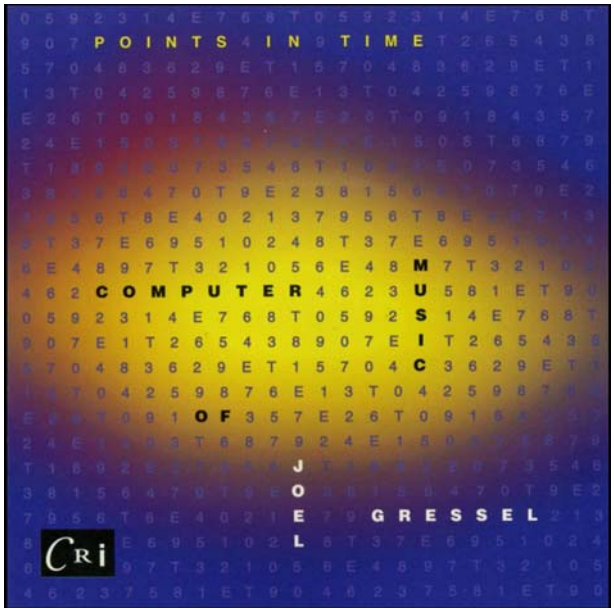
NWCR797

Joel Gressel

Points In Time



1. *Meteor Showers* (1997) ..... (10:19)
2. *Joint Resolution* (1976) ..... (14:19)
   Joel Gressel, piano
3. *Cold Fusion III* (1996) ..... (14:47)
4. *Cold Fusion I* (1994) ..... (10:18)
5. *Cold Fusion II* (1995) ..... (12:31)
6. *Points In Time* (1974) ..... (6:58)

Total playing time: 69:38

Notes

One often reads about the dichotomy between composing at the piano and composing in one's head. In the latter case, the composer is assumed to be able to hear the melodic interactions between various musical lines, the harmonies between them, the special timbres of the instruments, and the long-term connections between prominent pitches, all in his mind. In the former case the composer, to the extent he can perform everything that is going on in a passage, hears an actual rendition of the music, but may still misjudge the effect of timbre and be reluctant to venture much beyond what he is technically able to play. For me, the computer functions as a radical extension of composing at the piano. It is like having all the players who are to perform a piece constantly on hand to rehearse, with infinite patience, every musical idea from inception, through revisions, to final form. Making a piece of music becomes similar to an artist's painting a large canvas—working and reworking material that is palpably present. I have been drawn towards what seems to me to be idiomatic to the computer—a rhythmic language which only the computer can perform, and structured sounds that I have never imagined before.

My working procedure is as follows: A customized computer orchestra consisting of various "instruments" that produce particular ranges of timbres is assembled for each piece. A separate score entry program compiles lists of instructions for these instruments. The orchestra program reads this score and typically spends thirty minutes to an hour creating a sound file one to two minutes in duration. The resulting file corresponds to a compositional sketch, a performance rehearsal, or a portion of the final version of the piece.

In the 1960s and 1970s, the computation of digital sound by computer algorithms was an advanced mode of making music. In recent years, however, with the advent of computer-controlled synthesizers, vast libraries of pre-recorded sounds to sample, and real-time systems that can be used in live performance, this type of synthesis has become rather old-fashioned. I continue to pursue the old way (albeit on a succession of faster and faster personal computers), because I remain fascinated by the task of creating music from scratch. It is the same sort of quasi-religious stance as my continuing to adhere to a rigorous, if heretical, twelve-tone pitch system and to the geometric rhythmic language first explored as my Ph.D. thesis. Since the computer's sounds are never as "good" as those made by real instruments, there is an ongoing challenge to do better, if only to provide alternatives to the ubiquitous electronic sounds heard daily in commercial music. As computers get more and more powerful, it is possible to make progress in this area, but a paradox remains—that the technology is simultaneously new and antiquated, as if I were working on a futuristic line of sackbuts and viols.

In order to describe various pitch and rhythmic procedures where they first appeared, I will discuss the pieces in chronological order.

