

Emotion's Defibrillator tobias grewenig 2005

400 x 400 x 250 cm; interactive installation;

techniques used for the realisation

hardware: pulse oximeter, skin sensor, breath sensor, electrostimulator, vga-screen, 6 satellite speakers, 1 subwoofer, ir camera, 2 computers [audio/video].

software: Max/Msp Jitter

The electronic sculpture, „Emotion's Defibrillator“, responds to the cliché that electronics manipulate consciousness, that is to say, media are reduced to being the psychological effects of which they cause. Indeed, apart from their functional qualities, cathode ray tubes, projectors and generally almost all of the electrical and electronic devices used in daily life have a subtle psychological impact on the human being. Fluorescent lights buzz and refrigerators rumble – their way of making us aware of their underlying electrical, or electronic (depending on the device) acoustic presence. Cinematographic films are examples of perception taking a „concrete“ form, where the optical illusion of seeing „moving pictures“ is made possible only due to the „slowness of perception of the human eye“. When a light wave attains the eye, the cells of the retina transmit a signal to the brain. However this light wave is held only for a brief second. To create the illusion of motion, new light waves (light photograms) must be sent to the brain in order to maintain this effect. In order to the eye to see a fluid, continuous image, light waves must overlap, and be displayed in quick successions of at least 12 images per second. In Europe, film projectors send out 24 images/second, and television-based films transmit 25 images/second for film-based material.

The image on the screen has 625 lines:

i.e.; first there are „odd“ rows of lines which are then interlaced with „even“ rows of lines. Both (the „odd“ and „even“ lines) are repeated 25 images/second.

These frequencies can be hazardous to photosensitive persons who may be susceptible to epileptic seizures.

Numerous devices for studying and stimulating brainwaves were invented during the 1900s. Already during the 1930s, Adrian and Matthews, at their Cambridge Physiology Laboratory, researched and carried out experiments as regards the impact of light on the brain activity. They demonstrated that changes in brainwaves frequency depend on light and sound frequencies. The „frequencies following response“, as it now called, signifies that the brain begins to vibrate when subjected to light and sound frequencies. In the 1950s, the neurologist W. Grey Walter used the electronic stroboscope and electroencephalograph in his research to detect and stimulate electrical activity in the brain, activating electrical stimulation up to 0.5 to 30 Hz in order to stimulate corresponding situations of consciousness. During the „Beat generation“, the writer and painter Brian Gysin created the „Dreamachine“. William S. Burroughs claimed that Gysin is the only Person he really respected, and thus entrusted him with W. Grey Walter's edition of „The

Living Brain", in which the author examined the influence of bright light waves on the human brain. Gysin discovered a simultaneity between a certain frequency of brain waves with bright flickering light waves that causes strange visions of psychedelic colours and bizarre shapes.

The strangest effects are obtained by the stimulation of alpha waves (electromagnetic oscillations in the 8 to 13 Hz frequency range). Gysin's "Dreamachine" is a simple construction consisting of a cylinder with holes in it attached to a record-player turntable. In the middle of the cylinder sits a light bulb. The turntable is set to spin at 78 rpm. Subjects sit in front of the cylinder and close their eyes. The light shines through the holes in the spinning cylinder and flickers on the eyelids. His machine can be considered as an alternative to television used to stimulate a certain kind of awareness.

Tony Conrad noticed that film projectors also produce psychological effects. His film "the flicker" (1966) consists entirely of black and white photographs that alternate according to different arrangements or frequencies (the film's soundtrack was "White noise", a recording of all audio frequencies). It is truly a visual stroboscopic experience whose optical effect in its continual flickering between the perception of images and sounds was quite disorientating for the spectators. The apogee of this history of psychological media appeared briefly in the 1990s with machines exploring the brain's consciousness through "binaural beats". This technology enables two different tones to be generated, one for the right ear, the other for the left ear. The difference between both tones is slight, varying between 1 Hz and 20 Hz. This slight

difference between the two tones incites the brain to engender a third tone, a sort of an echo called a "binaural beat" whose frequency corresponds to the difference between the both tones and can be used to condition the mind. According to this view, our brainwaves perceive four beat frequencies (delta, theta, alpha and beta) that can be measured by an electroencephalogram that measures the oscillation. Thus, the delta range (0.5 to 1 Hz) is associated to deep dreamless sleep; theta (4 to 8 Hz) to dreams and deep meditation; alpha (8 to 13 Hz) to a relaxed, peaceful state, and the beta frequency (13 to 30 Hz) which is associated to the normal awakened state and to attentiveness.

Another phenomenon is that of the "subliminal message", a signal or message designed to pass below the normal limits of perception. It might be an image transmitted briefly (i.e., less than one millisecond for an fotogram that is transmitted between two sequences of film) that is unperceived consciously and yet perceived because the image has shown but cannot be consciously collected. The influence of subliminal messages was often observed during studies pertaining to consumer behaviour. From another viewpoint, the neuro-psychologist John C. Lilly studied the human brain's threshold of functioning via what he called, its "isolation tanks". Generally however we are on slippery ground when mixing together scientific facts and the esoteric. "Emotion's defibrillator" presents and illustrates all the aspects discussed above. The electronic maintenance is reduced to its mechanical aspect, and even the cathode ray tubes have lost their original function as a transmitter of information. It is fascinating to watch how electronics



suddenly seem alarming and unpredictable in spite of of a normal stimulation.

The spectator is invited to take part in this installation. He is given a respiratory mask, placed near the device and is connected via his left index finger to sensitive measuring equipment. The spectator , now the participant, then introduces the device into a sort of bell. At the height of the electronic wave level displayed on the equipment, he places his hands on two metal spheres that contain the electric circuit and that trigger the device. The information supplied by the participant is measured and integrated into the data pertaining to previous experiences that have already been parametrised. The screen begins to flicker at 10 Hz, and six loudspeakers (mounted on the left, right, in front of , behind, over and under the measuring devices) emit "binaural beats" in the participant's left and right ear canals, with one ear receiving 10 Hz less than the other. In addition, artificial breathing, synchronized to the measurements recorded by the mask, is also diffused over the loudspeakers. This noise pulsates forwards and backwards, respectively, as the participant inhales and exhales. According to the pre-established parameters, an acoustical crackling cloud fills the Bell while an electric current of the

same frequency, light but perceptible, is send to the participant's hands. He sees his own masked head as an shadow in relation to the random subliminal influence frequency.

According to the intensity, a floating test card is digitally deformed and torn up. According to the values measured by the participant at the beginning of the experiences, flicker variations, binaural beats, breathing or impulsions are created.

The guest stops the process by releasing the two metal spheres.

