

PV868 // PROGRAM

part #1: **DARK** // **fantones** // 6 min.

part #2: **LIGHT** // **swirgrads** // 20 min.

DISCLAIMER

PV868 performance is based on the use of flickering video light which might cause seizures in people suffering of photogenic or photosensitive epilepsy. You should NOT assist to this show if already aware of being epileptic and, in any case, the author cannot be considered responsible of the effects produced by the audiovisual stimulus of this performance. In no case will TeZ (aka Maurizio Martinucci) or the organizers of this event be liable for chance, accidental, special, direct or indirect damages or undesired effects resulting from partaking the experience of this show.

special thanks to:

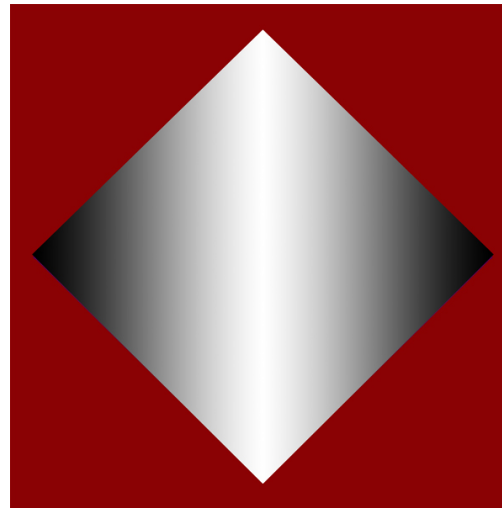
- Robert Fischer (rIPE engine)
- Kurt Hentschalger
- Fondazione Bevilacqua La Masa
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TeZ

pv868



creative investigations on
stroboscopic light,
binaural beats
and interference patterns

Between the idea
And the reality
Between the motion
And the act
Falls the Shadow

Between the conception
And the creation
Between the emotion
And the response
Falls the Shadow

Between the desire
And the spasm
Between the potency
And the existence
Between the essence
And the descent
Falls the Shadow

T. S. Eliot (1925)

PV868 is an experimental creation and performance aimed at producing an audiovisual feed/stimulus which would allow a peculiar effect of moving visual patterns to emerge directly in the brain of the viewer/listener. This stimulus will be generated in real-time by a combination of flickering video, in the form of abstract lights and color gradients, coupled with synchronized synthetic sounds (binaural beats) distributed in a surround quadrophonic system. These elements will always be recombined in different ways by means of "ad-hoc" created generative software. Finally this can be considered as "re-generative creation" for the brain. This investigation was inspired by the readings of John Geiger's "Chapel of Extreme Experience" and W. G. Walter's "The Living Brain", and by the acquaintance of previous research, experiments and artworks by Brion Gysin, Ian Sommerville, Tony Conrad, Paul Sharits, Hafler Trio and Kurt Hentschlagler / Granular Synthesis.



PV868,28 is the brevet number of the Dream Machine, an invention patented in July 18, 1961. The Dream Machine is a stroboscopic flicker device that produces visual stimuli. Artist Brion Gysin and scientist Ian Sommerville created the dream machine after reading W. G. Walter's book, "The Living Brain". In its original form, a dream machine is made from a cylinder with slits cut in the sides. The cylinder is placed on a record turntable and rotated at 78 or 45 revolutions per minute. A light bulb is suspended in the center of the cylinder and the rotation speed allows the light to come out from the holes at a constant frequency, situated between 8 and 13 pulses per second. This frequency range corresponds to alpha waves, electrical oscillations normally present in the human brain while relaxing. In the history of the world, Dream Machines are the first objects made to be viewed with closed eyes. In the history of art, Dream Machines bring to a conclusion the period of kinetic invention in modern painting and sculpture. Dream Machines open a new era and a new era of vision... interior vision.

Revelations by Flicker is the title of the 4th chapter of William Grey Walter's book "The Living Brain" first published in 1953. Head of the Burden Neurological Institute of Bristol, Walter has initiated and conducted the most notably research on EEG and brain waves with such remarkable discoveries as the "alpha" and "delta" rhythms, the "theta" waves and new facts about epilepsy. Electronic stroboscopic light was one fundamental instrument for Walter to investigate unexplored areas of cognitive science which eventually brought to the discovery of peculiar phenomena emerging in specific conditions and determining specific perceptual effects. A Flickering light intermitting at around 10 cycles per seconds would cause the apparition of standing and moving geometric patterns accompanied by "flights of colours" and sometimes by vivid imagery and organized scenes, involving more than one senses, like in dreams.



W. Grey Walter
pioneer in the
electroencephalogram,
robotics, cybernetics
and artificial intelligence

Walter was struck by the discovery that flicker-induced hallucinatory experiences of his normal subjects seemed to be as broad and dynamic as anything experienced in the medical case histories. As suggested by himself, these apparitions are caused not by properties of the light itself, or by the eye, but are a product of the brain. The sense of movement is due to "rhythmic waves of activity" spreading out from the brain's projection areas. The illusory patterns are made more vivid when the eyes are shut because no real patterns interfere with what is registered by the EEG as the alpha rhythms. In short, the patterns are interference produced by a scanning mechanism (in the brain) attempting to deal with an intermittent signal. This also indicates that the particular form of stimulus is not important, so long as there is vigorous temporal alternation of light and dark.

Binaural beats or binaural tones are auditory processing artifacts, that is apparent sounds, the perception of which arises in the brain independent of physical stimuli. This effect was discovered in 1839 by Heinrich Wilhelm Dove. In nature, two sounds that are similar but slightly shifted in frequency will beat to produce two new frequencies which are the sum and the difference of the original two sounds. For example, a 400 Hz tone and a 410 Hz tone will form a ~405 Hz tone pulsating 10 times per second. The brain produces a similar phenomenon internally, resulting in low-frequency pulsations in the loudness of a perceived sound when two tones at slightly different frequencies are presented separately, one to each of a subject's ears, using stereo headphones. A beating tone will be perceived, as if the two tones mixed naturally, out of the brain. The frequency of the tones must be below about 1,000 to 1,500 hertz for the beating to be heard. The difference between the two frequencies must be small (below about 30 Hz) for the effect to occur; otherwise the two tones will be heard separately and no beat will be perceived. When the perceived beat frequency corresponds to the delta, theta, alpha or beta range of brainwave frequencies, the brainwaves entrain to or move towards the beat frequency. The common thought amongst researchers today is the binaural beat will have even broader applications well into the future. Beyond being used as part of meditation or relaxation regimens, many experts believe that binaural beat will also have broader and potentially very significant medical applications. There has already been some research in regard to the interplay between binaural beat and a patient afflicted with Parkinson's disease.

Brainwave synchronization can allegedly be used for many purposes, from relaxation and sleep induction through learning and memory aids, helping those with physical and mental difficulties, to reaching altered states of consciousness through the use of sound.

