

**Gordon Mumma** was born in 1935 in Framingham, Massachusetts. He studied piano and horn in Chicago and Detroit, and his early performing career was as a horn player in classical symphonic and chamber music. In 1952 he entered the University of Michigan, where he engaged with the group of young composers in the class of Ross Lee Finney. In Ann Arbor he co-founded with Robert Ashley the Cooperative Studio for Electronic Music (1958–66), and again with Ashley collaborated in Milton Cohen's Space Theatre (1957–64) along with a group of uniquely creative individuals in art, architecture, and film. Mumma was one of the organizers of the historic ONCE Festival (1961–66), which made Ann Arbor an important site for the performance of innovative new music.

The Ann Arbor years demonstrate the early significance of collaboration in Mumma's creative process. Working connections with other musicians and artists in many disciplines—especially dance and film—have inspired and nourished much of his work as a composer, performer, instrument builder, and electronics wizard. From 1966 to 1974 he was, with John Cage and David Tudor, one of the composer-musicians with the Merce Cunningham Dance Company, for which he composed four commissioned works, including *Mesa* (1966) and *Telepos* (1971), and worked closely with Cunningham on his solo choreography for *Loops* (1971). During those years he also performed in the Sonic Arts Union with Robert Ashley, David Behrman, and Alvin Lucier. He has collaborated with such diverse artists as Tandy Beal, Anthony Braxton, Fred Frith, Pauline Oliveros, Yvonne Rainer, Tom Robbins, Stan VanDerBeek, and Christian Wolff.

Mumma has played a pioneering role in the development and evolution of “live-electronic” music. “Live-electronics” as concept and practice appears to have originated in the United States in the late 1950s, outside the few institutional electronic studios and often in the context of innovative theatre activity. From its inception, it frequently involved two processes: (1) live performance with accompanying or interacting sound materials on magnetic tape; and (2) the use of electronic circuitry as sound-modifying and sound-producing instruments. John Cage's *Aria for Fontana Mix* (1958) is an early classic of the first category, while his *Cartridge Music* (1960) is a notable example of the second. Mumma and Ashley began their activities in live-performance electronic music with Milton Cohen's “Space Theatre” productions in 1957. Beginning with his classic *Megaton for Wm. Burroughs* of 1963, Mumma's live-electronic and cybersonic works of the 1960s and 1970s, especially *Medium Size Mograph* (1963) and *Hornpipe* (1967), display his resourceful use of both live-electronic processes. *Cybersonic Cantilevers* (1973) extends them to include the active participation of audience members, many of them children and teenagers who were quick to grasp the artistic potential of cybersonic technology, while *Conspiracy 8* (1969–70) is an early example of live interaction between performers and computer. Many of Mumma's projects have also involved the design and building of customized electronic circuitry to fabricate and manipulate sounds. Although much of his music is for acoustical instruments—especially the piano and chamber ensembles—Gordon Mumma's engagement with electronic music continues in *Ambulare* (1999), a quadraphonic electronic music work composed for a festival at the University of California, Santa Cruz, and *Yawawot–Spectral Portrait* (2003) for live solo violin with electronic soundscape.

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*Megaton for Wm. Burroughs* (1963–64) is an electronic theatre piece created for the ONCE Group, and was premiered in Ann Arbor, Michigan, on February 28, 1964. Its title juxtaposes the work's musical evocation of fictive battles of the past with the chilling war machine of the early 1960s, when artillery was measured by megatons of destructive power. It also honors the controversial Beat Movement writer William Burroughs, whose 1960 novel *Exterminator* both celebrated and condemned war in the tense political climate of the nuclear age.

Some knowledge of the theatrical montage of the original performance is essential to understanding *Megaton*. The work is a multi-layered electro-acoustic sound-sculpture composed of live and pre-recorded materials that were projected from ten loudspeakers surrounding the audience. Its live component was contributed by an electro-acoustical “sound-sculpture” ensemble of five players—Robert Ashley, Harold Borkin, Milton Cohen, George Manupelli, and Joseph Wehrer—coordinated in performance by Mumma. The four-minute introduction, a roaring, monolithic wall of sound, was performed in near-darkness. In a 1964 review of its premiere, the composer André Boucourechliev compared it to Cage's “famous silence” and the “white canvases of Robert Rauschenberg.” As the introduction faded, the members of the “sound-sculpture” ensemble were gradually illuminated, isolated from one another and spread out across the performance space. They communicated silently with one another by means of aircraft headsets in a ten-minute live performance, interacting with the pre-recorded montage in an increasingly dense web of sound. Meanwhile, flashing metal objects whizzed overhead along metal wires; when amplified, these resonances joined the mix. The light again faded in a field of sound swirls punctuated by toy clickers that were activated by members of the audience, marking the end of the live-performance section.

