

Yellow Leschenaultia

For Solo Piano

By Stephen Lucas

CAUTION

THIS PIECE USES BINAURAL BEATS TO ALTER THE BRAINWAVES OF THE PERFORMER. YOU SHOULD NOT ATTEMPT TO PLAY THIS OR LISTEN TO THE CD TRACKS IF YOU ARE SUBJECT TO ANY FORMS OF SEIZURES OR EPILEPSY, HAVE A PACEMAKER, SUFFER FROM CARDIAC ARRHYTHMIA OR ANY OTHER HEART DISORDER, AND/OR ARE TAKING STIMULANTS, PSYCHOACTIVE DRUGS, OR TRANQUILIZERS. YOU SHOULD ALSO REFRAIN FROM OPERATING ANY VEHICLES OR HEAVY MACHINERY WHILE OR DIRECTLY AFTER LISTENING TO THE CD TRACKS. BRAINWAVE ENTRAINMENT IS AN EXPERIMENTAL PROCESS AND IN PLAYING THIS PIECE OR LISTENING TO THE CD TRACKS, YOU ACCEPT ALL RESPONSIBILITIES FOR ANY SIDE EFFECTS.

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PERFORMANCE NOTES

Instrumentation

This piece was originally intended for solo piano, but could technically be performed by any solo instrument (or potentially a small ensemble). Playing the piano does not require much involvement in terms of breathing, and also requires relatively less body involvement. In order for the brainwave entrainment to be most effective, one must regulate breathing and relax the body, so other instruments may be more difficult to perform properly. Additionally, piano requires relatively less pitch association within one's mind in terms of random improvisation, so playing another instrument could potentially impair the effect of the binaural beats.

Binaural Beats

The human brain uses electrical vibrations which act at different frequencies corresponding to different states of mind. Measurement of those frequency ranges has shown that there are four main ranges: Delta (0.5-4Hz), which corresponds to deep sleep; Theta (4-8Hz), which occurs both in early stages of sleep and meditation; Alpha (8-14Hz), where the mind is relaxed yet alert; and Beta (14-30Hz), where the mind is very alert and focused. By applying stimuli of different frequencies to the brain, one can cause the brain to match those frequencies, thus affecting states of consciousness. The most convenient form of stimuli is through the ears, but since these frequencies are in the low end of human hearing, one effective way of producing them is through binaural beats. When stereo headphones are used to present (for example) a 400Hz pitch to the left ear and a 410Hz pitch to the right ear, the difference is combined inside the brain, creating a third pitch of 10Hz. This is an effective way of transmitting low frequency stimuli to the brain, allowing someone to alter their brainwaves.

Practice

The piece uses a prerecorded track of pitches, which are meant to alter the performer's brainwaves via headphones while they improvise on their instrument. For the brainwave entrainment to be successful, you will need practice with the tracks and a willingness for the mind to be altered. The original CD has a three separate tracks of different lengths, but you should practice mostly with track #3 (the longest). The shorter tracks may be more difficult to achieve a result with, but will likely be less tedious for an audience. When listening to the tracks, you should close your eyes, relax your body and mind, and concentrate on the low frequencies being created in your head. As far as the actual playing, you should get to the point where you can improvise randomly through muscle memory without much thought. It will be impossible to divert all attention away from playing, but you must be concentrating mainly on the low frequencies being created inside your brain.

Performance

During the actual piece, there is a two minute period for your brain to become accustomed to the beats, and then there is a slow descent in frequency so that your brain should move from Beta, to Alpha, and then to Theta states. During the period where you should be in theta state, there are additional frequencies to assist in visualization and creativity. The intent is for there to be a noticeable increase in creativity and inspiration during the Theta state, thus you must give a verbal explanation of the entire piece before the performance, so that the audience will understand what is happening. Additionally, you should create some way for the audience to keep track of the time of the performance, and provide a diagram (possibly from the score) for them to follow events. As far as actual equipment, you only need a CD player and a pair of high fidelity, closed ear headphones. You will want to run the volume rather high (but not painfully so) to block out the sounds of your playing and ambient noise. It is encouraged that you wear a sleep mask to help you keep your eyes closed and block out light. Since the pressure of the performance may affect your ability to relax, you will want to eliminate anything that could prohibit relaxation even more (caffeine, stimulants, unbalanced blood sugar). Keep in mind that your only obligation is to relax and concentrate on the low frequencies, and your improvisation should take care of itself (the use of alcohol or drugs could possibly inhibit the effect of the aural stimuli and are not recommended to assist in relaxation).

Between the explanation and the playing you are also required to read a short nursery rhyme of your choosing. This will give the audience a new mental setting after the technical explanation as well as a possible indirect setting for your improvisation. Don't provide an explanation for its purpose, but you should not think of it as a literal setting for the piece.