In *Points in Time* (1974) the ratio relationships that characterize the equal-tempered pitch system (division of the octave into twelve equal semitones) are applied to rhythm. These result in a series of attack points that accelerate regularly (approximating the sound pattern made by a freely bouncing Ping-Pong ball) or, conversely, decelerate. The ear seems to be able to follow several simultaneous series, and the computer uniquely affords the opportunity to explore their combinations and interactions. Series begin together but unfold at different rates, converging at points of arrival (attack points common to two or more series) which, in turn, are members of longer-range rhythmic accelerations (or decelerations) progressing to higher-level points of arrival. The resulting direct-

ed motion is loosely analogous to the resolution of harmonic and melodic tendencies at cadence points in tonal music.

Pitches were chosen from a twelve-tone set which has considerable internal symmetry and transposed repetitions of small interval collections. For example, the row form that opens the piece, F F# C B ... A D# ... E G G# D C# A#, has three segments in common with the retrograde transposition that begins the final section—E G G# D C# A# ...A D# ... F F# C B.

The instruments have such names as RCAMILT (an attempt to imitate Milton Babbitt's RCA Synthesizer sounds), TVIBES (which sounds somewhat like a sustained vibraphone), VOOBS and ALL (which use the oo and aw vowel formants), PIANO, and GONG (which produces clusters of tones, evenly or irregularly spaced). Formal sections are defined by changing instrumental combinations.

The title was taken from the lexicon of the United States Senate Watergate hearings, which were in progress during the time the piece was composed. The tape was originally realized at the Princeton University Computer Center, but was re-synthesized in 1996 on my home computer.

Joint Resolution (1976) for piano and tape uses a pitch system in which the 48 twelve-tone row forms derived by transposition, inversion, and retrogression of an initial ordering are subjected to an operation I call *multiplication by 3, mod 11*. The numbers 0 through eleven which normally represent positions in the chromatic scale from C to B are interpreted instead as orderings of three consecutive diminished-seventh chord cycles — 0, 3, 6, 9, 1, 4, 7, 10, 2, 5, 8, 11 (C, Eb, F#, A, C#, E, G, Bb, D, F, Ab, B). For example, each D in the original row forms is now an F#. The resulting row forms have segments that are transpositions of one another, but no two forms have the same overall succession of intervals. This is a violation of the basic premise of twelve-tone music. On the other hand, all the secondary interrelationships between set forms pertain: each row form has an exact inversion (sum 11), and every form uses each of the twelve pitches once. If normal twelve-tone rows are siblings, these would be cousins.

The use of the number three as the multiplier brought on an Eroica complex—everything would be controlled by threes. The piece begins with twenty-three consecutive three-note chords, and there are many more later on. The construction of the underlying set with many intervals of 3 leads to three distinct harmonic regions that are the M3 mod 11 transforms of the three diminished seventh cycles: C-F-G-A, Eb-Ab-Bb-Db, and B-D-E-F#. The long middle section of the piece beginning with plucked, inside-the-piano notes uses sets of three row forms that produce in different orderings the same twelve three-note collections. This material continues for three minutes until a return of the opening music rounds out an overall three-part form.

The rhythmic coding for the computer score uses the same ratio scheme as *Points in Time*, but the intent here is to capture gestures composed at the piano rather than explore abstract patterns of acceleration. The title again has a political element (a congressional resolution), but also refers to the dual performance by computer and live performer, and to a certain illegal substance which was popular during the era.

The three *Cold Fusion* pieces were completed in 1994, 1995, and 1996 respectively. They share pitch material (again, M3 mod 11) and many of the same instruments, but are intended to be heard separately rather than as three movements of one piece. When I began working on *Cold Fusion III*, I played the same score with two sets of instruments. The first performance was calm and serene; but the second, featuring blaring brass sounds and pulsating clusters that sound like throbbing engines and ringing telephones, was terrifying. These became the first and third sections of the piece. Other early sections project anxiety and exhilaration before the music settles into more abstract realms. The piece consists of two large sections that begin and end with the same materials, but take radically different paths between them.

