

Cage, Cunningham, and Collaborators: The Odyssey of Variations V

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Lincoln Center, New York, 23 July 1965. The New York Philharmonic's highly publicized, lavishly funded, and well-attended French-American Festival was slightly past its midpoint when it offered an innovative and grandiose spectacle. The ninth performance of the series opened with works by some of the best-known French and American composers of the time—Edgard Varèse's *Hyperprism* (1922–23), Pierre Boulez's *Improvisation sur Mallarmé II* (1957), and Elliott Carter's Second String Quartet (1959). But the novelty of these works paled in comparison to the after-intermission entertainment: a single forty-minute aural and visual extravaganza devised by John Cage and Merce Cunningham titled *Variations V*. Lukas Foss, the festival's artistic director, succinctly summarized his agenda: "What distinguishes this festival from many others," he said, "is that it tries to tempt prominent artists to do things they don't ordinarily do."¹ Cage and Cunningham were only too happy to oblige.

Cage enlisted three composers—James Tenney, Malcolm Goldstein, and Fredric Lieberman—to operate the dozens of tape recorders and radios that provided the aural content of the production. The output from these devices fed into a fifty-channel mixer designed by Max Mathews of Bell Laboratories. Cage and David Tudor worked the mixer controls. So many wires ran from the electronic sound sources to the mixing board that Robert Moog (who was busy supervising his own machinery) recalls the eerie sensation of walking back and forth on a soft bed of Radio Shack cables.²

The stage set consisted of twelve 5-foot-high antennas Moog had built for the occasion, capacitance devices that sensed the proximity of the seven dancers: Cunningham, Carolyn Brown, Barbara Dilley Lloyd,³ Sandra Neels, Albert Reid, Peter Saul, and Gus Solomons. At the base of the antennas were additional sensors, a set of photocells built by Bell Lab engineers under the supervision of the Swedish research scientist Wilhelm (Billy) Klüver. Whenever the dancers interrupted the light to the photocells or came within a four-foot radius of the antennas, they

triggered switching circuitry in the mixer, which in turn fed six loudspeakers spread around the hall. The dancers thus “articulated [both] the performance space . . . and the sound space.”⁴

Completing the entertainment were electronic visual stimuli—films with distorted television images by Nam June Paik mixed with images of the dancers shot by Stan VanDerBeek during rehearsal. VanDerBeek spliced these clips into a kaleidoscopic collage that was projected onto a giant screen across the back of the stage.

Variations V’s “score” was not written down until after the Lincoln Center event. It consists of thirty-seven “Remarks” that specify resources (film images, a system of tapes and radios, etc.), sound generation methods (e.g., dancers controlling the sounds), and compositional attitudes (“irrelevance,” “adapt to circumstances,” “non-focused”).

From the standpoint of such performance indeterminacy, *Variations V* followed logically from Cage’s works of the 1950s and early 1960s in which he specified processes but welcomed flexibility in their realization. In some of the earlier works, these processes were rigorously defined, yet the resulting sound remained variable. An example is *Imaginary Landscape No. 4* for twelve radios (1951), in which performers operate frequency and volume dials according to Cage’s very specific instructions. However, the result varies from performance to performance depending on the particulars of local programming. Much greater performance latitude characterized the famous Black Mountain College “Happening” of 1952. Nevertheless, this event was tightly organized in terms of time blocks: each performer was given a temporal compartment to fill, but could choose the specific sounds to fill it.⁵ In subsequent years, Cage paid increasing attention to the generative process itself, embracing a multiplicity of artistic intentions in the work’s realization. In *Variations II* (1961), for instance, performers prepare their own parts by superimposing six transparencies marked with lines and dots, according to which they determine pitch, amplitude, timbre, duration, density, and point of occurrence. *Variations V* continued this tradition of performance latitude, extending Cage’s inquiries into the variants that could result from a given compositional procedure.

As an exploration of the possibilities of collaboration among music, dance, and technology, however, *Variations V* was revolutionary. For years Cage and Cunningham had explored the relationship between music and dance. During the 1940s they had disrupted the traditional compositional link between the two arts by creating their parts independently, adhering only to a predetermined temporal framework. In compositions such as *Tossed as It Is Untroubled*, *Spontaneous Earth*, *The Unavailable Memory of*, or *Root of an Unfocus* (1943–44), sound and motion

intersect only at major guideposts.⁶ In the 1950s the two artists abandoned even these occasional points of coordination. Cunningham began to develop choreographies without music and rehearse his dancers in silence, timing them with a stopwatch. The dancers would typically hear the music for the first time at the premiere. (“Why have music at all?” Cunningham was often asked. “I just like sound,” he replied in an interview in 1968. “It thickens the plot.”⁷) In *Variations V*, however, Cage and Cunningham set up a new relationship between movement and sound in which the dancers functioned as co-composers, exerting as much influence over the sonic landscape as the musicians who operated the electronic equipment. Furthermore, the interaction of sound and motion was facilitated by a sophisticated technological component that marked “the beginning of an enormous operation of interaction between creative artists and engineers.”⁸ In this sense, *Variations V* may be seen as a watershed in Cage’s creative development—both a culmination and a beginning. As an outgrowth of his decades-long history of collaboration with composers, dancers, and nonmusicians, it constituted a model of cooperative interdependency. Monumental in concept, it spawned a host of similar works—some even more grandiose—over the following decade.

How did this extraordinary assemblage of musical, choreographic, film, and technological personalities come together for this production? The story begins with the mixer, built a year earlier for a far more risky (and in many respects less successful) collaboration.

The New York Philharmonic, Max Mathews, and the Fifty-Channel Mixer

In the first two months of 1964, Leonard Bernstein conducted a set of avant-garde concerts with the New York Philharmonic. Despite the promise of newness, however, much of the programming was less than adventurous. By the last performance, Harold Schonberg had taken Bernstein to task in several unsympathetic reviews in the *New York Times*. “A few new works . . . are being presented with . . . portentous salvos of discussion and verbiage,” he complained.

Mr. Bernstein is presenting the new music as though it is bitter medicine, to be taken down more easily with his honeyed words. Naturally a large part of the audience . . . is going to be alarmed when Mr. Bernstein approaches with a hearty smile, bearing a big spoon filled with the avant-garde. And when he tilts the spoon down the throat of the audience,

assuring one and all that it really tastes good, there is necessarily going to be some gagging.⁹

The new works on each program were embedded in a comfortable environment of old warhorses. All of Vivaldi's *Four Seasons* concertos were played, as well as symphonies and concertos by Beethoven, Tchaikovsky, Saint-Saëns, Ravel, and others. Varèse's *Deserts* was nearly scrapped; Boulez's *Doubles* was.

