



Bob Diamond with CLOUD MUSIC, work in progress, ca. 1976. Video analyzer (rear left) and music synthesizer (foreground).



FRAME 160 step through next 5 frames

pervaded most aspects of my work. This present work has been evolving since 1966 when at Rutgers University we made some experiments with a sound device that reacted to changing light intensity on a movie screen. At that time, I saw applications to my interest in clouds and the changing light of the sky. Early experiments showed possibilities but my hunch was that I should explore more sophisticated electronics, hopefully the missing miracle ingredient. My hunch proved correct.

The assistance of Bob Diamond and David Behrman was enlisted to expedite this project. Without their contribution, realization of the Cloud Machine would have been quite impossible."

**BOB DIAMOND:** "I began to see that to really correlate an (sound) environment with the clouds a la Bob Watts would involve a very sophisticated electronic system. We agreed that we needed some sort of video system that would scan the clouds as they moved by and produce a control voltage proportional to the brightness of the cloud of the scan point. This voltage could be used to vary environmental qualities of a space. The method I developed to do this relies on the fact that a video signal has an associated time-base or sync signal. This signal synchronizes the sweeping movement of the electron beam in a TV picture tube with that in a TV camera. The beam sweeps across the screen in a 63.5 or so microseconds for 525 times to make the complete picture or frame in 1/30 second. I could take a "snapshot" of a particular point in the frame by timing how long the beam took to set to that point and taking a sample of the video signal at the time-out point. The amplitude of the video signal would

be proportional to the brightness. Thus the voltage is held until the next frame when a new voltage is held, etc. By changing the time-out period, the sensitive point can be moved to any part of the picture. To facilitate finding this "point" another video signal is generated and superimposed on the incoming video signal. The total signal when displayed show the original image with six crosshairs superimposed, indicating where the sensitive points lie."

**DAVID BEHRMAN:** "For the sound, the outputs from Bob Diamond's video analyzer are used to create an interweaving of slowly shifting, multi-layered harmony that parallels the movement of the clouds. The technical means by which the passing of the clouds can be used to make music around a listener are of the 1970's - because only in the last several years have the sensory, logic, and video circuitry become easily accessible to individuals such as ourselves. But in spirit the project might be close to the old outdoor wind and water driven musical instruments of Southeast Asia and Polynesia.

Sound is produced by eight banks of audio-range function generators, four to a bank, each of which is tuned to a pre-selected four-part "chord" made up of pure modal or microtonal intervals. Six of the banks can each be detuned to four parallel transpositions by an output from the video analyzer. Any harmonic change corresponds to a minute change in light of crosshair in the video image.

Like sailing, the music is weather-dependent."



CLOUD MUSIC monitor with image of 6 crosshairs amidst lively cloudscape.



INFO frame 42318 to 45561



STEP BACK



STEP FORWARD