Cold Fusion I begins as a relentless set of variations, first with various bells, gongs, and tone clusters, then later with more melodic instruments. The variations are interrupted by slower passages that tend to repeat a phrase three or four times at different tempos. Each time, the minimalist urge to play the phrases over and over is rudely interrupted by the next set of variations. About two-thirds through the piece an extended passage ends the variations for good, and the music closes with the return of one of the earlier static sections. One row form that is used in all the variations and in several of the intervening sections, usually in the same melodic contour, subliminally ties the piece together.

Cold Fusion II is in quasi-sonata form with an exposition, a development ending with a dominant-pedal—like passage, and a recapitulation. Several passages use a sequential technique in which a phrase is played three or four times, each rendition typically twenty-five percent faster than the previous one, and "transposed" to a different set of row forms. As the row forms are not true transpositions of one another, the sequences are not literal. In another example, the second section of the recapitulation is a transposition of material from the exposition; but the section has a major-mode quality the first time and a minor-mode mood the second.

The title alludes to the notion of a fusion between classical and jazz music. The instruments can be understood to be a stage in a search to develop a set of jazz melodic, rhythmic, and percussion sounds, with each failure to achieve this goal an opportunity to explore the sounds currently on hand. In particular, many of the noise-cluster instruments including the telephone rings and the distant radio-signal beeps are happy failures to create a cymbal sound probably available on most synthesizers. The title also is an ironic acknowledgment that computer music is said to be distant and cold, as well as an amused response to the claim of Utah scientists to have developed an unlimited source of renewable energy.

Meteor Showers (1997) is the most playful piece in this collection. A three-part exposition consists of: 1) rapid contrapuntal passages of alternating percussive and melodic sounds; 2) an extended peaceful passage with sustained pitches; and 3) a closing section in which one rhythmic line is actually articulated as two-note chords, a rarity for me. A long development section ensues full of ominous sounds. One instrument sounds like a rattlesnake, another like the invading space ships in the 1953 film *War of the Worlds*. Later, wind-chime-like sounds reminiscent of the film *Body Heat* dominate the texture. There is an overall character of the outdoors at night, suggestive of insect choirs and the wind blowing through trees. Notes start arriving in splatters. When the recapitulation begins, the performance has a drunken quality. Three sets of instruments play the opening music out of synch with one another. It takes them thirty seconds to get back in phase, at which point low bell sounds enter and muddy the texture. The following section with the sustained tones is altered by the addition of rapid twittering passages. But a final quiet coda presents new material and changes the mood to that of sitting outside in a peaceful place on a starry night, watching for shooting stars.

Joel Gressel (*b* Cleveland, 1943) received a B.A. from Brandeis University and a Ph.D. in music composition from Princeton University. He studied composition with Martin Boykan and Milton Babbitt, and computer music with Godfrey Winham and J.K. Randall. He currently lives in New York with his wife and two daughters, working as a computer programmer, maintaining and extending software that models tax-exempt housing-bond cash flows.

Production Notes

CD mastered by Robert Wolff, engineer at Sony Music Studios, NYC

Joint Resolution was realized using the MUSIC4BF program at the Princeton University Computer center. It was supported by grants from the National Endowment for the Arts and the MacDowell Colony. Original recording produced by Carter Harman and recorded by David Hancock, engineer, 1984, NYC.

Cold Fusion I and *Cold Fusion II* were created on hardware assembled by the MicroTechnology Unlimited Corporation and were converted to analog sound using the MTU Digi-Sound-16 converter.

Points in Time, *Cold Fusion III*, and *Meteor Showers* were synthesized on a Dell Corporation 133-MHz computer and transferred to digital tape via the CardD Plus sound card.

The synthesis software on the MTU and Dell computers is a revised MUSIC4BF program, modified by the composer to work in the PC environment.

Publishing: ACA (BMI)

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