In this respect the last concert, on 6–9 February, was no exception. The first half featured Vivaldi's "Autumn" concerto and Tchaikovsky's Sixth Symphony—nearly an hour of music. But after intermission Bernstein stretched the listening experience of his largely tradition-bound audience by programming the most adventurous works of the series. (His opening remark after the intermission—"This week we are presenting the last group of avant-garde works in this series"—prompted an outburst of applause and laughter.¹⁰) Titled "Music of Chance," the program's second half featured three pieces indeterminate in their performance: Earle Brown's *Available Forms II*, Morton Feldman's . . . *Out of "Last Pieces,"* and Cage's *Atlas Eclipticalis* with *Winter Music* (billed on the program as an "improvisation by the orchestra").

In all three works, the "audible result," as Brown put it, was "the product of many independent intentions and in itself integral, inherent, and relevant, but, from a logical point of view, un-intentional in regard to its momentary particular form . . . , a way of allowing the work to take on its own (independently-dependent) identity."¹¹ In the case of *Atlas Eclipticalis*,¹² Cage positioned sound events within an overarching temporal framework through the use of a star chart, generating eighty-six independent parts (to which unpitched percussion could be added). The piece can be played by any ensemble, chamber or orchestral—and indeed it was at various times during its year-long composition process. Seventeen performers played in the premiere in Montreal on 3 August 1961.¹³ Fourteen players performed it in Los Angeles, and seven at Harvard the following year.¹⁴ In the work's electronic version, contact microphones feed sound sources through an amplifier. In one rendition, which Cage prepared and conducted at the University of Hawaii on 21 April 1964, nine students played amplified cafeteria trays onto which they dropped various objects at the times appointed by the astronomical data.¹⁵ Reviews were often unflattering. Albert Goldberg, writing in the *Los Angeles Times*, called the piece a hoax, dismissing its import beneath the headline "Music Hits New Low at Monday Concert." "Although Mr. Cage is an exponent of silence, there was far too little of it," Goldberg complained. "We beat it after a half hour when the end seemed nowhere in sight."¹⁶

Atlas Eclipticalis may be played alone or coupled with *Winter Music*, a work for piano(s) in which Cage marked notes where there were imperfections in the manuscript paper, but left rhythm, dynamics, clefs, order of materials, total length, overlaps, and interpenetrations indeterminate. In *Winter Music* and other piano pieces of the period, he often depended on sympathetic realizations by his friend and colleague David Tudor. For the New York Philharmonic performance in February 1964, Cage planned to program *Atlas Eclipticalis* alone. But as we will see, events beyond his control forced him—at the eleventh hour—to add *Winter Music* (and Tudor) to the mix.

Cage envisioned using the orchestra to create a Brobdingnagian electronic version of *Atlas Eclipticalis* by feeding the output of each instrument into a single mixer. To realize this ambitious goal, he contacted Max Mathews at Bell Labs to request a mixer that could accommodate an ensemble of ninety-six players.¹⁷ The technology to build such a device was readily available, but the trick was to make it small enough to transport and then set up on the stage at the front of the orchestra. With the blessing of W. O. Baker, vice president of research at Bell Labs, Mathews and Phil Giordano (“a very expert audio designer and constructor”) built a mixer that “looked like an octopus with a hundred tentacles.”¹⁸ The stage was littered with wires stretching from the mixer to each instrument in the orchestra. “Bell Labs really deserves credit here,” notes Mathews, “because they paid for the thing both in terms of Giordano’s and my time and for the parts that went into it. It was not something directly related to telephones.” Baker’s motivation was keeping his engineers and physicists happy and productive, “and that involved giving them a fair amount of latitude to go off on side branches, provided they came back to the mainstream.”¹⁹

Mathews managed to satisfy Cage’s needs with only fifty sound inputs. Each instrument had its own contact microphone, but the signals from two players were combined into a single channel feed. (Numerous references by Cage to a ninety-six-channel mixer are thus erroneous.) Despite support from Bell Labs, the budget was limited, and Mathews and his assistants were forced to purchase inexpensive microphones from Radio Shack, which ensured that the sound quality would be considerably less than crystalline (one of Mathews’s complaints about the final production). His mixer directed its output to various combinations of six speakers positioned around Avery Fisher Hall.

During the performance, Cage and Tenney operated controls on the mixer panel. At first Cage intended to devise a score to govern their activity. “He brought in transparencies,” recalls Tenney, “and said, ‘Maybe we could put together our parts with these.’ Then he paused and asked, ‘Do you really think we need these?’ ” No, Tenney replied,

"so we abandoned them."²⁰ Meanwhile a long wand at center stage rotated a quarter revolution every two minutes of the eight-minute work, marking time units in which the players were to fit their notes.²¹

One of the most delicate challenges was convincing the Philharmonic's string players to attach microphones to their valuable instruments. Mathews, a violinist, decided to affix the mikes to the bridge, the only part of the instrument with no value as an antique. The orchestra players appeared understanding, and the first few rehearsals went well. "Bernstein did not make an appearance until about the third rehearsal," says Mathews,

and then he came in at the beginning of the rehearsal and stood up in front of the orchestra for five minutes and walked out. And what he said when he was up there was, "If you guys don't want to put these contact microphones on your expensive instruments, *you don't have to!*" Then he walked out. And I went and got my coat and was about to follow him out the door, because I didn't want anything more to do with the performance.²²

Bernstein's dismissive attitude encouraged a similar one on the part of his musicians, who took it upon themselves to play anything they pleased, including orchestral excerpts from familiar concert repertoire. Cage, upset at this turn of events, solved the crisis by placating Mathews, Tenney, and Giordano with a Viennese chocolate Sachertorte and equally sweet pleas, and by adding Tudor to the performance mix playing *Winter Music*.

