



# HUGH LE CAINE

## PIONEER OF ELECTRONIC MUSIC

BY GAYLE YOUNG

**H**ugh Le Caine was born in 1914 in Port Arthur, Ontario. He studied engineering at Queen's University, receiving his Masters in Science in 1931. During World War II he was employed at the National Research Council in Ottawa where he made significant contributions to the development of radar. Before and after this time he was active in nuclear physics, involved here also with developments at the forefront of the field.

However, in the early 1950's he decided to make electronic music his life's work. His pioneering work in this field actually dates back to 1945 when, in his home studio after hours, he developed the Sackbut, an instrument that anticipated the 'first synthesizer' by 19 years.

The Sackbut is a monophonic synthesizer (producing one tone at a time)

that was developed in consultation (on performance/musical issues) with Peter Jermyn. It was to have been manufactured for commercial distribution by Dayrand of Montreal under patents issued to Hugh Le Caine, René Farley and Dave Rocheleau, but this never happened.

The Sackbut was intended as a performance as well as a studio instrument. It was designed to facilitate real-time performance of an ensemble involving one or more Sackbuts with any combination of instruments. As in traditional monophonic instruments, the continuity of the melodic line is controlled by the performer through subtle variations of pitch, loudness and timbre: the expressive qualities of vibrato, intensity, attack, etc. This was accomplished largely through the use of a touch sensitive keyboard

The prototype Touch Sensitive Keyboard, one of the first projects undertaken by Elmus Labs.

(of four octave range) with a foot pedal. Volume is controlled by vertical pressure on the keys and by the swell pedal. Vibrato and small deviations of pitch are controlled by applying lateral force to the keys (a technique first developed for the Ondes Martenot in 1928). For more extended fluctuations of pitch, a glide strip, also touch sensitive, is located behind the keyboard. The portamento pedal controls a glide between two pitches with adjustable settings to alter the time of the glide. The keyboard touch control has a meter that shows the deviation from standard pitch and a slider that determines the