

Interview Don Leslie

Leisure
Music

One man made it, another changed it.

It was Laurens Hammond who made the sound but it was Don Leslie, the inventor of the world famous Leslie Loudspeaker who changed it — some would say that he made it palatable.

His is a fascinating story, one which tells how a man believed something was wrong and proceeded until he found the answer. Edison is reputed to have tried over 700 different elements for his electric light bulb before he found one that worked; Lord Kelvin told Marconi that it was physically impossible to transmit a radio signal across the Atlantic. Don Leslie worked for years to create the sound for which he is internationally known.

Engineer

At the time Hammond came on the market, Don was employed as a radio service engineer in a department store in Los Angeles. He had received piano lessons as a child and had been exposed to the sounds of pipe organs which had thrilled him. In Barker Bros, where he worked in L.A., there was a pipe organ in the lobby but when they became Hammond agents, out went the old and in came the new.

Don says that he was in meagre circumstances at that time but in 1937, he managed to buy a used Hammond organ which was No. 58. When he set it up at home, he was bitterly disappointed with the results he obtained even though he had built his own speakers and amplifiers. He spent a great deal of time analysing the differences between pipe and electronic organs and was quick to notice that when a Hammond was played in a large hall, the results were outstanding. This led him to think about an echo device to replace the natural reverberation. In order to achieve this, he built himself a wire recorder — the forerunner of the modern tape recorder. However, this meant doing everything himself including making his own record, erase and playback heads.

Then Hammond brought out their first reverb unit which Don Leslie also found to be a disappointment. He was still looking for that one thing which would give him the key to the sound he was



searching for.

During the next four years, Don Leslie tried many, many things including what turned out to be the first phase shifter system. He knew that motion was involved somehow and he even tried using two separate speakers to stimulate the sound bouncing off the walls. Then he tried something different again which put him on the path to success. He mounted 14-four inch speakers on a large disc and caused them to rotate. According to Don, 'it sounded terrible.' He tried different speeds and eventually different phasing. He made seven of the speakers phase one way and the other seven to be out of phase. THAT WAS IT! At last he had achieved what he had set out to find some four years previously. Better yet! He found he could reduce the number of speakers from fourteen down to one. He used words such as 'phenomenal' and 'spectacular' to describe the difference his new invention had made.

Experiments

The next problem the inventor wanted to solve was the poor quality of the pedal sounds. He started experimenting with bass reflex cabinets and discovered that two ranges of speakers were needed in order to satisfy the needs of the electronic organ, namely one for the bass and a high frequency rotary horn for the treble.

Having reached this far, Don told Hammond of his work and demonstrated his speakers to them. They were thrilled with the results. He gave them 30 days to decide if they wanted to pursue the further development and manufacture of the speakers but the time came and went. Thus it was that Don Leslie first went into production, albeit in his garage. He still has his first speaker to this very day which he

keeps for his 'museum'. It is interesting to note that the basic form has not changed since those early days.

Naval Research

He had made about 500 cabinets when the war caused him to close down for the duration. During those dark years, he worked as a civilian for Naval Research. This state of affairs was to go on until 1946 when he again set up production of his speaker cabinets.

In 1951, he started supplying other original equipment manufacturers and when, in 1958, Dick Peterson developed the first transistorised organ under the Gulbrandsen label, it also housed the very first built-in Leslie speaker. Other manufacturers soon followed suit including Thomas, Lowrey and Conn.

Another problem existing in most electronic organs was related to voices containing a complex harmonic structure. Certain of these harmonics produce undesirable beating sounds when mixed electrically, and Don improved this condition by providing separate amplifier and speaker channels for the flute type tones and the complex wave tones. Conn was the first to incorporate this Leslie patent in their organs. Eventually Gulbrandsen brought out the Rialto organ, using additional Leslie patents that separate the troublesome harmonics, and in all, eight channels were used to produce realistic organ effects.

In 1965, Don Leslie sold his company to C.B.S. although they retained him as a consultant. Today, he lives in Altadena, a community close to Pasadena where the manufacturing plant is situated. But has this man really retired? Of course not! Recently, Hammond developed a new portable, the B200, and when Don Leslie heard it, he immediately decreed that it was worth a special speaker. He set to work again after fifteen years virtually away from it all and designed and developed the new Leslie HL822.

It was almost inevitable that the electronic organ would be invented and developed but without the tenacity and doggedness of one Don Leslie, the whole organ listening and playing world would have been much worse off. P.B.