By the time of the concert Bernstein was apparently not only reconciled, but also intrigued by the mixer and the contact microphones. After demonstrating for the audience an excerpt from a computer-composed piece and a short orchestral improvisation, he told them:

The three compositions we are about to hear are by real composers, sensitive and thoughtful artists, each of whom uses different random elements in different ways. Mr. Cage used chance in the very composing of his piece. . . . But the piece is even more aleatory than that in the sense that every instrument of the orchestra has a contact microphone attached to it so that the notes they play will be further subjected to random choices of the composer and his assistant who will be seated at the electronic controls. Thus the composer, at the switchboard, is ultimately responsible for what comes out over the various loudspeakers that are placed around the hall.²³

The performance had a number of foreseeable (as well as unanticipated) problems. Cage's piece prompted the exit of numerous audience

members, both during and after its presentation.²⁴ Philharmonic Hall, which had been packed, was only one-third full by the time the last piece on the program began. (This work, Brown's *Available Forms*, prompted the most positive comments from Alan Rich in the *New York Herald Tribune*.²⁵) Furthermore, the loudspeakers turned out to be so powerful that "feedback squawks at dangerously loud levels occurred quite frequently."²⁶ Despite Bernstein's assurances that Cage and Tenney controlled the sonic output, even their role was limited by the multiplicity of sound inputs and the difficulty of adjusting 50 separate mixer controls. The initial applause when *Atlas Eclipticalis* ended was countered by loud resonant boos, the beginning of which can be heard on the recent compact disc release of the 9 February broadcast.²⁷

Reviews were mixed. Rich panned the piece, describing it as "dreary, raucous travesties of orchestral sound, resembling nothing so much as a flock of migrating macaws heard from inside a radio signal shack. . . . Mr. Cage . . . could have added to the interest by putting bells on the exit doors. They would have drowned out the music."²⁸ Schonberg, on the other hand, reacted with guarded praise: "Who can write or think about Vivaldi and Tchaikovsky when faced with the memory of the squawks, pointillism, chaos, delicacies, mysteries, calculations and miscalculations of indeterminate music?" he asked.

Some of it may be written for no other reason than pour épater le bourgeois; some of it shows delicate evocations of sound; some of it is phony; some of it, exciting. In itself, it is a passing fad, but it does illustrate the breakup of values in music the way so many other manifestations mirror the equivalent breakup in contemporary life and thought.²⁹

As for Mathews, he breathed a sigh of relief and rid himself of his octopus: "I gave the thing to Cage in the hope that I would never see it again!"³⁰

From Movement to Sound: Tapes, Radios, Capacitance Antennas, and Photocells

When Cage was invited to participate with Cunningham in the French-American Festival the following year, he seized the opportunity to use his new mixer again, this time with electronic rather than human sound generators. With generous resources backing the enterprise, he and Cunningham embarked on a realization of their unprecedented concept of dance movement activating sound.

For this task, they needed the help of high-powered engineers. They called on Billy Klüver of Bell Labs, whom they had met through visual artists in the New York area. Klüver had worked closely with Jean Tinguely to build *Homage to New York*, a machine that (mostly) destroyed itself in a spectacular display of misfirings at the New York Museum of Modern Art on 17 March 1960.³¹ Through Tinguely, Klüver developed ties to other avant-garde artists, including Robert Rauschenberg, who had been associated with Cage and Cunningham since 1951.³² Cage now consulted Klüver on the possibility of using photocells as an electronic intermediary (triggered by the dancers) between the sound sources and Mathews's mixer. Klüver's assistants at Bell Labs constructed a set of such devices, which were used not only in *Variations V*, but also in a follow-up collaboration at the Twenty-fifth Street Armory the following year (*Variations VII*).

Cage also contacted Robert Moog, who had just unveiled a new synthesizer operated by a standard piano keyboard—a device that would achieve international renown through the 1968 recording *Switched-On Bach*.³³ Building on his bachelor's degrees in physics (Queens College) and electrical engineering (Columbia) and a Ph.D. in engineering physics (Cornell), Moog founded an electronic musical instrument company in 1954. Ten years later he introduced the Moog synthesizer. He recalls having had no prior contact with Cage when the composer contacted him to request help with the Lincoln Center project.³⁴ In response to Cage's needs, Moog designed and built the set of twelve capacitance antennas that comprised the stage set for *Variations V*.

Cage's decision to use tape recorders and radios as sound input was likely motivated not only by the dancers' need for a large empty stage area but also by the problems he had encountered with the New York Philharmonic the previous year. After all, live musicians (if not a hundred-piece orchestra) could just as easily have interfaced with the mixer and Cunningham's choreography. Since the late 1950s, however, Cage had increasingly confronted difficulties similar to those with the orchestra players. His *Concert for Piano and Orchestra*, premiered at Town Hall in 1958, "was total chaos," recalls Fredric Lieberman. "The musicians were not following what they had on the page. Many were hitting their music stands and laughing with each other. When I asked Cage about it later, he said he felt that his problems were no longer musical, but social. It was a theme he returned to over and over."³⁵ Machines, on the other hand, could (theoretically) be trusted to do what they were told.

Cage invited Tenney, Lieberman, and Malcolm Goldstein to run the equipment. Tenney and Goldstein had already been working with



Figure 1. Cage tests a photocell attached to the base of one of Moog's capacitance antennas. Photograph taken by Gordon Mumma during the filming of *Variations V* in Hamburg in 1966. (Used by permission of Gordon Mumma.)

the composer in New York, where they programmed his works with their Tone Roads ensemble, founded in 1963 "to bring to life all that marvelous music that was being ignored: Charles Ives, Edgard Varèse, John Cage."³⁶ Recalls Goldstein: "We, as composers, found our identity . . . by experiencing the abundance of possibilities these men had opened to us; not in the prefabricated system of solutions of European composers, but in the sorting out of the needs of our own situation, here and now."³⁷ Lieberman (who was visiting New York at Cage's invitation) had served as Cage's graduate assistant at the University of Hawaii's Festival of Music and Art of This Century in April 1964, when *Atlas Eclipticalis* was performed.³⁸

Goldstein and Tenney recall running tape recorders exclusively. "By the time of *Variations V*," says Tenney, "Cage had come to terms with free improvisation (though he didn't like that word) as long as it was done by people sympathetic to his aesthetic aims"—that is, the avoidance of self-expression.³⁹ Goldstein concurs. "I operated the tapes in the spirit of not knowing what would come out." He had no plan or score but worked "in the spirit of improvisation."⁴⁰

Lieberman, on the other hand, operated both tapes and radios. "John asked me to put together twenty-four sound sources—twelve tape recorders and twelve short-wave radios."⁴¹ Cage gave him tapes of ambient sounds, which Lieberman started at various times and then rewound and replayed. But for the radios, he acted as cocomposer. After scavenging surplus and wholesale electronics stores on Canal Street for military radios, he devised a score using chance operations, which governed his changes in the radios' frequencies. Thus, as in *Imaginary Landscape No. 4*, Lieberman's dial twisting during the performance was predetermined, although the score was developed without foreknowledge of the stations' programming. Like Cage, Lieberman built a framework but left its realization indeterminate. Additional sonic material was contributed directly by the dancers through contact microphones embedded in objects they handled. Every action involving these objects was amplified.

