Towers, Clocks, and Glass

A Dissertation Presented

by

Philip Schuessler

to

The Graduate School

in Partial Fulfillment of the

Requirements

for the Degree of

Doctor of Philosophy

in

Music

(Composition)

Stony Brook University

May 2008
Stony Brook University
The Graduate School

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Abstract of the Dissertation

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Towers, Clocks, and Glass is scored for a full orchestra of three flutes (1st doubling piccolo), three oboes (3rd doubling cor anglais), three clarinets (3rd doubling bass clarinet), two bassoons, four horns, two trumpets, two trombones, percussion (three players), and strings. The harmonic structure of the piece is based upon a computer analysis of the frequency spectrum of a cowbell sample. With the assistance of the computer software Spear and Kyma, the frequency content of the struck cowbell was extracted at three different time points - beginning, middle, and end of the sample envelope. Each time point (or phase) differed in its numbers and types of frequency components. The spectral analysis of each time point became the basis for the harmonic content of one of three main sections of the work. For each section, harmonic content of the cowbell spectrum was compared to the natural harmonic series on the fundamental pitch F (175 Hertz). Thus, harmonic and inharmonic content of the cowbell spectrum was parsed out and distributed separately to different instrument families and groups through each of the three sections (frequency components were estimated to the nearest quarter-tone). This harmonic/inharmonic content was then assigned to melodic and rhythmic content as foreground, middle ground, and background material. Within each section, there is a progression either of harmonicity (where the natural harmonic series dominates the foreground and background textures) to inharmonicity (where the dissonant features of the cowbell spectrum dominate those same textures) or vice versa. This progression is often interrupted throughout the course of the work by solo passages or large tutti passages. Stylistically, the work possesses three distinct qualities: quiet, static, color-oriented sonorities; fast, repetitive, pulse-oriented passages; and intricate, arching, gesture-oriented interruptions. This work merges previous interests in music of a quiet, slowly evolving, intuitively conceived nature with new interests in a theoretical system of integrating timbre and harmony through the use of computer-assisted spectral analysis.
[No musical notation text provided]