At this point in the work, abstraction yields to theatre. A quiet drone emerges and gains intensity—the sounds of an approaching aircraft squadron. Suddenly the listener is in the midst of a nostalgic piece of *cinéma-vérité* that vividly depicts a World War II bomber crew during a nighttime raid. Mumma describes its haunting ending thus: “A brief burst of heroic movie music introduces the closing sequence: In an entirely different part of the space, in an isolated pool of light, a lone drummer quietly rides his traps.”

*Conspiracy 8* (1969–70) is a collaborative project by Mumma and Stephen Smoliar, then a doctoral candidate in applied mathematics at the Massachusetts Institute of Technology. It was conceived for a small, variable group of live performers and a digital computer, which processes sound information and interacts by returning instructions to the live ensemble. The present recording documents its February 20, 1970, premiere at the Artificial Intelligence Laboratory of M.I.T., with Mumma performing on a bowed musical saw processed sporadically with cybersonics, and Smoliar at the audible teletype console, communicating in real time with a large PDP-6 computer.

Aside from its title, the work avoids polemical commentary on the then recently concluded “Chicago conspiracy trial.” In his 1970 “Notes on Cybersonics,” however, Mumma admits that the work shares specific social similarities to the trial of the eight—then seven—defendants: “It is a theatre of communication under hazardous conditions. In an interaction of diverse personalities the forces of social regulation are neither predictable nor necessarily just. The viability and survival of a democratic ensemble implies (virtually requires) a condition of constantly changing allegiances, raising unresolvable questions of conspiracy, and reactions of repression.”

*Conspiracy 8* also captures the social conditions of its performance, including random snatches of conversation among the performers and audience members, and several spontaneous bursts of laughter that act as formal markers in the work. The loudest outburst was provoked when Mumma produced his musical saw, which must have seemed strangely anachronistic in the new-age context of the computer. When bowed with his signature extended techniques and subjected to cybersonic processes, however, this folkloric instrument produces an eerie, disembodied voice that humanizes the technological sounds.

*Cybersonic Cantilevers* is the first complete issue of a composition based on Mumma’s daylong installation on May 19, 1973, at the Everson Museum in Syracuse, New York. The primary sound materials for the installation were contributed by museum visitors, who were invited to supply and input sounds of their own choice into microphones and cassette players at four stations. Rock and pop music, the tapping of teletypes, spoken words, and vintage radio crime dramas were among the randomly contributed sounds. These acoustical materials were relayed to cybersonic processors designed by Mumma, which periodically recycled and transformed them by processes of analog synthesis. The resulting delayed-action sound collage was then returned by loudspeakers into the museum space. Besides adding new materials to the collage, the participants were also capable of influencing the system by activating controls at their stations or by interacting with other participants. As the day progressed, the initial “sound playground” developed into an increasingly subtle sonic landscape in which the cumulative layers of reprocessed sounds became less and less identifiable. In the final hour, the participants spontaneously focused on making fine adjustments to the existing material. At this, Mumma abandoned his control console and walked through the museum space with a portable tape recorder, capturing the stunning results as the participants explored “a whole new realm of sound, floating it to see where it would go.”

Although Mumma greatly condensed the resulting musical materials by reducing them to a twenty-minute composition, he retained the overall architecture of the event and much of the museum’s spatial acoustics. His close attention to its transitional passages gives the work a seamless continuity and a curiously integrated poetic logic. Supported by the combined interaction of chance, choice, and electronic processing, its spinning trajectories of sound suggest an analogy to cantilever structure.