As in the New York Philharmonic concert, Cage and Tudor used no score to govern their manipulations of the mixer dials. (The published set of remarks specifies "performance without score or parts.") But clearly Cage was recalling *Atlas Eclipticalis* when he wrote instruction 6: "As though there were a drawing of the controls available and—on a transparency—transcription from [an] astronomical atlas which (were it superimposed) would give suggestions for use of controls."⁴² The "Thirty-Seven Remarks" reflect other fallout from the Philharmonic concert as well. "Accept leakage, feedback, etc.," Cage instructs. "Adapt to physical circumstances; procrastination, mistakes."

The Premiere

Controlling the electronic equipment proved to be far more troublesome than had been anticipated. First, there were problems with Moog's sensors. His handmade circuits required hundreds of small clips to attach components to the insulating boards. The plating on these clips turned out to be defective and rendered the soldered attachments useless, forcing Moog to disassemble every circuit and resolder each clip.⁴³ At the dress rehearsal—the only one held in the performance space—he was still scrambling to finish the work. Then there were problems with the position of the photocells. At first they were placed at the sides of the stage, but there was no consultation with the lighting designer, Beverly Emmons. As a result, insufficient light reached them during the rehearsal. The problem was solved by moving them onto the platforms of Moog's antennas.⁴⁴

Emmons recalls the tension among the collaborators. The technical artists spent a lot of time operating in Rauschenberg's proverbial "gap between art and life," she notes.

Though I'd just graduated from Sarah Lawrence and gone to work for Merce Cunningham at the beginning of that year, I had a lot of theater experience. I knew the problems of running late with union staff. That a project in which technical equipment was so central to the concept of the work and yet so untried should be left to the day of the piece to be put together was wildly naive.⁴⁵

Most of the rehearsal time was consumed in coaxing the electronic equipment to function properly. Cage's a posteriori score contains a directive comprehensible only in the context of these last-minute crises. "Two rehearsal periods," he warns, "eight hours each on two days at least one day apart."

Some of the dancers found the process tedious. "I'm now more open-minded," says Barbara Dilley (Lloyd), "but at the time I couldn't believe that Merce took delight in all this technology."⁴⁶ Since Cunningham's choreography was designed with the specific aim of stimulating sound, he worked the antennas, photocells, and amplified props into the dancers' routine. Early in the performance, he assembled an artificial plant, slowly threading each microphone-bearing leaf onto the central stem. Later Carolyn Brown smashed the flower pot and repotted the plant in a new container. Barbara Dilley donned a microphone-embedded towel as a headdress, then stood on her head as Gus Solomons gently rocked her back and forth. Cunningham and Dilley did a delightful pas de deux around one of the antennas, and near the end, the dance troupe stretched a long cord around the whole set of devices. As a finale, Cunningham appeared on stage riding a foldable bicycle he had bought from Solomons,⁴⁷ steering it gingerly through the stage set-up. From the vantage point of dance, *Variations V* represented for Cunningham's troupe one of the first instances in which "movement was stimulated by factors outside the body," says Dilley. "Merce had an appetite for exploring the reasons why movement arises and he was very unbiased."⁴⁸

As usual, Cunningham insisted on precision. Solomons, who had just joined the company, recalls his frustration at not being able to execute a tiny hip movement the way Cunningham wanted it done. "Clarity of movement was all there was," Solomons recalls. "It forced us to be absolutely precise."⁴⁹ Cunningham's interest in tiny body movements and in external stimuli led to intensive concentration on detail. At one

point he merely wiggled Carolyn Brown's toes in and out of the field of one of Moog's antennas.⁵⁰

Despite the malfunctioning clips, Moog recalls that his antennas worked perfectly by performance time. Other participants disagree.⁵¹ Regardless of whether they all functioned, however, the interaction of the electronic sensors with the multiple and unpredictable sound inputs, the complex mixer, and the array of loudspeakers made any direct connection between the dancers' movements and individual sounds imperceptible to the observer.

Intense concentration on detail and extreme control kept the dancers from becoming distracted by the multiple layers of visual and sonic stimuli swirling around them. Critic Walter Terry complained that the films overwhelmed the dance,⁵² but the performers learned to focus single-mindedly on the choreography. "I learned to ignore visual and aural distractions," says Solomons, "by centering all my concentration on the movement."⁵³ Their timing, perfected through intensive rehearsal, was based on sight, rather than sound cues, as well as on the internal feel of the movements.

Reviews, though mixed, were generally better than those for the previous year's New York Philharmonic concert. William Bender damned the work with faint praise in the *New York Herald Tribune*, calling it "a somewhat interesting effort," while his colleague Walter Terry found it "much too long."⁵⁴ Allen Hughes, writing in the *New York Times*, was far more impressed, singling out novelties such as Cunningham's bike. ("Cunningham Rides Bike for 'Variations V,'" heralded the *Times's* headline.)⁵⁵ The following week, Hughes devoted an entire article in the *Sunday Times* to *Variations V*, speculating that "Mr. Cage and Mr. Cunningham may have given us a fascinating, if extremely primitive, glimpse into an extraordinary theater of the future."