The Score

A score for this piece has been created for both an overview of the performance and as a musical convention. The score is mostly used as documentation for the times and frequencies used on the original CD tracks. Do not feel compelled to play off the score or study it to great lengths, since most of the information is in these notes, and you will have your eyes closed during performance anyway.

Program Setup

If the performance has a program, your name should read "*(Name)* – *(Instrument)*, With Stimulation from Binaural Beats," unless it is already obvious from the entire program what your name and/or instrument is, then it may just read "With Stimulation from Binaural Beats." You may choose to include program notes consisting of your spoken explanation and nursery rhyme and the diagram of events may be in the program if most convenient.

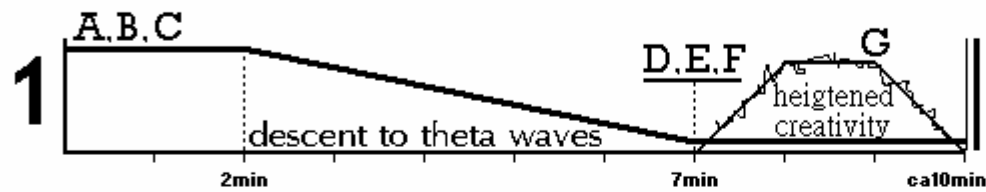
Because of the format of this piece, if you recreate a new CD track and use the same general setup as *Yellow Leschenaultia*, I respectfully ask that some amount of credit be given to me and the name of this piece.

Yellow Leschenaultia

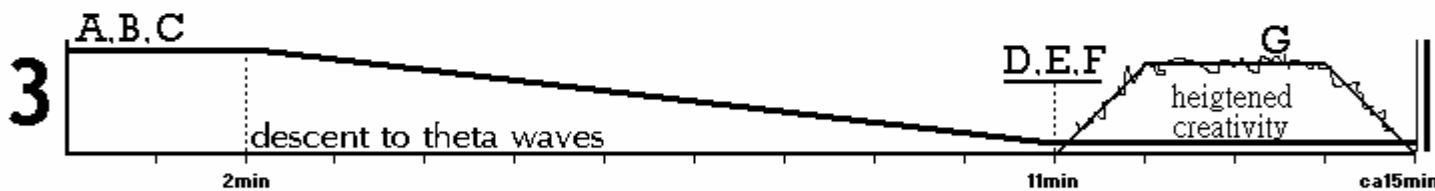
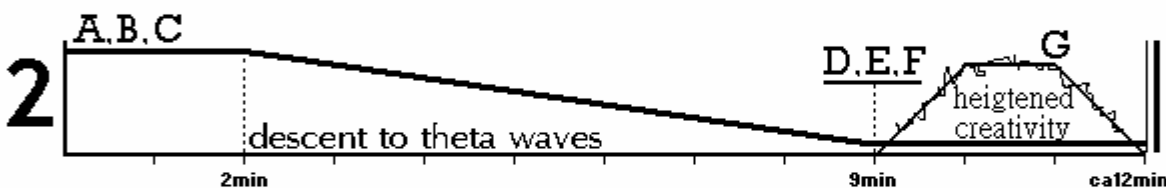
Stephen Lucas

Before playing the piece, explain to the audience in your own words that you will be altering your brainwaves from beta waves to theta waves over several minutes, causing an increase in creativity during the last 3-4 minutes of the piece (you should provide them with some means of either tracking the time, or signals of key points in the piece). Then, recite a short nursery rhyme of your choosing, assume your playing position, put on your mask and headphones, start the CD, and begin playing.

CD *Lines indicate general brain activity Letters indicate voice entrances*



All three versions have a one minute fade out of brown noise after the designated end time. Once you stop hearing the pitches, the piece is over.



A. Binaural beat frequency 12Hz - 4Hz
Actual pitch 300Hz - 150Hz

D. BBF 20.215Hz
AP 300Hz

G. BBF 25Hz
AP 500Hz

B. Binaural beat frequency 2.5Hz
Actual pitch 200Hz

E. BBF 7.5Hz
AP 250Hz

Binaural beat frequency corresponds to difference between left and right channels. Actual pitch corresponds to midpoint.

C. Binaural beat frequency 0.9Hz
Actual pitch 100Hz

F. BBF 12.3Hz
AP 75Hz

PIANO

The actual part that the audience hears is entirely improvised. You may play anything you feel compelled to play, but since your main concentration should be on the frequencies produced by the tape, everything you play should be somewhat random. When you reach the last 3-4 minutes of the piece, you should still maintain concentration on the new frequencies, but your theta brainwaves combined with the new frequencies should create a noticeable increase in creativity.