Its rhythmically active first part features real-world sounds, beginning with a percussive ensemble of beeps, teletype bursts, and drumset solos that resolve into a high-speed climax. Then voices enter in three variations, which combine the opening percussive materials with new sound sources from radio crime shows that had been inputted by the public. The resulting black comedy features vivid voice clips from cheap thugs and inmates on “the rock,” and “canned” sound effects from the shadowy mean streets of popular radio. Then the mood gradually shifts to one of terror, in an episode of pounding drums pierced by a threatening high-pitched drone. Just as the intensity approaches the unbearable, it evaporates into the work’s second part, a vast, timeless sonic space of exquisite transparency that Mumma says is “perhaps as near as I’ve got to

impressionist sound-painting.” This magical episode derives from the final hour of the installation (curiously, it was excised from the 1976 Folkways LP release of *Cybersonic Cantilevers*). It ends abruptly, however, for the composer preferred “not to impose a contrived ending on that memorable artistic and social occasion.”

*Cirqualz* (1980) is a slightly revised version of a work commissioned by the choreographer Jann McCauley for her modern dance company “Cirque” (previously known as the Portland Dance Theater). Composed in an heroic eleven-day burst, *Cirqualz* was premiered with Mumma’s *Pontpoint* (1966–80) on March 14, 1980, at the Cirque Studio in Portland, Oregon. McCauley’s request for “a circus-like music, perhaps a waltz,” inspired Mumma to derive much of the material for this pastiche from the circus-band tradition that flourished in the United States into the mid-twentieth century. Though hardly a classic waltz (most of the quotations are from circus marches, or “screamers”), a substantial part of the work is secretly in three-four time. *Cirqualz* is great fun, pounding with the energy of the Big Top to its grand-slam close—a comedic car crash that would be at home in a Hollywood cartoon score.

How does one reconcile this cavalcade of sounds with the composer’s sober statement that “the most obvious subject of *Cirqualz* is heroes and the heroic”? A possible clue is supplied by the stentorian command at its outset—“Begin at the beginning”—followed by the opening sonorities from that icon of musical heroism, Beethoven’s Third Symphony, the “Eroica.” No matter that these solemn chords spawn a rollicking series of circus band “stingers” (the clinching punches of sound at the end of brass-band marches). We seem to have been invited to think of this work in relation to Beethoven’s “Eroica,” and the connection is curiously apt—not surprising, given Mumma’s early activity as a symphonic hornist. At its deepest level, *Cirqualz* echoes Beethoven’s movement in form, harmony, and rhythm. And like the “Eroica,” it is tightly organized around the key of E flat, with a “classical” tonic return just before its central episode of crisscrossing marching drums. Symphonic as well is the long accelerating “coda” (or closing section), in which the band “stingers” are interwoven with the roar of distant thunder and Fourth of July fireworks recorded by Mumma from a small rowboat on Portland’s Columbia River. When the bands then yield to orchestral brass ensembles (embellished by electronic noodlings from a classic Buchla synthesizer), the work’s heroic E-flat climax is reached with a series of allusions to late-romantic orchestral music. Most prominent are the fanfares from Richard Strauss’s *Ein Heldenleben* (“A Hero’s Life”) and a noble brass chorale from the finale of Anton Bruckner’s Fifth Symphony. Even the car crash and final tinkling of broken glass close on E flat. In the end, however, the taut logic concealed under the flamboyantly eclectic surface of *Cirqualz* evokes Charles Ives, another rugged individualist with whom Mumma shares esteem for Beethoven, Bruckner, and the American band traditions.

—Michelle Fillion

*Michelle Fillion is Associate Professor of Music at the University of Victoria in British Columbia; she has written on the music of the classical period, especially Haydn and Beethoven, and is currently writing a book on English writer E. M. Forster’s musical world.*

#### COMPOSER’S NOTES

The four works on this CD, from different times and of different character, were composed for different theatre venues and involved various degrees of creative collaboration. Working with other creative artists is often challenging for uniquely motivated individuals, and many avoid the process. For me collaboration has been a primary inspirational activity, an adjustment of egos, and a motivation for my individual creative work. Beyond working with people, the concept of “collaboration” may also be extended to technological levels. In my creative work with electronic-music resources, I have explored a direction that I call “cybersonics.” Simply, “cybersonics” is a situation in which the electronic processing of sound activities is determined (or influenced) by the interactions of the sounds with themselves—that interaction itself being “collaborative.” As both a composer and a sound designer with analog-electronic technology, I have experienced no separation between the collaborative processes of composing and instrument-building.