This would be a theater in which dance . . . , music, scenery and, certainly lighting, could be created simultaneously in the process of performance. . . . Those who fear that the results would be too improvisatory to be of value should remember that all art originates as improvisation and that, as experience shows us daily, revised, frozen, or canned improvisations are not necessarily superior to that come fresh from gifted creators. Unfettered improvisation gave us jazz; it might also give us an equally refreshing and vital experience in the theater.⁵⁶

Searching for meaning in Cunningham's intentionally meaningless choreographies, Hughes wrote: "In a sense [the work] was a monumental symphony of the visual and aural banalities of our age and as such was highly successful. By comparison, the first half of the program was as quaint and traditional as hearts and flowers and old lace."⁵⁷

Tours and Travels

Variations V was hardly designed as a touring work, but Cunningham archivist David Vaughan has documented twenty-nine additional performances in the following three years.⁵⁸ Within a month of the French-American festival, Cage and Cunningham had taken the work to Upper Black Eddy, Pennsylvania, and to C. W. Post College on Long Island. In November they performed it three times at the Harper Theater in Chicago and early the following year gave four performances in a single week on the West Coast (at the Seattle Playhouse, Simon Fraser University in British Columbia, Western Washington State College, and the University of Oregon). Three weeks later they took it to Hartford, Connecticut.⁵⁹

Audiences were at best baffled, at worst annoyed. "The Merce Cunningham Dance Company may be accused of assault and battery on the senses but [they] leave some interesting bruises," wrote Barbara Levy in the *Chicago Sun-Times*.

Composer John Cage put together a great deal of noise which never quite reached the definition of music. He, along with a battery of technicians, manned cameras and mixers to create constantly shifting images on stage. . . . Nothing discernable remained the same except for the constantly exquisite use of extended and contracted bodies leaping, falling and edging through the special reality set by the stage.⁶⁰

John Hinterberger, reviewing the production for the *Seattle Times*, was far less generous. "The Merce Cunningham Dance company demonstrated before a full house at the Center Playhouse last night that eight people can baffle, confuse and annoy 800 others and—as long as the 800 paid for the privilege—get away alive."⁶¹ Clearly outraged, Hinterberger had nothing positive to say about the entire evening: "Cunningham's group incorporates the artistic premise that today's world is unartistic, pointless, full of noise, ugly, absurd and full of conventional human gestures anyway. So his dancers proceed . . . to gyrate to electronic noises, screeches, grunts and banging boiler pipes until each formless number ends."⁶²

Variations V had a "dissociative quality that people had trouble with," recalls Barbara Dilley. "Since the logic came from interaction with the technology, the result was very collaged. It was a fragmented work."⁶³ The films enhanced this effect by creating multiple focal points for the audience. To top it off, "Cage, the *enfant terrible*, was violating the spirit of the musical world."⁶⁴

Hinterberger focused his greatest ire on the uncomfortably loud volume, noting that several elderly spectators scrambled to turn off their

hearing aids, while others sat with fingers in their ears. Labeling the production "obscurantism," he fumed that such works "hide lack of design. . . . And noise is noise, nothing else."⁶⁵ Though the dancers were somewhat protected, since they were behind the loudspeakers, some of them also resented the sonic assault on the audience. "We worked so hard and then the musicians made it so difficult," says Dilley.⁶⁶

The novelist and poet David Wagoner singled out the same problem in a review for the *Seattle Post-Intelligencer*. "It's difficult not to feel sympathy with the intentions of Cunningham and Cage," he wrote. "Yet they are not only breaking fresh ground but breaking fresh eardrums. And although the desperate novelty their work represents may well lead to new forms of expression . . . their frantic efforts to be different at all costs lead them . . . to previously unimagined heights of pretentiousness."⁶⁷

As for the Hartford performance, the reviewer in the *Courant* compared *Variations V* to "the Assassination of Marat as Performed by Inmates of the Charenton loony-bin. Pull for the shore, Marquis."⁶⁸

The troupe of seven dancers, the antennas, the photocells, and the sound equipment went along on all of these tours, but in most cases Cage and Tudor comprised the entire composer-performer team, working all of the sound sources as well as the mixer controls. Tudor was the likely cause of the assault on eardrums. Emmons suggests that he took delight in "teasing" Cage by turning up the volume.⁶⁹

Though the two composers managed to execute by themselves the tasks that had required five people at Lincoln Center, the strain on them was perceptible. When the Norddeutscher Rundfunk television section invited the company to film *Variations V* in Hamburg in the summer of 1966, Cunningham was delighted ("Great; we'll take it to Europe," he said).⁷⁰ But Tudor was skeptical. The thought of packing, unpacking, setting up, and breaking down all that equipment was simply too much. The previous fall he and Cage had been guest artists-composers at the ONCE AGAIN Festival in Ann Arbor, Michigan, presenting Cage's *Talk 1* to a sold-out crowd on the roof of a municipal parking garage.⁷¹ There they worked with Gordon Mumma, a young composer and electronics wizard who had dropped out of the University of Michigan and, with Robert Ashley, Roger Reynolds, and others, had founded the provincial ONCE festivals that were making international waves. In the spring of 1966 Mumma began receiving phone calls from Tudor, Cunningham, and Cage. "We have this problem with *Variations V*," Tudor began. Mumma had not yet heard of *Variations V*. "I didn't know what it was," he recalls. "I was way out in Ann Arbor. 'It's not supposed to tour,' David told me, 'but they want to take it to Germany. Could you arrange to come along?' Then Merce called and asked if I would compose a work for David. And then John called, and together they dragged me into the

company."⁷² Thus began an eight-year collaboration between Mumma and the Cunningham Dance Company, during which he not only composed four commissioned works and aided in numerous performances of *Variations V*, but also collaborated with Cage and Tudor on several other compositions (*Reunion*, *Assemblage*, and *Landrover*, to name but three).

So *Variations V* headed for Europe. Mumma and Tudor used all their ingenuity to pack the electronic equipment into efficient, virtually indestructible shipping containers and then unloaded and reassembled it at theaters across France, Germany, Sweden, Portugal, and England. There were, in fact, two separate European tours. On the first, *Variations V* was presented along with five other Cunningham works at a week-long residency in St. Paul de Vence in southern France. Following a brief but welcome break in the French countryside, the group moved on to Hamburg, where they shot the film.⁷³ After returning to New York in the fall, they made a second trip to Europe and presented *Variations V* in Stockholm, Paris, Lisbon, and London.⁷⁴

The touring version was only slightly less elaborate than the original, despite the formidable problems of hauling the equipment around the world. "We had to leave pints of blood at every border to assure the authorities that we weren't planning to sell the stuff," says Gus Solomons. " 'We're a dance company,' we'd say. 'Yeah, right.' "⁷⁵ They used six antennas and photocells instead of twelve, four speakers instead of six, and a smaller mixer (to judge from the film); they reduced somewhat the profusion of tape recorders; and they rarely used radios. But Cage, Tudor, and Mumma were still kept plenty busy operating multiple reel-to-reel recorders and adjusting the mixer controls. Additional performances at the Brooklyn Academy of Music, the University of Kentucky, State University College of Buffalo, and Bradley University in Peoria, Illinois, followed in 1967 and 1968.

