso. At the first International Congress of Electronic Music and Musique Concrete in Basel, Switzerland, a reviewer noted that "with remarkable technique, she coaxed from the instrument a synthetic cascade of notes, often shrill, occasionally pleasant, accompanied by a wildly modernistic orchestral background. She got a big hand from the audience."

Commercial success for a musical instrument is often a matter of definition. Obviously, for an instrument to have generated sufficient enthusiasm from composers to generate such a repertoire, there must have been a number of instruments built. But it is perhaps not the number of instruments built—a manufacturer's success—but their peculiar (and continued) use that qualifies the Ondes Martenot as a commercial success.

My first personal contact with this

instrument was during a visit to the home of the late Eric Siday in New York City around 1970. Eric was a pioneer in the use of electronic musical instruments to create radio and TV commercials and jingles, having done so from the '50s. Born in England, he had come into contact with the Ondes Martenot in Europe and realized both its musical and commercial potential. His most memorable use of this instrument was in the old sound logo for ABC Television. For this work he was reportedly paid the tidy sum of \$25,000! Another piece of Siday's work that comes to mind is the "pocka-pocka-pop-pop" Maxwell House coffee ad, realized on a special rhythm unit built by Bob Moog.

Another pioneer was the late Paul Beaver, who will be remembered for his ground-breaking studio work, and for his collaborations with Bernie Krause. Paul's Ondes Martenot (pictured here) has an interesting recent history. On his passing, his will stipulated that whoever should acquire his instrument must make it available to a symphony orchestra to be used in performances. It was purchased by guitarist Ronnie Montrose, another experimenter/innovator. Montrose found the instrument fascinating for the same musical reasons that impelled so many others. He used it for some time and eventually donated it to the Berkeley Symphony as stipulated by Beaver.

The one thing common among the people who have had commercial success using this instrument is their profound appreciation of its artistic potential, regardless of which generation they belong to. Commerce with artistry is always a possibility—both for instrument designers and for the musicians who use their creations.