With the exception of *Cirqualz*, my initial creative thinking did not include the possibility of these works occurring in a context separate from their original theatre venues—as sound-compositions on audio recordings. *Conspiracy 8* required little change in order to accommodate the “venue” of an audio recording; this recording is exactly what occurred in the premiere performance, with only the spoken lecture introduction and ending applause removed. The revisions to the original live-performance recordings of *Megaton for Wm. Burroughs* and *Cybersonic Cantilevers* were necessarily more extensive. They involved not only time-shortening, but also adjusting of the basic architecture of each work, so that they made musical sense for me in this change of venue. In this process, my creative thinking was influenced by the qualities of classic Roman architecture as described by the architect-theorist Marcus Vitruvius—*firmitas, utilitas, venustas*—stability,

practicality, attractiveness.

Here are some of my basic ideas about these works. The 1964 ONCE Festival premiere of *Megaton* was in a large, non-proscenium space where much of the audience surrounded the performers. The duration of this recording is about half the length of the live performance—and includes perhaps half of its theatrical content. I retained the initial musical architecture and the original beginning and ending, but shortened central passages and adjusted transitions. Missing in this “audio-only” stereo recording of *Megaton* are the theatrical aspects of lighting, the illuminated sound-sculptures and resonant overhead metal wires, and the movement of the performers and sounds throughout the 360-degree sound-space. The recording engineer at the premiere of *Megaton* was George Cacioppo, and I revised the current recording with the assistance of Maggi Payne.

The first performance of *Conspiracy 8* was in the “salon” venue of an M.I.T. lecture space, thus very different from the venue of *Megaton*. Most important, *Conspiracy 8* was a collaborative composition. Stephen Smoliar and I developed the concept together: The sophisticated computer programming and its interactivity with my sound-making were his major contributions. I contributed the general architecture, timings, and sound materials. We also planned a specific beginning and ending for *Conspiracy 8*. We were a happy team. It is significant that we both had experiences of working with people in other performance arts, particularly modern dance.

*Cybersonic Cantilevers* is from a very different performance context. It was a long performance—nearly seven hours—in a large multi-space museum, and without a specific beginning and ending. In a museum venue the public is free to come and go—very different from the usual concert or salon venue, which usually carries the cultural expectation that the audience will “sit and behave.” Being invited to contribute sound materials, the public participants had the experience of learning to do more with less. They seemed to learn this collectively; as the work developed into its late hours, they became less interested in the input, and increasingly creative in their contributions to the developing process. The last half of this work testifies to their extraordinary achievements.

Finally, *Cirqualz* is an acoustical cinema of sound-materials from my continually accumulating “sound pantry.” Faced with a near-last-minute request, I limited my sound resources mostly to existing and referential acoustical materials. The “here comes curtain-time” situation also required me to be practical for the sake of the dancers, who had a short rehearsal time for their choreographic connections to the music. The many musical “references” in *Cirqualz* became a major part of its tight, multilayered structure; they are also somewhat honorary, involving certain composers and several extraordinary performing musicians. One of the latter is the conductor Frederick Fennell, with whom I participated in the circus-march tradition when I performed in 1950s wind-bands. Fennell’s celebrated recordings of circus-band music have helped keep a wonderful tradition alive.

—Gordon Mumma

**Stephen Smoliar** received his Ph.D. in Applied Mathematics from M.I.T. in 1972. He has extensive background in music, and was active as a composer from 1969 to 1975. He also is a frequent contributor to *Music Theory Online*. Besides his teaching at universities in Israel, Singapore, and the United States, Dr. Smoliar has managed research programs in Multimedia and Communication and Collaboration at the FX Palo Alto Research Laboratory in 1995–99, served as Knowledge Solutions Coordinator until 2004, and is currently a member of the InfoBiz team at PARC. His main research is in the fields of knowledge representation, perceptual categorization, and cognitive models.

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GORDON MUMMA (b. 1935)

ELECTRONIC MUSIC OF THEATRE AND PUBLIC ACTIVITY

80632-2

1. *Megaton for Wm. Burroughs* (1964) 22:34  
with the ONCE Group

2. *Conspiracy 8* (1970) 18:13  
co-composed and performed with Stephen Smoliar

3. *Cybersonic Cantilevers* (1973) 19:16  
with public participation

4. *Cirqualz* (1980) 5:43  
electronic music for the Cirque dance ensemble

Total time: 65:47

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