Sequels and Influences

In the interim between the two European trips, Cage participated in a pair of performances inspired by his Lincoln Center experiences. Billy Klüver, energized by his work with Rauschenberg, Cunningham, Cage, and others, founded Experiments in Art and Technology (E.A.T.) with the express aim of bringing engineers and artists together in collaborative projects. Between 13 and 23 October 1966, Klüver's new organization joined forces with the Foundation for Contemporary Performance Arts to present "Nine Evenings: Theatre and Engineering" at the Twenty-fifth Street Armory in New York City. Cage's *Variations VII* occupied half of two of them (15 and 16 October).

The photocells built for *Variations V*—now increased in number to thirty—made a spectacular reappearance, triggering the sounds that reached seventeen loudspeakers. Instead of dancers, the photocells responded to the movements of four composers (David Tudor, David Behrman, Anthony Gnazzo, and Lowell Cross), who interrupted the light as they walked around a platform operating equipment.

For this production, Cage opted to use live sounds as the source material, in effect “catching sounds from the air as though with nets.”⁷⁶ He accomplished this feat with ten telephone hook-ups. At appointed times, Cage phoned noisy locations in the city, including Luchow’s German restaurant in Union Square, the Fourteenth Street Consolidated Edison power station, the Society for the Prevention of Cruelty to Animals, the *New York Times* press room, a bus depot, and Merce Cunningham’s studio. Additional input included synthesized electronic sounds (sine waves, square waves, pulse generator, etc.), machinery sounds (juicer, blender, washing machine, etc.), body sounds of the performers, and two Geiger counters. At the second performance, audience members left their seats and wandered among the equipment, further enhancing the sonic responses.

In 1968 the Cunningham Dance Company’s residency in Buffalo prompted a guest appearance at the Sightsoundsystems festival in Toronto. Organized by the Estonian Canadian composer Udo Kasemets, the Toronto festival was directly inspired by Klüver’s “Nine Evenings.” For their Buffalo appearance, Cunningham had programmed not only *Variations V* (which was greeted by “thunderous applause”),⁷⁷ but also *Walkaround Time*, with music by David Behrman and a set by Jasper Johns derived from Marcel Duchamp’s *Large Glass*.⁷⁸ Duchamp planned to be present as well. Since they were scheduled to be in the neighborhood, Kasemets seized the opportunity to invite Cage and Duchamp to present a live electronic extravaganza for the opening of his Toronto festival on 5 March.⁷⁹ The result was *Reunion*, another of Cage’s technological collaborations. In this work, the sound was activated by the movements of chess pieces on a photoresistor-embedded game board designed and built by Lowell Cross, one of the composers who had participated in *Variations VII*. For some time Cage had been taking chess lessons with Duchamp, whose teaching method consisted of observing and commenting on chess matches between Cage and Duchamp’s wife Alexina (“Teeny”). In *Reunion* Cage first played Marcel Duchamp (and lost in twenty-five minutes) and then played Teeny in a “game that went into late night overtime”⁸⁰ and was adjourned unfinished at 1 A.M. Cross ingeniously designed the chess board’s circuitry to create silence at the outset, a crescendo as the game progressed, and a decrescendo (but not a return to silence) as various pieces were removed from the board.⁸¹

Conclusion

Reunion was by no means the end of Cage's composer-engineer collaborations. The multitiered interdisciplinary interactions set in motion by *Variations V* marked his work over the next decade in increasingly complex interactions. Ventures such as *HPSCHD* (1969), which involved 7 harpsichordists, 208 tapes, 84 slide projectors, 52 tape recorders, 52 speakers, 12 movie projectors, and a 340-foot circular plastic screen, extended the interactive concept to the limits of practicality.⁸² For Cunningham, too, the work heralded a new direction. He became increasingly interested in technology, and particularly in the possibilities of television and video.

Prior to *Variations V*, Cage and Cunningham were content with a collaborative philosophy of independence. The more sophisticated approach they pioneered in *Variations V*, however, in many ways changed the face of both disciplines. Solomons calls the work a "bold exploration" into the ways in which music and dance could interrelate.⁸³ Sound and motion were intimately linked, yet perceptually independent; Cage and Cunningham simultaneously achieved independence and interdependence.

The collage effect is precisely what made *Variations V* work. Years later, Albert Reid (one of the dancers in the original production) saw a studio revival of the dance component of the work and was struck by the lack of coherence in the choreography. "What gave the work interest," he says, "was the overlapping of the various elements. For the audience, it was a process of education: to try to get them to see not just the dancing but a whole world of vision and sound."⁸⁴ Mumma wrote in May 1967: "The audience's impression of *Variations V* at a surface level is that of a superbly poly: -chromatic, -genic, -phonic, -meric, -morphic, -pagic, -technic, -valent, multi-ringed circus."⁸⁵

Many of the participants were stimulated by the controversy the work prompted. "I loved it when the audience booed and screamed," says Solomons. "This must have been what it was like on the opening night of *Le sacre*. I knew then that we were breaking new ground."⁸⁶ Reid agrees: "The idea was to disorient the audience, to smash old standards. If everyone liked it, there was something wrong. It would have meant we weren't on the cutting edge."⁸⁷ A few, however, found the protests discouraging. "There was tension surrounding the fact that audience members got up and left," says Dilley. "And we felt it had nothing to do with the dance. Why are we doing this particular artistic vision, I asked myself, if the music will make the audiences walk out?"⁸⁸

Although many reviewers reacted to *Variations V* with hostility, none responded with apathy. "There may have been some few who did

not like it," wrote Patricia Werle in the *Lexington Leader*, "but they will never forget it."

