I. REAL-TIME MULTIPLE CONCRETE

The Ksorwell 250.

Digital sampling, editing and sequencing facilities on the Kurzweil 250 digital synthesizer are sophisticated and at the same time easy to use, opening up to the composer new and exciting possibilities. The Kurzweil seeks to expand the musical language and to provide the composer with a tool for creating new sounds, textures and structures that were previously unattainable. The Kurzweil allows for the precise manipulation of sound and the creation of a rich and diverse sonic palette.

1. THE COMPOSITIONAL PROCESS

"Epitaxy", a duet for flute and computer-generated sound, was composed in 1986 and performed at DePaul University, Chicago, Illinois, USA. The performance featured flute and computer, creating a unique and transformative experience for both performer and audience.

The composition explores the use of digital recording and manipulation techniques to create new musical forms. The flute is accompanied by pre-recorded sounds and live computer-generated music, creating a seamless and dynamic musical experience.

The use of digital technology allows for the creation of a new sonic landscape, where the boundaries between live performance and pre-recorded sound are blurred. The composition challenges traditional notions of composition and performance, inviting the audience to engage with a new form of musical expression.

As an example, "Epitaxy" incorporates pre-recorded flute sounds with live computer-generated music, creating a unique and transformative experience for both performer and audience. The composition explores the use of digital recording and manipulation techniques to create new musical forms, blurring the boundaries between live performance and pre-recorded sound.

The use of digital technology allows for the creation of a new sonic landscape, where the composer can explore new and exciting musical possibilities. The composition invites the audience to engage with a new form of musical expression, challenging traditional notions of composition and performance.
keyboard. The sound could either be played just one time with each press of the key, or looped for a "sustained" effect. With the help of two sliders on the control panel, the begin and end points of the loop could be chosen, by use of two graphic software for looping at this time. Once those points were chosen, the Eurorack automatically applied a fade-out to fade-in effect to keep the sound continuous. Care had to be taken when setting the looping points so that any "glitches" could not be heard.

Looped and unlooped sounds were now available for various kinds of alteration. Vibrato (frequency modulation) or tremolo (amplitude modulation) were added, and 12 different waveforms were available for either type of modulation. Although both types were limited to the audio range for the modulator frequency. In addition, timbre could be altered by changing the settings on a broad-band low-pass filter.

Once all the patches for the piece were set and each stereo was assigned to one of over 30 keyboard setups used for the piece, a series of improvisations was begun. The best of the improvisations were saved in the sequencer memory of the Eurorack and utilized primarily for transitional sections. The rest of the composition was composed alongside the live flute part and entered into the computer memory at a slower-than-performance speed, but not in a "step-time" mode. Once entered, the material could easily be sped up for faster playback.

All sequences were then assigned a memory location which would begin playing immediately at the touch of one button on the control panel. There were 30 memory locations which could be used to store either tapes or from sampled sounds or pre-recorded sequences, all of which could be activated immediately with the touch of only one or two buttons on the control panel. This concept of "keyboard bins" (the 30 memory locations) in addition to the 12 on board digital to analog converters, is what makes the Eurorack ideal for real-time performance situations.

The end result of pre-recorded sequences and altered flute sound samples is one that allows the composer/performer ultimate control over real-time computer performance and allows for the give and take needed when performing with a live musician. The "lyricism of the tape rec-order" and its constant speed as a handicap in previous "electronic music plus" works is no longer a problem for the composer. Works for real-time computer and live performer can now "breathe" with a renewed sense of freedom in the music.