Psychedelic experience? A Happening? A trip without an LSD soaked sugar cube . . . ? The techniques used in this presentation served to induce a drugless experience which . . . made the secret psychic drama the collective experience of the audience. . . . They may have been stunned and shocked, but it was . . . impossible for anyone to have been bored.⁸⁹

Cage reveled in the melee. "He was having a grand time," recalls Lieberman. "The opportunity to do a work on this scale at Lincoln Center was, for John, a real hoot, and except for the inevitable technical snafus, he was having a ball."⁹⁰

What the reviewers saw, however, was an imperfect realization of a grandiose concept. Often hampered by inadequate budgets or insufficient time, Cage and Cunningham's musical-choreographic-technological collaborations did not always fulfill the potential of their vision. Says Emmons, who worked with the Cunningham company as lighting designer for three and a half years, "A project like [*Variations V*] should have been put together in the studio several weeks in advance and pressure put on all collaborators to make it work long before we went into an expensive venue. The entire time I spent with that company I was amazed at on the one hand the glorious intentions of their compositions and often stumbling and clumsy execution caused by inadequate . . . finance [or] . . . poor planning."⁹¹

Nevertheless, *Variations V* and its progeny must be judged in the context of Cage's desire to create aesthetic products that reflected multiple intentionalities—or perhaps unintentionalities. In this regard the work was both successful and groundbreaking. By superimposing the inputs of an increasingly large number of imaginative personalities, Cage and his colleagues created a work with so many collaborators and such intricate linkages that each participant could influence the sound, but none could control it. The greater the number of participants, the more unpredictable the result. Thus Cage increasingly buried his own intentions under the weight of those of his artistic partners. In this sense *Variations V* follows in a direct line from *Atlas Eclipticalis*. As Bernstein had noted in his remarks to the New York Philharmonic audience a year earlier, "No member of the orchestra . . . knows when he will predominate over the others, over his colleagues, or for that matter, whether he'll be heard at all."⁹²

Although *Variations V* heralded a series of gargantuan collaborative enterprises among numerous artists and technicians, it also came at the end of a period in which Cage had continually expanded the bounds of

performance indeterminacy. In the years following its production, he gradually began to restrict the latitude of performance choices. Even in *HPSCHD*, the scores for six of the seven harpsichordists are fixed, though Cage composed each part using chance operations. In some later works (such as *Music for . . .*, 1984), performers may control the temporal arrangement of materials, but the sounds they are to produce are precisely notated. In this sense, then, *Variations V* is a pivotal work. A foray into the possibilities of technical-musical interaction, an experiment in multiple overlapping personalities, a relinquishing of authorial intention, and, not least of all, a multimedia theatrical experience, the work represents at once a new experiment in cross-disciplinary collaboration and one of Cage's most radical extensions of the philosophy of indeterminacy.

Notes

1. Lukas Foss, "Profile of a Festival," program booklet for French-American Festival concert of 23 July 1965, 7.
2. Robert Moog, telephone interview by author, 8 Aug. 2000.
3. Listed as Barbara Lloyd on the program, she has now returned to using her maiden name, Dilley.
4. Gordon Mumma, "Technology in the Modern Arts: Music and Theatre," *Chelsea* 20, no. 21 (May 1967): 101.
5. For more on the organization of this event see Leta Miller, "Cage's Collaborations," in *The Cambridge Companion to John Cage*, ed. David Nicholls (forthcoming, 2002); William Fetterman, *John Cage's Theatre Pieces: Notations and Performances* (Amsterdam: 1996); and Michael Kirby and Richard Schechner, "An Interview with John Cage," in *Happenings and Other Acts*, ed. Mariellen R. Sandford (London and New York: Routledge, 1995).
6. For a discussion of these works, see Miller, "Cage's Collaborations."
7. Hubert Saal, "Merce," *Newsweek*, 27 May 1968, 88.
8. Gordon Mumma, interview by author, 6 July 2000.
9. Harold C. Schonberg, "Philharmonic's Avant-Garde Series Needs No Special Sugar Coating," *New York Times*, 2 Feb. 1964.
10. The remarks, as well as the 9 Feb. performance of Cage's *Atlas Eclipticalis* can be heard on the New York Philharmonic's compact disc *Bernstein Live* (Special Editions NYP 2012/13, disc 9).
11. Prefatory notes to the score of *Available Forms 1* (Associated Music Publishers).
12. Commissioned by the Montreal Festivals Society in 1961.
13. Eric McLean, "Opening Program of Modern Music," *Montreal Star*, 4 Aug. 1961.
14. The Los Angeles performance was part of the Monday Evening Concerts series on 5 Mar. 1962; the Harvard performance took place on 14 Feb. 1962.

15. Fredric Lieberman, interview by author, 12 July 2000.
16. Albert Goldberg, "Music Hits New Low at Monday Concert," *Los Angeles Times*, 7 Mar. 1962.
17. Mathews recalls that he first met Cage when the composer contacted him to see if Bell Labs could construct a random number generator program that would mimic the stick-tossing procedures of the *I Ching*, an ancient Chinese treatise on divination. Mathews remembers accommodating Cage ("not a very hard job; about 15 minutes of writing a program"). However, at present he is not certain whether the *I Ching* work came before or after the construction of the mixer.
18. Max Mathews, interview by author, 24 July 2000.
19. Mathews, interview by author.
20. James Tenney, telephone interview by author, 20 July 2000.
21. A photograph of the wand is reproduced in the booklet accompanying the CD set *Bernstein Live*, liner notes (Special Editions NYP 2012/13), 186.
22. Mathews, interview by author.
23. Transcribed from the audio recording *Bernstein Live*.
24. Harold Schonberg, "Bernstein et al Conduct 5th Avant-Garde Bill," *New York Times*, 7 Feb. 1964.
25. Alan Rich, "The Most Adventurous of Adventurous," *New York Herald Tribune*, 7 Feb. 1964.
26. Mathews, interview by author.
27. *Bernstein Live* (Special Editions NYP 2012/13, disc 9).
28. Rich, "The Most Adventurous of Adventurous."
29. Schonberg, "Bernstein et al Conduct 5th Avant-Garde Bill."
30. Mathews, interview by author.
31. For a lively discussion of the machine's construction and self-destruction, see Calvin Tomkins, *The Bride and the Bachelors* (New York: Viking Press, 1965).
32. Cage attended Rauschenberg's first solo exhibit at the Betty Parsons Gallery in New York in May 1951. Rauschenberg gave him a painting (which he later painted over while living in Cage's apartment when Cage was in Europe). In the summer of 1952, Cage, Cunningham, and Rauschenberg worked together at Black Mountain College on Cage's "happening." Beginning in 1954, Rauschenberg began a ten-year collaboration with the Cunningham Dance Company, culminating in the group's renowned world tour in 1964. An unpleasant falling-out at the end of this trip was resolved many years later. For further information on Rauschenberg's interactions with Cage and Cunningham, see Mary Lynn Kotz, *Rauschenberg: Art and Life* (New York: Harry N. Abrams, 1990).
33. Columbia Masterworks MS 7194; electronic realizations and performances by Walter Carlos with the assistance of Benjamin Folkman.
34. Moog, interview by author. Moog is currently president of Big Briar, which he founded after moving to North Carolina in 1978. The company builds theremins, MIDI interfaces, and electronic musical instrument kits.

35. Lieberman, interview by author.
36. Malcolm Goldstein, "Some Glimpses of Jim Tenney, Dec. 25, 1982," *Soundings* 13: *The Music of James Tenney* (Santa Fe: Soundings Press, 1984).
37. Goldstein, "Some Glimpses."
38. Lieberman had interviewed Cage several years earlier at Wesleyan while Cage was working on *Silence*, his first book of essays.
39. Tenney, interview by author.
40. Malcolm Goldstein, telephone interview by author, 31 July 2000.
41. Lieberman, interview by author.
42. John Cage, *Variations V* (New York: Henmar Press, 1965).
43. Moog, interview by author.
44. Beverly Emmons, telephone interview by author, 22 Aug. 2000; David Vaughan, *Merce Cunningham: Fifty Years* ([New York]: Aperture, 1997), 150. The photocells are visible at the foot of the antennas in the film of the work made the following year in Germany.
45. Emmons, interview by author and letter of 29 Jan. 2001.
46. Barbara Dilley (Lloyd), telephone interview by author, 8 Jan. 2001.
47. Gus Solomons, jr. [sic], telephone interview by author, 4 Jan. 2001.
48. Dilley, interview by author.
49. Solomons, interview by author.
50. Dilley, interview by author.
51. Goldstein and Carolyn Brown recall the antennas not functioning for the performance, but they may not have been kept apprised of the state of the electronic components after the problems at the rehearsal. Gordon Mumma, who used the antennas at many subsequent performances, has no recollection of any problems, which tends to support Moog's recollection that he managed to solve the defective clip issue.
52. Walter Terry, "Parting Shot Applause," *New York Herald Tribune*, 24 July 1965.
53. Solomons, interview by author.
54. William Bender, "French-U.S. Fete and a Happening," *New York Herald Tribune*, 24 July 1965; Terry, "Parting Shot Applause."
55. Allen Hughes, "Dance: Created on Stage; Cunningham Rides Bike for 'Variations V'," *New York Times*, 24 July 1965.
56. Allen Hughes, "Leaps and Cadenzas," *New York Times*, 1 Aug. 1965.
57. Hughes, "Dance: Created on Stage."
58. Cunningham archive, New York. I am most grateful to David Vaughan for making available to me his list of performances and the programs for these recitals.
59. The performance locations and dates are Sundance, Upper Black Eddy, Pa., 31 July 1965; C. W. Post College, Brookville, N.Y., 20 Aug. 1965; Harper Theater, Chicago, 23, 27, and 28 Nov. 1965; Seattle Center Playhouse, 7 Feb. 1966; Simon Fraser University,

- 8 Feb. 1966; University of Oregon, Eugene, 12 Feb. 1966; Western Washington State College, Bellingham, 14 Feb. 1966; and Wadsworth Atheneum, Hartford, 5 Mar. 1966.
60. Barbara Levy, "Avant-Garde Cunningham Dance Team Leaves Audience Behind," *Chicago Sun-Times*, 24 Nov. 1965.
61. John Hinterberger, "Merce Cunningham Dancers Jump at Noises in Dark," *Seattle Times*, 8 Feb. 1966.
62. Hinterberger, "Merce Cunningham Dancers Jump."
63. Dilley, interview by author.
64. Dilley, interview by author.
65. Hinterberger, "Merce Cunningham Dancers Jump."
66. Dilley, interview by author.
67. David Wagoner, "Avant-Garde Group Milks Pop-Art Cow," *Seattle Post-Intelligencer*, 8 Feb. 1966.
68. T. H. P., "Modern Dancers at Museum," *Hartford Courant*, 6 Mar. 1966.
69. Emmons, interview by author.
70. Cunningham's enthusiasm was related to Gordon Mumma by David Tudor (Mumma, interview by author).
71. The event took place on 19 Sept. 1965.
72. Mumma, interview by author.
73. The St. Paul de Vence performance was on 5 Aug. A video of the Hamburg film is available through the Cunningham Dance Company. The German crew superimposed double-exposed images over the dance and used film material from the company's French tour in addition to VanDerBeek's images from the Lincoln Center performances.
74. Stadsteater, Stockholm, 2 Nov.; Théâtre du Champs-Élysées, Paris, 11–12 Nov.; Tivoli, Lisbon, 18 Nov.; Império, Lisbon, 19 Nov.; Saville Theatre, London, 23–26 Nov., 1–3 Dec.
75. Solomons, interview by author.
76. John Cage, "Twelve Remarks Re Musical Performance" (unpublished documentary material on the performance assembled by E.A.T., 1966). Thanks to Billy Klüver for making this document available to me.
77. J. D., "Dance: Weird Rites, Films, Floating Golden Pillows," *Buffalo Evening News*, 11 Mar. 1968.
78. For a photo, see Deborah Jowitt, *Time and the Dancing Image* (New York: William Morrow, 1988), 295.
79. Udo Kasemets, E-mail message to author, 31 July 2000.
80. Kasemets, E-mail message to author.
81. Cross describes his process of designing the chess board in "Reunion: John Cage, Marcel Duchamp, Electronic Music, and Chess," *Leonardo Music Journal* 9 (1999): 35–42. See also Miller, "Cage's Collaborations," 162–63.

82. HPSCHD was a compositional collaboration with Lejaren Hiller. A recording was issued by Nonesuch Records 2549 006. For a discussion of this work, see Stephen Husarik, "John Cage and LeJaren Hiller: HPSCHD, 1969," *American Music* 1, no. 2 (1983): 1–21, and Miller, "Cage's Collaborations," 163–65.
83. Solomons, interview by author.
84. Albert Reid, telephone interview by author, 12 Jan. 2001.
85. Mumma, "Technology in the Modern Arts," 102.
86. Solomons, interview by author.
87. Reid, interview by author.
88. Dilley, interview by author.
89. Patricia Werle, "Cunningham-Cage Concert Certainly Was Not Boring," *Lexington Leader*, 20 Apr. 1967.
90. Lieberman, E-mail message to author, 30 Jan. 2001.
91. Emmons, letter to author, 29 Jan. 2001.
92. *Bernstein Live*.